Digi-Key®

1-800-344-4539
EASY TO REMEMBER: 1-800-DIGI-KEY
FAX: 218-681-3380
http://www.digikey.com

Catalog No. 966, November-December 1996

Availability of Product...

Digi-Key®

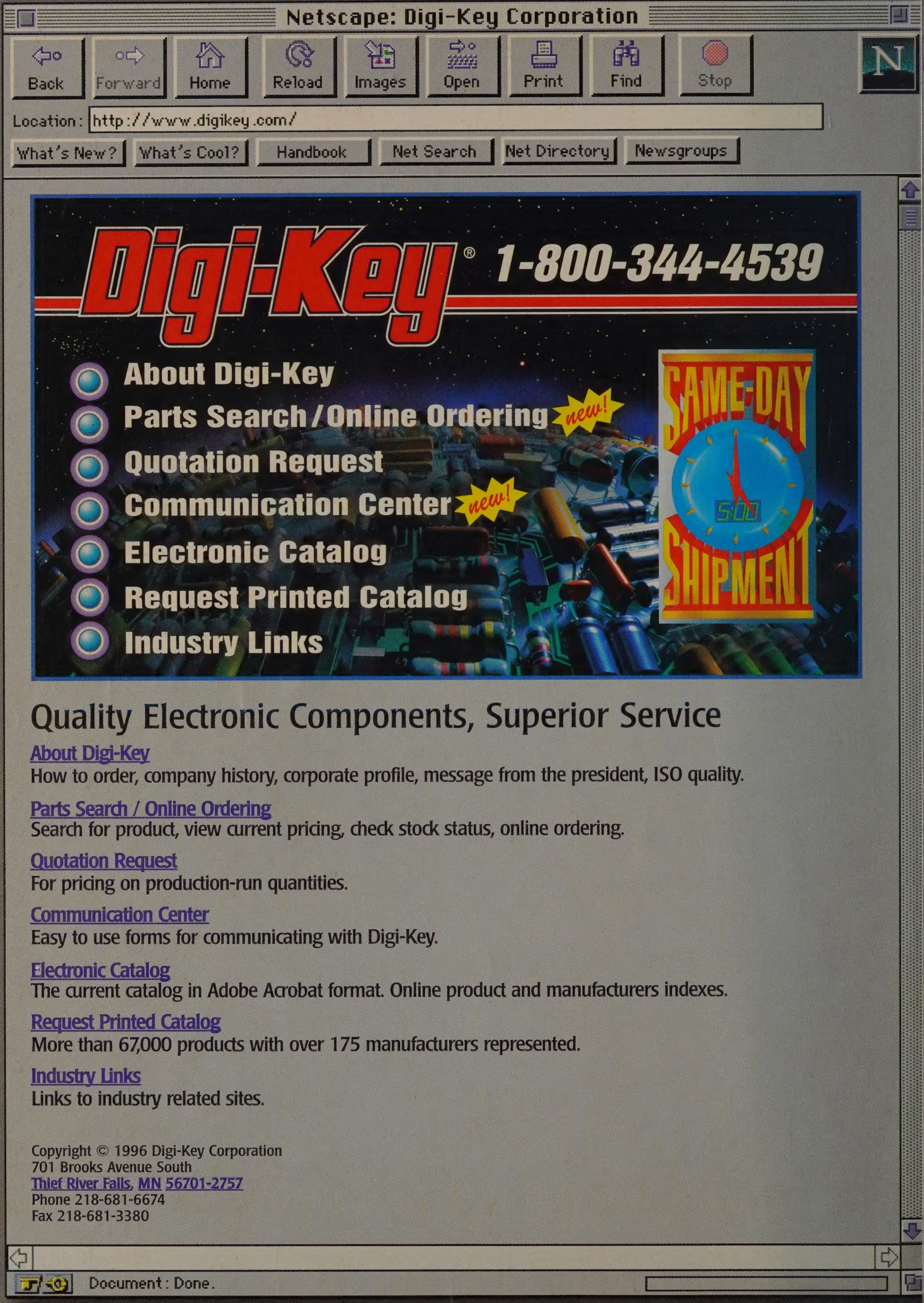
One Distributor Stands Out!

SAME-DAY SHIPMENT
On orders entered by 5:00 pm central time

996 Digi-Key Corporation

Visit us on the Internet • http://www.digikey.com

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O


Netscape: Digi-Key Corporation
Back
Forward
Home
Reload
Images
Open
Print
Find
Stop
N
What's New?
What's Cool?
Handbook
Net Search
Net Directory
Newsgroups
Digi-Key®
1-800-344-4539
About Digi-Key
Parts Search / Online Ordering
new!
Quotation Request
Communication Center
new!
Electronic Catalog
Request Printed Catalog
Industry Links
SAME-DAY
5:00
SHIPMENT
Document: Done.

Location: http://www.digikey.com/

Quality Electronic Components, Superior Service

About Digi-Key
How to order, company history, corporate profile, message from the president, ISO quality.

Parts Search / Online Ordering
Search for product, view current pricing, check stock status, online ordering.

Quotation Request
For pricing on production-run quantities.

Communication Center
Easy to use forms for communicating with Digi-Key.

Electronic Catalog
The current catalog in Adobe Acrobat format. Online product and manufacturers indexes.

Request Printed Catalog
More than 67,000 products with over 175 manufacturers represented.

Industry Links
Links to industry related sites.

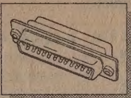
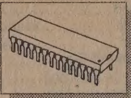
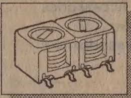
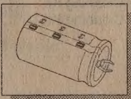
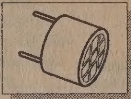
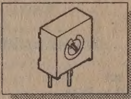
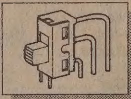
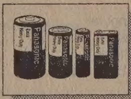
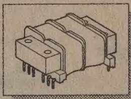
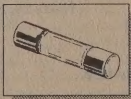
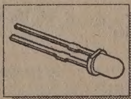
Copyright © 1996 Digi-Key Corporation
701 Brooks Avenue South
Thief River Falls, MN 56701-2757
Phone 218-681-6674
Fax 218-681-3380

NEW IN THIS ISSUE!

AVEN	Ceramic Tuning Tools, Tweezers, Knives and Blades . . . . . See Page 377
CTS®	Clock Oscillators with Tri-State Output . . . . See Page 190
DYMO®	Labelmakers and Label Tape. . . . . See Page 378
HAMMOND MANUFACTURING™	Aluminum Enclosures . . . . See Pages 374-375
iMP	IMP50E30 Epac™ Programmable Monitoring Circuits . . . . See Page 111
IXYS	Diodes, IGBTs, SCRs and Mosfets. . . . . See Page 182
MAXIM	Specialized Integrated Circuits. . . . . See Pages 139-143
Panasonic®	M Series Aluminum Electrolytic Capacitors . . . . See Pages 222-223
Panasonic®	NHG Series Aluminum Electrolytic Capacitors . . . . See Pages 226-227
PARALLAX	ClearView Mathias Emulator for PICs. . . . . See Page 108
PERICOM	Integrated Circuits. . . . . See Pages 119-120
Qualtek	AC Receptacles. . . . . See Page 355
TRIPP LITE "THE POWER PEOPLE"	Omni PRO, Smart Pro Net and Omni Smart UPS Systems . . . . . See Page 411
Wickmann	TE5, TR5 and 5 x 20mm Fuses and Fuseholders . . . . . . See Pages 418-419
ZETEX	Transistors, Voltage References, Diodes & Mosfets . . See Pages 162-169

QUICK INDEX

(Detailed Index - See Pages 2-6)

	Connectors, Cable Assemblies, IC Sockets 10-98	INCLUDES SMT	A
	Semiconductors, ICs, Transistors, Diodes, Rectifiers. . 99-184	INCLUDES SMT	B
	Crystals, Oscillators. 185-195	INCLUDES SMT	C
	Inductors, Coils, Filters 196-218	INCLUDES SMT	D
	Capacitors 219-274	INCLUDES SMT	E
	Audio, Buzzers, Microphones, Speakers. 275-277		F
	Resistors, Potentiometers, Thermistors, ZNRs . . . 278-315	INCLUDES SMT	G
	Switches, Relays, Electromechanical . . . 316-349	INCLUDES SMT	H
	Wire, Cable, Breadboarding 350-372		I
	Tools, Solder, Hardware 373-385	INCLUDES SMT	J
	Batteries 386-392	INCLUDES SMT	K
	Fans 393-397		L
	Transformers, Power Supplies, Test Equipment. 398-413	INCLUDES SMT	M
	Fuses 414-420	INCLUDES SMT	N
	Optoelectronics, LEDs, LCDs, Lasers, Displays. 421-448	INCLUDES SMT	O

New Product Denoted In Color

PRODUCT INDEX

- **AC Line Cords** ... 355
- **Adapters**
  - AC ... 401, 409
  - Audio ... 75-76
  - Fiber Optic ... 78
  - Modular ... 61
  - Modular Couplers ... 61
  - QFP to PGA ... 96
  - RF Coaxial ... 71
  - SOIC to Dip ... 96
  - Upgrade Module ... 96
- **Alligator Clips** ... 381
- **Alternistors** ... 180
- **Aluminum Enclosures** ... 374-375
- **Applicators** ... 383
- **Audio Connectors** ... 74-76, 401
- **Audio Transducers** ... 276
- **Backplanes** ... 366, 369
- **Backshells (D-Sub)** ... 19, 27, 52-53, 60
- **Banana Plugs/Jacks** ... 77
- **Barrier Blocks** ... 360
- **Batteries**
  - Alkaline ... 386
  - Camera ... 387
  - Carbon Zinc ... 386
  - Lead Acid ... 386
  - Lithium ... 387
  - Nickel-Cadmium ... 388
- **Battery Back-Up Systems** ... 411
- **Battery Charger** ... 386, 388
- **Battery Holders** ... 390-391
- **Battery Packs** ... 389
- **Battery Tester** ... 386
- **Bead Cores** ... 60, 203, 214
- **Bezels** ... 430
- **Books** ... 147
- **Boxes** ... 373-376
- **Breadboards Solderless** ... 369-370
- **Bulbs (Replacement)** ... 373
- **Bumpons** ... 380
- **Bushings** ... 358-359, 381
- **Buzzers** ... 275-276
- **Cable Assemblies**
  - Computer, Molded ... 25
  - Flat Flex Cable ... 28
  - IDC ... 10-25
    - Card Edge ... 12-13, 16-18, 21-24
    - Centronic ... 24
    - Dip ... 10-11, 15
    - D-Sub ... 10, 14, 19-20
    - PCB ... 16-18
    - Pin/Plug ... 12-13, 21-23
    - Socket ... 12-13, 16-18, 20-24
  - Modular ... 58
  - Modular Shielded ... 59
  - NANO IDC ... 18
- **Cable Strippers** ... 351
- **Cable Ties** ... 350
  - Holders ... 358
  - Twist Lock ... 359
  - Wire Clip ... 359
- **Cable/Wire**
  - 1mm Flex ... 35
  - 2mm Ribbon ... 31
  - Clamps ... 359, 381
  - Coaxial ... 352-353
  - Filters ... 60
  - Flat Cable Jumpers ... 28
  - Flat Flex Cable ... 28
  - Hook-Up ... 351-352
  - Instrumentation ... 353
  - Jumper Wire ... 369
  - Kits ... 219, 352
  - Microphone, Shielded ... 354
  - Modular ... 58
  - Multiconductor ... 351-352
  - Multi-Paired, Shielded ... 353-354
  - Plenum ... 353
  - Ribbon ... 18, 27-28, 31, 86
  - Ribbon (NANO) ... 18
  - Ribbon, Flat Din ... 86
  - Rounded Jacket/Shielded Flat ... 27
  - Speaker ... 354
  - Test Lead, Plastic ... 353
  - Test Lead, Rubber ... 353
  - Twisted Pair Ribbon ... 27
  - Wire-Wrap ... 376-377
- **Camera**
  - B/W CCD ... 392
- **Capacitor Networks** ... 286
- **Capacitors** ... 220-274
  - Aluminum Electrolytic ... 220-242, 244-247
  - Bi-Polar ... 244-245
  - Ceramic Axial ... 259
  - Ceramic Chip ... 267-270
  - Ceramic Disc ... 262-266, 271
  - Dry Film AC ... 259
  - Gold ... 243
  - Interference Suppressor ... 271
  - Kits ... 219-271
  - Metalized Polyester ... 242, 256-258
  - Monolithic Ceramic ... 260-261
  - Polyester ... 251
  - Polyester and Foil ... 254
  - Polypropylene ... 252
  - Safety Series ... 263, 271
  - SMT Ceramic ... 267-270
  - SMT Electrolytic ... 244, 246-247
  - SMT Metalized ... 255
  - SMT Tantalum ... 249-250
  - SMT Trimmer ... 273-274
  - Stacked Metalized Film ... 253
  - Tantalum ... 248-250
  - Trimmer ... 272-274
  - Variable ... 272-274
- **Card Extenders** ... 366, 368
- **Card Racks** ... 369
- **Case, Instrumentation** ... 366
- **Chip Tester/Identifier** ... 97
- **Chokes** ... 203-204
- **Circuit Board Accessories** ... 368
- **Circuit Breakers** ... 417
- **Cleaning Accessories**
  - Applicators ... 383
  - Cleaner ... 149, 379
  - Dispensers ... 383
  - Fax Machine Cleaning Kit ... 149
  - Laser Printer Cleaning Kit ... 149
  - Swabs ... 383
  - Wipes ... 149, 383
- **Clips**
  - Alligator ... 381
  - Battery ... 390-391
  - Fuse ... 417
- **Coils** ... 196-210
  - Kits ... 219
- **Computer Equipment**
  - Cable Assemblies ... 25
- **Connectors**
  - 1mm ... 34
  - 1mm Flex ... 35
  - 1.25mm ... 41
  - 2mm ... 31-33
  - 2mm FB, Z-Pack ... 47
  - Adapters, QFP to PGA ... 96
  - Audio ... 74-76, 401
  - Backshells, Filtered ... 60
  - Backshells, D-Sub ... 19, 27, 52-53, 60
  - Banana Plugs/Jacks ... 77
  - Barrier Blocks ... 360
  - Battery, "Toy Car" ... 42
  - Binding Post ... 77
  - Binding Post Strips ... 381
  - BNC ... 66, 68-69
  - C-Grid ... 42
  - Champ ... 48-49
  - Cigarette Lighter Plug ... 388, 391
  - Circular ... 62-65, 76, 80-81, 86
    - DIN ... 65, 86
    - Metal ... 64, 80-81
    - Plastic ... 62-63
    - Water Resistant ... 80
  - Crimp Terminal ... 36-39, 41-46
  - Delta ... 24
  - Din
    - Circular ... 65, 86
    - IDC Rectangular ... 86
    - Rectangular ... 84-86
    - Terminal Block ... 363
  - Dip Sockets, Lock Eject ... 94
  - D-Sub ... 50-54
    - Dual Port ... 51, 54
    - Filtered ... 50
    - High Density ... 51-52, 54
    - High Density Right Angle ... 52, 54
    - Right Angle ... 50-52, 54
    - Right Angle Stacked ... 51, 54
    - Surface Mount ... 52
  - Edgeboard ... 82-83, 368
  - Fiber Optic ... 78-79
  - Flexi-Block ... 360
  - Gender Changers ... 28
  - Headers ... 12, 18, 20, 27-49, ... 84-86, 90, 95, 364
  - Hydro-Wave Fan ... 397
  - IDC ... 10-20, 24, 29, 31, 48, 51
    - Card Edge ... 11, 16, 20
    - Dip ... 10, 15
    - D-Sub ... 10, 14, 19, 51
    - Parallel Interface ... 24, 48-49, 54
    - PCB ... 11, 16
    - Pin/Plug ... 12, 20
    - Socket ... 11, 16, 18, 20, 29, 31
  - Intra-Connector ... 373
  - Jones ... 61
  - Jumpers ... 29-32
  - LAN ... 61
  - Mate-N-Lok ... 43-45
  - Memory Card ... 150-152
  - Microphone ... 81
  - Miniature Rectangular ... 46
  - Mini DIN ... 65
  - Mini UHF ... 71
  - Mini-Fit Jr. ... 41
  - Modular Jacks, Filtered ... 59
  - Modular Jacks, IBM ... 61
  - Modular Jacks, Plugs ... 55-57, 59, 61
  - MT ... 45
  - MTA ... 29
  - NANO IDC ... 18
  - Parallel Interface ... 48-49, 54
  - PC Board ... 40
  - PC Pins/Receptacles ... 93
  - PC Terminals ... 381
  - PCMCIA Memory Card ... 151-152
  - Phone Jacks/Plugs ... 74-77
  - Power ... 38-39, 74, 76, 401
  - RF ... 66-73
  - RF MCX Type ... 73
  - RF SMA/SMB ... 67, 72
  - Scotchlok ... 350
  - SCSI (1, 2, 3) ... 49, 51
  - SCSI Terminator ... 49
  - Shunts ... 29-32
  - SMT Coaxial ... 73
  - SMT Header/Receptacles ... 31, 33-34, 41, 47
  - Soft Shell ... 43, 45-46
  - Switch ... 325, 329
  - Terminal Block, DIN ... 363
  - Terminals and Lugs ... 361-363
  - Tip Jacks/Plugs ... 77
  - TNC ... 70
  - Twinaxial ... 70
  - Type N ... 67, 70
  - UHF ... 66, 71
  - Video ... 81
  - Water Resistant ... 80
  - Weather Tight ... 76
  - Wire Trap ... 360
- **Controllers, LCD Graphic** ... 429
- **COP8 Development System** ... 109
- **Counter Modules** ... 432
- **Counters** ... 349
- **Crimp Tools**
  - 1mm ... 34
  - 2mm ... 33
  - Circular Connector ... 64, 80, 86
  - D-Sub ... 51, 53-54
  - IDC ... 29, 48, 51, 382
  - Modular ... 55, 57
  - RF Connector ... 67, 71-73
  - Terminal ... 36-39, 41-46, 361
- **Crystals** ... 185, 188-189, 191-192 ,194-195
  - Cylinder Type ... 188
  - Kits ... 219
  - Microprocessor ... 189
  - Surface Mount ... 185, 191, 194-195
- **DC-DC Converters** ... 212
- **Delay Lines** ... 212
- **Desoldering Braid** ... 383
- **Development System** ... 100, 108, 111
- **Diacs** ... 180
- **Dials, Concentric Scale** ... 315
- **Diodes/Rectifiers** ... 160-161, 168-170, 174-175, 182
  - HexFreds ... 175, 182
  - Kits ... 219
  - Laser ... 434
  - Surface Mount ... 160-161, 168-174
  - Variable Capacitance ... 169
  - Zener ... 168, 170
- **Dispensers, Liquid** ... 383
- **Display**
  - Alphanumeric ... 440
  - Dot Matrix ... 439
  - Graphic Modules ... 427
  - LCD Modules ... 427-430
  - LED Numeric ... 440, In-Bk-Cvr
- **Drill Bits** ... 371
- **Electrical Tape** ... 379
- **Electronic Network Designer** ... 370
- **Enclosures**
  - Aluminum ... 374-375
  - Phenolic Fibre ... 373
  - Plastic ... 373-376
  - Plastic E.M.I. ... 376
- **EPAC** ... 111
- **EPROM Eraser** ... 144
- **EPROM Programmer** ... 153
- **Fan Accessories** ... 393
- **Fans**
  - AC ... 395
  - Brushless DC ... 394-395
  - CPU Cooler ... 159
  - Cross Flow ... 397
  - Hydro-wave Bearing (HWB) ... 397
  - Scirocco ... 397
  - ThermaPro-V ... 395
- **Fastening Systems** ... 380
- **Fiber Optic Cable** ... 79
- **Fiber Optic Connectors** ... 78-79
- **Fiber Optic Kits** ... 79
- **Fiber Optic Transceiver** ... 78
- **Filters**
  - Active ... 214
  - AM Ceramic ... 213
  - Blocks ... 60
  - Crystal, FM Monolithi ... 191
  - Dielectric ... 212
  - Digital Noise ... 215
  - EMI ... 215
  - FM Ceramic ... 213
  - Helical ... 211
  - LC Surface Mount ... 212
  - Line ... 218
  - RF Line ... 216-217
- **Flux Pens** ... 384
- **Fuse Holders** ... 414, 416-419
- **Fuses** ... 414-419
  - Covers ... 359
  - Kits ... 219
  - Resettable ... 282, 420
  - Surface Mount ... 414-418
- **Generators**
  - Function ... 413
  - Pulse ... 186
- **Graphic Modules** ... 427
- **Grommets**
  - D-Sub Backshell ... 53
  - Hole ... 358
- **Hall Effect Sensors** ... 157
- **Hardware**
  - Bumpers ... 381
  - Bushings, Shoulder ... 359, 381
  - Bushings, Strain Relief ... 358
  - Cable Clamps ... 359, 381
  - D-Sub Connector ... 27, 52, 54
  - Fastener, Hook and Loop ... 380
  - Flat Washers ... 381
  - Grommets ... 53, 358
  - Hinged Standoffs ... 381
  - Instrumentation Knobs ... 306, 315
  - Kits ... 219
  - Machine Screws ... 382
  - Spacers ... 380-381
  - Support Posts ... 358
  - Transistor Mounting ... 158
- **Headers**
  - 1mm ... 34
  - 1.25mm ... 41
  - 2mm ... 31-33
  - Dip ... 95
  - Filter Blocks ... 60
  - Pin ... 12, 18, 20, 27-47, 84-86, 90, 95, 364
  - Pocket ... 42
  - Protected ... 18, 27, 33
  - Socket ... 29, 31-33, 43, 47, 49, 90, 95
  - Strip Line SIP ... 95
- **Heat Guns** ... 357
- **Heat Shrink Kits** ... 219
- **Heat Shrink Solder Sleeves** ... 357
- **Heat Shrink Tubing** ... 356-357
- **Heat Sinks** ... 159
  - CPU Cooler ... 159
  - Grease ... 383
  - Pads ... 158
  - PGA ... 159
- **Hexfets** ... 183
- **I.C. Sockets**
  - Collet, Machine Pin ... 94
  - Horizontal ... 95
  - Integral Capacitor ... 87, 91
  - Low Profile ... 87-89, 91, 94
  - Machine Pin ... 89, 91, 94, 97
  - PGA ... 92, 95-96
  - PGA ZIF ... 95
  - PLCC ... 86, 95-96
  - PLCC SMT ... 86, 95-96
  - PQFP ... 98
  - Shrink Dip ... 91
  - Socket Carrier ... 91
  - Solder Tail ... 88-91, 94-98
  - Surface Mount ... 87-88, 91
  - Type "A" LCC ... 98
  - Vertical ... 95
  - Wire-Wrap ... 89, 92, 94, 97
  - ZIF ... 86, 94-98
  - ZIF Lock ... 86
  - ZIP DIP ... 98
- **I.C. Test Clips** ... 97
- **I/O Modules** ... 339
- **Inductors**
  - Fixed ... 196-204, 208-210
  - High Current ... 199, 201, 203-204
  - High Frequency ... 201
  - Kits ... 219
  - Rod Core ... 201

  - SMT 196-199, 202, 209-210
  - Switchmode 201
  - Toroidal 201, 203
  - Variable 205-207, 209-210
- **Insulating Board**
  - Prepunched 368, 381
- **Integrated Circuits**
  - 4000 118-119
  - 7400 112
  - 74ABT 115
  - 74AC00 115
  - 74ACQ00 116
  - 74ACT00 116
  - 74ACTQ00 116
  - 74ALS00 113
  - 74AS00 113-114
  - 74C00 114
  - 74F00 116-117
  - 74HC00 114-115
  - 74HCT00 ..... 115, 117-118
  - 74LCX 114
  - 74LS00 112
  - 74S00 113
  - 74VHC 115
  - 95HS 116
  - A/D and D/A 134-135
  - BBD 144
  - Bus Switches 120
  - Clock Drivers 120
  - CMOS LCD Driver 135
  - DRAMS 132
  - EEPROM 133
  - EEPROM, Serial 133-134
  - EPAC 111
  - EPLD 100
  - EPROM 132
  - EPROM OTP 132-133
  - FCT Logic 119
  - Filter Blocks 60
  - Hall Effect Sensors 157
  - Interface 135-136
  - LCD Controller 429
  - LED Flasher/Melody Generator 144
  - Linear 120-132
  - LPT Logic 119-120
  - Microprocessor 134
  - PIC Microcontrollers 102-107
  - Real Time Clocks 135
  - Remote Control/RF 143-144
  - Serial EEPROM Designer 108
  - Specialized 132, 136-143
  - SPROM 100
  - Switching Regulators 121, 123, 127-130, 132, 138, 142, 146
  - Telecommunications 126
  - UARTS 134
  - Voltage Detectors 132, 137-138, 143, 157
  - Voltage Regulator 120-125, 127-132, 137-138, 142, 145, 166-167
- **Jumper Wire Kits** 369
- **Jumpers** 29-32
- **Keypads** 326-327
- **Kits**
  - All 219
  - Capacitor 220-271
  - Champ Connector 48-49
  - Connector 38-39, 42, 48
  - Fax Machine Cleaning 149
  - Fiber Optic 79
  - Fuse 414
  - Hardware 382
  - Heat Shrink Tubing 356-357
  - Lamp 445
  - Laser Printer Cleaning 149
  - Magnetic Switches 338
  - Multilayer Chip Capacitor 267-270
  - Parallel Interface Connector 48-49
  - Potentiometers 296-304, 308-309, 313
  - Resistor 278-280
  - Serial EEPROM Designer 108
  - SMT Diodes 168, 170
  - SMT Discrete Surfboards 372
  - SMT IC's 372
  - Spacers 380
  - Surfboards 372
  - Switches 337
  - Terminals, Insulated 350, 363
  - Thermistor 282-283
  - Thru-Hole 372
  - Transformers 402
  - Zener Diodes 168, 170
- **Knobs** 306, 315
- **Labelmaker** 378
- **Lamp Holders** 426
- **Lamps**
  - Illumination 373
  - SMT 444
- **Laser Diode Module**
  - Adjustable Focus 434
  - Visible Red 434
- **Laser Diodes**
  - Infrared 434
  - Visible Red 434
- **LCDs**
  - Displays 427-430
  - Graphic Modules 427
  - Modules 427-430
  - Switches 433
- **LCD Controller** 429
- **LED Holders**
  - Panel Mount ..... 438, Bk-Cvr
- **LEDs** ..... 434-439, 441-448, In-Bk-Cvr, Bk-Cvr
  - Alphanumeric Displays 440
  - Assemblies 444-445
  - Bi-Color 437, 447
  - Blue ..... Bk-Cvr
  - Dot Matrix Display 439
  - Flashing 439, 445
  - Infrared 440
  - Infrared Module 440
  - Kits 219, 446
  - Lenses 445
  - Light Pipes 444
  - Mega-Brite 437
  - Numeric Displays ..... 440, In-Bk-Cvr
  - Panel Mount 438, 445
  - PC Mount 436-437, 442-444
  - Resistor Lamps 434, 440
  - Spacers 358
  - Surface Mount 435, 441, 444, 448
- **Line Conditioners** 410
- **Lubricant** 379-380
- **Magnetic Card Readers** 392
- **Magnets** 338
- **Memory Cards** 152
- **Memory IC**
  - CMOS LCD Drivers 135
  - DRAM 132
  - EEPROM 133
  - EEPROM Serial 133-134
  - EPLD 100
  - EPROM 132
  - EPROM OTP 132-133
  - Serial EEPROM Designer 108
  - SPROM 100
- **Meters**
  - Analog Multimeters 413
  - Capacitance 413
  - Digital Multimeters 413
  - Megohmeter 413
  - Multimeters 413
  - Panel 433
  - Parts Tester 413
  - Voltmeters Panel Mount 433
  - Volt/Ammeter Panel Mount 433
- **Mica Insulators** 158
- **Micro-Controller**
  - Basic Stamp 108
  - COP8 109-110
  - Micro 440 100
- **Microphone**
  - Electret Condenser 276
  - Holders 276
- **Modular Light Pipes** 444
- **Mosfets** 154-155, 157, 165-182
- **Motors**
  - Geared AC/DC 153
- **Optoelectronics**
  - Emitters 424-425
  - Infrared LED 424
  - Infrared Matched Pair 425
  - Interrupter Modules 421, 424
  - Logic Detector 425
  - Logic Output 423
  - Optoisolators 421-423
  - Photo Diodes 424
  - Photo Microsensors 421, 424-425
  - Photo Transistor Output 421-423
  - Pin Photo Diode 424
  - Relays 421
  - SCR/Triacs Output 423
  - Sensors, Optical 421, 424
  - Solid State Switches 421
- **Optoisolators**
  - Interrupter Module 425
  - Logic Output 423
  - Photo Transistor Output 421-423
  - Photovoltaic 183
  - SCR/Triac Output 423
- **Oscillators** 186-187, 189-194
  - Surface Mount 186, 191, 194
- **Panel Meters** 433
- **PC Board Prototyping**
  - Copper Clad Boards 371
  - Direct Transfers 371
  - Drill Bits 371
  - Electronic Network Designer 370
  - Etch Resist Pens 371
  - Etchant Tank 371
  - Etchant Tank Heater 371
  - Layout Software 371
  - PCI Developers Kit 367
  - Prototyping Boards 366
  - Surfboards 372
  - Toner Transfer Paper 371
  - UNI-SIP 372
- **PC Pins/Receptacles** 93
- **PC Terminals and Lugs** 381
- **PCI Bus** 367
- **Perfboard** 368, 381
- **Photo Diodes/Emitters** 424
- **Photo-Transistors** 421-423
- **PICMASTER System** 101
- **Plastic Enclosures** 373-376
- **Plugboards** 367
- **Position Sensors** 338
- **Potentiometers**
  - Audio 310
  - Carbon 300, 306-307, 309, 312, 315
  - Cermet 294-304, 306, 308-309, 313
  - Conductive Plastic 313-314
  - High Stability 313
  - Kits 219
  - Panel Control 304
  - Panel Mountable 304, 306-307, 310, 313-315
  - Slide 307, 311
  - SMT Trimmer 294, 302-304, 312
  - Trimmer 294-315
  - Wirewound 296-297, 302, 306, 313
  - Wirewound Precision 313
- **Power Cords** 355
- **Power Entry Module** 216-217, 355
- **Power Inverters** 410
- **Power Supplies** 404-409
  - Cable Kits 406-407
  - DC Power Supplies 412
  - External 401, 409
  - Linear 405, 409
  - Switching 404, 406-409
  - Universal Input 408
- **Pressure Sensors** 431-432
- **Pressure Transducers** 431-432
- **Programmable Logic** 100
- **Programmers** 99-100, 107-109, 153
- **Protectors**
  - Command Console 410
  - Modem/Fax 410
- **Prototyper (Microchip PIC)** 108
- **Quadracs** 179
- **Rectifiers**
  - Bridge 160-161, 172
  - Schottky 173
  - Stud Mount 184
- **Rectifiers/Diodes** 160-161, 168-170, 174-175, 182
- **Relays**
  - Mechanical 344, 348
  - Optoisolator Mosfet 421
  - Reed 338, 341
  - Solid State 339-340, 342-343
- **Resistor Arrays** 286-287
- **Resistor Networks** 284-289
  - Surface Mount 285-289
- **Resistors**
  - Carbon Film 278
  - Kits 219, 278-280
  - Metal Film 279
  - Metal Film Chip 279
  - Metal Oxide Film 280
  - Thick Film Chip 278
  - Wirewound 280-281
  - Zerohm Jumper Wires 278, 280
- **Resonators**
  - Ceramic 191, 213
  - Saw 213
- **Rework Equipment** 385
- **RF Line Filters** 216-217
- **Rheostat Wirewound** 281
- **Ribbon Cable, Filters** 60
- **SCR's** 178, 182
- **Sensors**
  - Ceramic, Ultrasonic 277
  - Hall Effect Sensors 157
  - Optical 421, 424
  - Position, Magnetic 338
  - Pressure 431-432
- **Serial EEPROM Designer** 108
- **Shorting Jumpers**
  - 2mm 31-32
  - .100 Centers 29-30
- **Shunts** 29-32
- **Sidactors** 181
- **Sockets**
  - Adapter, IC 94
  - DIMM 87
  - Pin 29, 31-33, 43, 47, 49, 90, 95
  - Pin Line 95
  - SIMM 87-88
  - Socket/Receptacles 87-98
  - Strip 90, 95
  - Strip Line Sip 95
  - Surface Mount J-Lead 96
  - Transistor 158
  - Zig-Zag 91
- **Socket Wrap I.D.** 87
- **Software**
  - Basikit Software 100
- **Solar Cells**
  - Indoor 392
  - Modules 392
  - Outdoor 392
- **Solder** 383-385
- **Solder Accessories**
  - Desolder Pump 384
  - Desoldering Braid 383
  - Flux Pens 384
  - Paste 384
  - Sponges 383
- **Solder Sleeves** 357
- **Soldering Equipment** 384-385
- **Speakers (Micro)** 277
- **Sponges** 383
- **Static Control Products** 148-149
- **Stepping Motor Driver Board** 153
- **Stepping Motors** 153
- **Surface Mount Accessories**
  - Placement Equipment 385
  - Soldering Equipment 384-385
- **Surface Mount Bead Cores** 214
- **Surface Mount Capacitors**
  - Ceramic 267-270
  - Electrolytic 244, 246-247
  - Metalized Film 255
  - Tantalum 249-250
  - Trimmer 273-274
- **Surface Mount Connectors**
  - 1mm 34
  - 1mm Flex 35
  - 2mm 31, 33
  - Coaxial Receptacle 73
  - D-Sub 52
  - Header 31, 33-34, 41, 47
  - I.C. Sockets 87-88, 91
  - PLCC Sockets 86, 95-96
  - Socket/Receptacle 31, 33-34, 47
- **Surface Mount**
  - Crystals 185, 191, 194-195
- **Surface Mount Delay Lines** 212
- **Surface Mount**
  - Diodes 160-161, 168-174
- **Surface Mount**
  - **Discrete Surfboards** 372
- **Surface Mount Filters**
  - **(Digital Noise)** 215
- **Surface Mount Filters (EMI)** 215
- **Surface Mount Filters (LC)** 212
- **Surface Mount Fuseholder** 414, 418
  - Omniblock 414
- **Surface Mount Fuses** 414, 418
  - ALF "1206" 414
  - Nano2 414
  - PICO 414
- **Surface Mount Headers**
  - 1mm 34
  - 1.25mm 41
  - 2mm 31, 33
- **Surface Mount Hexfets** 183
- **Surface Mount**
  - Inductors 196-199, 202, 209-210
- **Surface Mount Integrated Circuits**
  - 4000 118
  - 7400 112
  - 74ABT 115
  - 74AC00 115
  - 74ACQ00 116
  - 74ACT00 116
  - 74ACTQ00 116
  - 74ALS00 113
  - 74AS00 113-114
  - 74C00 114
  - 74F00 116-117
  - 74HC00 114-115
  - 74HCT00 115
  - 74LCX 114
  - 74LS00 112
  - 74LVQ00 114
  - 74LVX 114
  - 74VHC00 115
  - 74VHCT00 115
  - 95HS 116
  - Bus Switches 120
  - CGS Clock Drivers 135
  - Clock Drivers 120
  - FCT Logic 119
  - FPGA 100
  - Interface 135-136
  - Linear 120-132
  - LPT Logic 119-120
  - PIC Microcontroller 102-107

  Specialized 132, 136-143
  Switching Regulators 123, 127-130, 138, 142
  Telecommunications 126
  Voltage Detectors 137-138, 143
  Voltage Regulators 121, 123, 125, 127-132, 138, 142, 145, 166-167
Surface Mount IC Sockets
  Dual-In-Line 87-88, 91
  PLCC 86, 95-96
Surface Mount Kits 219
Surface Mount Laser Diode
  Power Supply 434
Surface Mount LEDS 435, 441, 444, 448
Surface Mount Optoisolators 423
Surface Mount Oscillators 186, 191, 194
Surface Mount Potentiometers
  Trimmer 294, 302-304, 312
Surface Mount
  Rectifiers 160-161, 168-174
Surface Mount Reed Relays 341
Surface Mount Resistors
  Metal Film 279
  Thick Film 278
Surface Mount Resistors Arrays
  Thick Film Chip 287
Surface Mount Resistor Networks 285-289
  DIP 288-289
  SIP 285, 288
Surface Mount Resonators
  Ceramic 213
Surface Mount Sensors, Pressure 431
Surface Mount Surge Absorber 293
Surface Mount Switches
  DIP 331, 334
  Key 335
  Momentary 317-318, 320, 324
Surface Mount Transformers
  Balun 214
  PCMCIA Telcom 152
Surface Mount Transistors 157, 163-164
Surface Mount Varistor (ZNR) 293
SMT Transient Voltage Suppressor 177
Surfboards 219, 372
Surge Absorbers
  ZNR 290-293
Surge Arrester
  Gas Tube 419
Surge Suppressors 410
Swabs 383
Switches 316-340
  Bilateral Trigger 180
  Detector 5mm 317
  Dip 331, 334
  Intra-Switch 373
  Key 329, 335
  Keypads 326-327
  Kits 219
  LCD 433
  Lever 325, 328-329, 340
  Magnetic 338
  Mini-Thumbwheel 321
  Momentary Pushbutton 316-318, 320, 323-324, 328, 335, 340
  Momentary Tact and Basic Switch 318, 324-325, 340
  Power 323
  Pushbutton 316-318, 320, 323-324, 328, 335, 340
  Pushbutton/Lighted 340
  Rocker 321, 324, 337
  Rotary 322, 326, 333-336
  Rotary Dip 333-334
  Rotary Encoder 335-336
  Rotary Selector 335
  Slide 321-322, 337
  Switchlocks 321
  Thumbwheel 325, 330
  Toggle 319
Switching Regulators 121, 123, 127-130, 132, 138, 142, 146
Tape
  Electrical 379
  Foam 379
  Foil Shielding 351
  Label Maker 378
  Low Static 379
  Water Soluble 379
Terminal, Kits 219, 350, 363
Terminal Blocks 360, 364-365
Test Equipment
  Accessory Tips Kits 413
  Battery Testers 386
  Capacitance Meter 413
  Chip Tester/Identifier 97
  DC Power Supplies 413
  Function Generator 413
  LED Tester Box 437, 444
  Logic Probe 413
  Logic Pulser 413
  Megohmmeter 413
  Modular Cable Tester 58
  Multimeters 413
  Oscilloscope Probes 411
  Oscilloscopes 413
  Parts Tester 413
  Patch Cords 370
  PC Cable Tester 28
  PC EPROM Programmer 153
  PIC Emulator 101, 108
  PIC Programmer 107-108
  PICSTART Programmer 108
  Probe-It Clips 411
  SMT. Test Clips 97
  Temperature Adapter 413
  Test Leads 411-412
  Test Probes 413
Thermistors
  Glass Encapsulated 282
  High Temperature 282
  Inrush Current Limiters 282
  Kits 219, 282-283
  Miniature Sensors 282
  NTC 283
  Precision 282
  PTC 283
  PTC Resettable Fuses 282
Timers (Solid State) 349
Tools
  BNC Crimp 67, 71
  Cable Tie Gun 350
  C-Grid Crimp 42
  C-Grid Insertion 42
  Coax Stripper 351
  Crimp 29-64, 67, 71-73, 80, 86, 361, 382
  Cutters and Pliers 377-378
  Desoldering Pump 384
  Extraction
    Crimp Terminal 36-39, 41-46
    D-Sub 51, 53-54
  Extractor
    IC Dip 94, 97
    PLCC 86, 95, 97
  Fiber Optic 78
  Fiber Optic Stripper 78
  Fume Extraction System 385
  Heat Gun 357
  Hemostats 369
  IDC Bench Assembly Press 382
  Insertion, IC Dip 97
  Knives and Blades 377
  Labelmaker 378
  Lead-Forming 377
  Lead Straightener, I.C. 94
  Miniature Rectangular Connector 46
  Mini-Fit JR Crimp 41
  Modular Cable Stripper 55, 57-58
  Modular Crimp 55, 57
  RF Crimp 67, 71-73
  Ribbon Cable Cutter 28
  Slit-N-Wrap 376
  SMA/SMB 67, 72
  Soldering Stations 384-385
  Thermal Wire Stripper 351
  Tuning, Ceramic 377
  Tweezers 377
  Vacuum Pencil 385
  Vacuum Vise 377
  Vises 377, 382
  Wire Cutter 351
  Wire Stripper 351
  Wire Wrapping 376-377
Transceiver
  Fiber Optic 78
Transducer, Pressure 431-432
Transformers
  Balun 214
  Desktop Switcher 401, 409
  Modem/Telcom 152
  PC 398-400, 402-403
  PCMCIA SMD Telcom 152
  Telephone Coupling 400, 402
  Toroidal 398
  Wall 401, 409
Transistors 156-157, 162-164, 175, 182
  IGBTs 175, 182
Triacs 179
Tubing
  Heat Shrink 356-357
  Kits 219, 356-357
TVS (Transient Voltage Suppressors) 176-177
Universal Rack Kit (KM6-11) 366
UPS Systems 411
UV Eraser 144
Vacuum 369
Varistor (ZNR) 290, 293
Voltage Detectors 132, 137-138, 143, 157
Voltage References 164-165
Voltage Regulators 120-125, 127-132, 137-138, 142, 145, 166-167
Voltmeters
  Miniature Panel Mount 433
Wall Transformers 401, 409
Wipes, Presaturated 383
Wire (See "Cable/Wire")
Wire Markers 379
Wire Ties 350
Wire Ties, Holders 358
ZIF Sockets 86, 94-98
ZNR's
  Type C 293
  Type CF/SF Chip 293
  Type D 290-292
  Type D (Series V) 290-291
  Type E 292

New Product Denoted In Color

MANUFACTURER'S INDEX

3M
  2mm Connectors 31-32
  Backshells 19, 27
  Breadboards 369-370
  Bumpons 380
  Cleaner 379
  Connector Hardware 27
  Delta, Ribbon Connectors 24
  Fastening Systems 380
  Headers 20, 27, 29, 32
  Heat Shrink Tubing 356-357
  I.C. Test Clips 97
  IDC Connectors 19-20, 24
  Intra-Connector 373
  Jumper Wire 369
  Kits, Insulated Terminals 362-363
  Lubricant 380
  Patch Cords 370
  Pin Sockets 29
  PQFP Sockets 98
  Probe-It Clips 411
  Ribbon Cable 27, 31
  Round Jacket/Sheilded Flat Ribbon 27
  Scotch Lock Connectors 350
  Shorting Jumpers 29, 32
  Solder Sleeves 357
  Static Control Products 148-149
  Surface Mount Test Clips 97
  Tape
    Electrical 379
    Foam 379
    Foil Shielding 351
    Low Static 379
    Water Soluble 379
  Terminal/Lugs Connectors 362-363
  Twisted Pair Ribbon Cable 27
  Type "A" LCC Sockets 98
  Vacuum 369
  Wire Markers 379
  ZIF Sockets 98
  ZIP DIP 98
Aavid
  Heat Sinks 159
ACL Inc.
  Fax Machine Cleaning 149
  Laser Printer Cleaning 149
  Static Control Products 149
  Staticide®, Anti-static Solution 149
Alpha Wire and Cable
  Coaxial 352
  Hook-Up 352
  Multiconductor 352
AMP
  2mm Ribbon Cable 31
  2mm Ribbon Connectors 31
  Adapter, Modular Coupler 61
  BNC Connectors 66
  Champ Connectors 48-49
  Champ Connector Kits 48
  Circular Connectors 62-64, 86
  Circular Din Connectors 86
  Coax Stripper 351
  Connector Hardware 52
  Connector Headers 18, 29, 43-44, 46-47, 49
  Crimp Terminal Connectors 43-46
  Crimp Tools 29, 43-46, 51, 57, 64, 67, 86, 361
  Dip Switches 332
  D-Sub Backshells 52
  D-Sub Connectors 50-52
  Fiber Optic Cable 79
  Fiber Optic Connectors 79
  Flat Flex Cable Wire 28
  Flexi-Block Connectors 360
  Fuse Holder 417
  Headers 18, 29, 43-44, 46-47, 49
  Hydro-wave Fan Connectors 397
  IDC Connectors 10-12, 29, 31, 48-49, 51
    Card Edge 11
    Dip 10
    D-Sub 10
    PCB 11
    Pin/Plug 12
    Socket 11
  LAN Connectors 61
  Mate-N-Lok Connectors 43-45
  Memory Card Connectors 150
  Miniature Rectangular 46
  Modular Crimp Tools 57
  Modular Jacks, IBMs 61
  Modular Jacks, Plugs 56-57, 61
  MT Connectors 45
  MTA Connectors 29
  Pin/Sockets Headers 43, 47
  PLCC Sockets/Extractors 86
  Rectangular DIN Connectors 85
  RF SMA/SMB 67
  SCSI Connectors 49
  SIMM Sockets 88
  Softshell 43, 45-46
  Solder Tail I.C. Sockets 88
  SMT Header Connectors 47
  SMT I.C. Sockets 88
  SMT Receptacles 47
  Terminal Blocks 360
  Terminals and Lugs 361
  Type N Connectors 67
  UHF Connectors 66
  Z-Pack 2mm FB 47
  ZIF Lock I.C. Socket 86
Amphenol
  BNC Connectors 68-69
  Crimp Tools 71
  Fiber Optic Adapters 78
  Fiber Optic Connectors 78
  Fiber Optic Tools 78
  Mini UHF Connectors 71
  RF Coaxial Adapters 71
  TNC Connectors 70
  Twinaxial Connectors 70
  Type N Connectors 70
  UHF Connectors 71
Aries Electronics, Inc.
  Adapters 96
  DIP Extractor 94
  DIP Headers 95
  DIP Switches 332
  Headers, Socket/Receptacles 95
  I.C. Adapter 94
  I.C. Extractor/Straightener 94
  I.C. Sockets Horizontal 95
  I.C. Sockets PGA ZIF 95
  I.C. Sockets PLCC 95
  I.C. Sockets Vertical 95
  Lock Eject Dip Connectors 94
  Machine Pin Collet I.C. Socket 94
  Pin Line Sockets 95
  Strip Line SIP Headers 95
  Strip Line SIP Sockets 95
  Surface Mount Adapters 96
  Surface Mount J-Lead Sockets 96
  Upgrade Module 96
  Wire-Wrap I.C. Sockets 94
  ZIF I.C. Sockets 94
Assmann
  Cable Assemblies, Molded 25
  I.C. Sockets 97
ATM America
  Hemostats Tools 369
Aven
  Knives and Blades 377
  Tools, Ceramic Tuning 377
  Tweezers 377
B & K Precision
  Accessory Tips Kit 413
  Analog Multimeters 413
  Capacitance Meter 413
  Digital Multimeters 412-413
  DC Power Supplies 412
  EPROM Programmers 99
  Function Generator 412
  Logic Probe/Pulser 413
  Megohmmeter 413
  Multimeters 412-413
  Oscilloscopes 412
  Parts Tester 413
  Temperature Adapter 413
  Test Leads 413
  Test Probes 412-413
  Universal Programmer 99
Bergquist
  Heat Sink Pads 158
Blue Earth Research
  Micro-Controller 99
Bourns
  Kits 296-304
  Panel Control Potentiometers 304
  Resistor Networks 289

  - Rotary Encoder ... 335
  - Rotary Selector ... 335
  - SMT Key Switch ... 335
  - Trimmer Potentiometers ... 296-304
- **Building Fasteners** ... 382
- **C&K Components**
  - DIP Switches ... 333
  - Switches ... 319-321, 333, 335
  - Switchlocks ... 321
- **CTS**
  - Carbon Potentiometers ... 306-307
  - Carbon Slide Potentiometers ... 307
  - Cermet Potentiometers ... 306
  - Crystals ... 189
  - Dip Switches ... 331
  - Fiber Optic Transceiver ... 78
  - Oscillators ... 189-190
  - Resistor Arrays Thick Film Chip ... 287
  - Resistor Networks ... 287-288
  - Rotary Switches ... 326, 336
  - Speakers ... 277
  - Trimmer Potentiometers ... 305-307
  - Wirewound Potentiometers ... 306
- **CUI Stack**
  - Alligator Clips ... 381
  - Buzzers ... 276
  - Circular DIN Connectors ... 65
  - Desktop Switcher ... 401
  - Mini DIN Connectors ... 65
  - Modular Adapters ... 61
  - Power Connectors ... 401
  - Wall Transformers ... 401
- **CW Industries**
  - Headers ... 18
  - IDC Connectors ... 14-16, 18, 86
    - Card Edge ... 16
    - DIP ... 15
    - D-Sub ... 14
    - Socket ... 16
  - Kits, Switches ... 337
  - NANO Cable and Connectors ... 18
  - Panel Mount Rocker Switches ... 337
  - Protected Headers ... 18
  - Rectangular DIN ... 86
  - Ribbon DIN Cable/Wire ... 86
  - Slide Switches ... 337
- **Capital Advanced Tech.**
  - Kits ... 372
  - Surfboards ... 372
  - UNI-SIP ... 372
- **Carol Cable**
  - Coaxial Cable ... 353
  - Hook-up Wire ... 351
  - Instrumentation Cable ... 353
  - Microphone, Shielded ... 354
  - Multiconductor Cable ... 351
  - Multi-Paired, Shielded ... 354
  - Plenum Cable ... 353
  - Speaker Cable ... 354
- **Century Electronics**
  - Battery Testers ... 386
- **Charleswater**
  - Static Control Products ... 149
- **Chemtronics**
  - Applicators ... 383
  - Desoldering Braid ... 383
  - Dispensers ... 383
  - Heat Sink Grease ... 383
  - Swabs ... 383
  - Wipes ... 383
- **Cherry**
  - Key Switches ... 329
  - Lever Switches ... 328-329
  - Thumbwheel Switches ... 330
- **Chicago Miniature**
  - Kits ... 445
  - Lamps ... 445
  - LED's ... 443-445
- **C. Itoh**
  - LCD Switches ... 433
- **Clarostat**
  - High Stability Cermet Potentiometers ... 313
  - Potentiometers ... 313-314
  - Rotary Encoder, Switch ... 336
- **Clauss Tool**
  - Fiber Optic Stripper ... 78
  - Wire Stripper ... 351
- **Coherent/ALS (Applied Laser Systems)**
  - Laser Diode Module ... 434
- **Comair Rotron**
  - Fan Accessories ... 393
  - Fans ... 394-395
- **Comlinear**
  - Linear IC ... 126
- **Condor**
  - Switches ... 335
- **Connor-Winfield**
  - Surface Mount Oscillators ... 191
  - Surface Mount Crystals ... 191
- **Cooper Industries**
  - Tools ... 378
- **Corcom**
  - Jacks ... 59
  - Power Entry Module ... 216-217
  - RF Line Filters ... 216-217
- **CP Clare**
  - Optoelectronics, Relays ... 421
- **Cramer**
  - Geared Motors AC/DC ... 153
- **Crydom Company**
  - Solid State Relays ... 342-343
- **Daburn**
  - Heat Shrink Tubing ... 357
  - Kits, Heat Shrink Tubing ... 357
  - Plastic/Rubber Test Lead Wire ... 353
  - Speaker Cable ... 354
- **Datak**
  - PC Board Prototyping ... 371
- **Delevan**
  - Fixed Inductors ... 198-200
  - SMT Inductors ... 198-199
- **Depew Engineering**
  - PC Board Prototyping ... 108
- **DeusEx Machina Engineering**
  - Programmer ... 99
- **Diamond/Xcelite**
  - Pliers/Cutters ... 378
- **Diodes Incorporated/LiteOn**
  - Data Books ... 147
  - Hall Effect Sensors ... 157
  - Kits, Zener Diodes ... 170
  - Mosfets ... 157
  - Rectifiers/Diodes ... 170-174
  - Transistors ... 157
  - TVS (Transient Voltage Suppressors) ... 176
  - Zener Diodes ... 170
  - Zener SMT Diodes ... 170
- **Dymo**
  - Labelmaker ... 378
  - Label Tape ... 378
- **DynaArt**
  - PC Board Prototyping ... 371
- **EAC**
  - Reed Relays ... 341
- **ECS International Inc.**
  - Ceramic Resonators ... 191
  - Crystals ... 191-192, 194-195
  - FM Filter ... 191
  - Oscillators ... 193-195
- **EDAC**
  - Edgeboard Connectors ... 82
- **EF Johnson (see Johnson Components)**
- **EWC**
  - PC Transformers ... 400
- **Easy Braid**
  - Desoldering Braid ... 383
  - Solder ... 383
  - Sponges ... 383
- **Elpac**
  - External Power Supplies ... 409
- **Epson America**
  - Crystals ... 185, 188
  - LCD Controllers ... 429
  - Memory Cards ... 152
  - Oscillators ... 186-187
  - Pulse Generators ... 186
  - Real Time Clocks ... 135
  - Stepping Motors ... 153
- **EREM**
  - Tools ... 377
- **E-Switch**
  - Momentary Tact Switches ... 324
  - Power Switch ... 323
  - Pushbutton Switches ... 323-324
  - Rocker Switches ... 324
  - Rotary Switches ... 322
  - Slide Switches ... 322
- **GC Electronics**
  - Etch Resist Pens ... 371
  - Etchant Tank ... 371
  - Etchant Tank Heater ... 371
- **General Instrument**
  - Diodes/Rectifiers ... 160-161
  - TVS (Transient Voltage Suppressors) ... 177
- **Grayhill**
  - DIP Switches ... 334
  - I/O Modules ... 339
  - Keypads ... 326
  - Rotary Switches ... 326, 334, 336
  - Solid State Relays ... 339
- **Hamlin**
  - Magnetic Switches ... 338
  - Magnets ... 338
  - Position Sensors ... 338
  - Reed Relays ... 338
- **Hammond Manufacturing**
  - Aluminum Enclosures ... 375-376
  - Boxes ... 375-376
  - Plastic Enclosures ... 375-376
- **Harris Semiconductor**
  - Integrated Circuits ... 117-119, 136-137
  - Transistors ... 157
- **Hearst**
  - Books ... 147
  - IC Master Book ... 147
- **Hirose**
  - 1mm Connectors ... 34
  - 1mm Flex ... 35
  - 2mm Connectors ... 33
  - Circular Connectors ... 80-81
  - Microphone Connectors ... 81
  - Modular Cable Assemblies ... 59
  - Modular Connectors, Jacks/Plugs ... 55
  - PCMCIA Memory Card Conn. ... 151-152
  - Rectangular DIN ... 84
  - SMT Coaxial Connectors ... 73
  - Video Connectors ... 81
  - Water Resistant Connector ... 80
- **Holtek**
  - Integrated circuits ... 143-144
  - Remote Control/RF ... 143-144
- **IC Master**
  - Data Books ... 147
- **I/O Interconnect**
  - Modular Cable ... 58
- **Image**
  - Audio Connectors ... 76
  - Phone Jacks/Plugs ... 76
  - Power Connectors ... 76
- **IMP**
  - Development System ... 111
  - EPAC ... 111
- **Industrial Devices Inc.**
  - Flashing LED ... 445
  - LED Assemblies ... 444-445
  - LED Lenses ... 445
  - Light Pipes ... 444
  - PC Board Mount LEDs ... 442-444
  - Surface Mount LEDs ... 444
- **Industrial Fiber Optics**
  - Fiber Optic Kits ... 79
- **Injectorall Electronics**
  - Copper Clad Boards ... 371
  - Drill Bits ... 371
- **International Rectifier**
  - Diodes, HexFreds ... 175
  - Hexfets ... 183
  - IGBTs Transistors ... 175
  - Optoelectronics, Relays ... 421
  - Photovoltaic Optoisolators ... 183
  - Schottky Rectifiers ... 173
  - Stud Mount Rectifiers ... 184
- **Isocom**
  - Interrupter Module Optoisolators ... 425
  - Logic Output Optoisolators ... 423
  - Photo Trans. Output Optoisolators ... 422
  - SCR/Triac Output Optoisolators ... 423
- **Itochu**
  - LCD Switches ... 433
- **IXYS**
  - Diodes, FRED ... 182
  - IGBT Transistors ... 182
  - Mosfets ... 182
  - SCRs ... 182
- **Jelight Company Inc.**
  - UV Erasers ... 144
- **Jewell**
  - Panel Meters ... 433
- **Johnson Components (formerly EF Johnson)**
  - Banana Plugs and Jacks ... 77
  - Binding Post ... 77
  - Crimp Tools ... 72-73
  - RF Connectors MCX ... 73
  - RF SMA/SMB Connectors ... 72-73
  - Spacers ... 380
  - Tip Jacks/Plugs ... 77
- **JRC (see NJR)**
- **Judco**
  - Switches ... 335
- **JW Miller**
  - Ferrite Bead Cores ... 203
  - Fixed Inductors ... 202-204
  - SMT Inductors ... 202
  - Toroid, High Current Inductors ... 203
- **Kester**
  - Flux Pens ... 384
  - Solder ... 384
  - Solder Paste ... 384
- **Keystone Electronics Corp.**
  - Battery Clips ... 390
  - Battery Holders ... 390
  - Binding Post Strips ... 381
  - Boxes ... 373
  - Bumpers ... 381
  - Cable Clamps ... 381
  - Connector Hardware ... 54
  - Flat Washers ... 381
  - Fuse Holders ... 418
  - Hinged Standoffs ... 381
  - Instrumentation Knobs ... 306
  - Mica Insulators ... 158
  - Mounting Hardware ... 158
  - PC Terminals ... 381
  - Phenolic Fibre Enclosures ... 373
  - Phono Jacks/Plugs Connectors ... 77
  - Prepunched Insulating Board ... 381
  - Shoulder Bushings ... 381
  - Spacers ... 381
  - Transistor Sockets ... 158
- **Keystone Thermometrics**
  - Inrush Current Limiters ... 282
  - NTC Thermistors ... 282-283
  - PTC Resettable Fuses ... 282
  - Thermistors ... 282-283
- **Kilo International**
  - Aluminum Knobs ... 315
  - Concentric Scale Dials ... 315
- **LMB Heeger**
  - Aluminum Enclosures ... 375
- **Linear Technology**
  - Integrated Circuits ... 126-131
- **LiteOn LEDs**
  - Alphanumeric Display ... 440
  - Dot Matrix Display ... 439
  - Flashing LED's ... 439
  - Infrared ... 440
  - Infrared Module ... 440
  - LEDs ... 439-441
  - Numeric Display ... 440
  - Resistor Lamps ... 440
- **Littelfuse, Inc.**
  - Fuse Clips ... 417
  - Fuse Holders ... 414, 416-417
  - Fuses ... 414-417
  - SMT Fuses and Holders ... 414
- **Lucas Nova Sensor**
  - Pressure Sensors ... 431
  - SMT Pressure Sensors ... 431
- **Lumex Opto/Components Inc.**
  - Bi-Color LEDs ... 437
  - LED Tester Box ... 437
  - LEDs ... 435-438
  - Mega-Brite LEDs ... 437
  - Panel Mount LED Holders ... 438
  - Panel Mount LEDs ... 438
  - PC Mount ... 436-437
- **Luxo**
  - Illumination Lamps ... 373
  - Replacement Bulbs ... 373
- **MDL Labs**
  - Basikit Software ... 99
- **MGR Industries**
  - Keypads ... 327
- **MagneTek**
  - Audio Transformers ... 402
  - High Frequency Inductors ... 201
  - Rod Core Inductors ... 201
  - Switchmode Inductors ... 201
  - Toroidal Inductors ... 201
  - Transformers ... 402-403
- **Martel**
  - Volt/Ammeter Panel Meters ... 433
- **Master Appliance Co.**
  - Heat Guns ... 357
- **Maxim**
  - Integrated Circuits ... 139-143
- **Measurement Specialties (MSI)**
  - Pressure Sensors ... 432
  - Pressure Transducers ... 432
- **Memcor-Truohm**
  - Rheostat Wirewound ... 281
  - Wirewound Resistors ... 281
- **Memory Protection Devices**
  - Battery Clips ... 391
  - Battery Holders ... 390-391
  - Cigarette Lighter Plug ... 388, 391
- **Mepcopal**
  - Trimmer Potentiometers ... 294-295
- **Microchip Technology Inc.**
  - Integrated Circuits ... 102-108, 132-133
  - Memory IC ... 102-107, 132-133
  - PICMASTER System ... 101
  - PIC Microcontroller ... 102-108
  - PICSTART Programmer ... 107-108
  - Serial EEPROM Designer ... 108
- **Microtran Company, Inc.**
  - Modem/Telcom Transformers ... 152
  - PC Transformers ... 398-399
  - PCMCIA SMD Telcom ... 152
  - Telephone Coupling Transformers ... 400
- **Mill-Max**
  - Integral Capacitor I.C. Sockets ... 91
  - Low-Profile I.C. Sockets ... 89, 91
  - Machine Pin I.C. Socket ... 89, 91
  - PC Pins/Receptacles ... 93
  - PGA Sockets ... 92
  - Pin Headers ... 90
  - Pin Sockets ... 90
  - Shrink Dip I.C. Sockets ... 91
  - Socket Carrier I.C. Sockets ... 91
  - Socket/Receptacles ... 91

Solder Tail I.C. Sockets 89, 91
Strip Sockets 90
Wire Wrap I.C. Sockets 89
Zig-Zag I.C. Sockets 91

Modern Technology
Stepping Motor Driver 153

Molex
1.25 mm Connectors 41
C-Grid Connectors 42
C-Grid Crimp Tool 42
Crimp Terminal Connectors 36-39, 41-42, 325, 329
DIMM Sockets 87
Extraction Tool 36-39, 41-42
Flat Cable Jumpers 28
Headers 36-39, 41-42
Mini-Fit Jr. Connectors 41
P.C. Board Connectors 40
Power Connectors 38-39
SIMM Sockets 87
Switch Connectors 325, 329
Tools 36-39, 41-42
Toy Car Battery Connector 42
Transistor Sockets 158
Wire Trap Connector 360

Multicore Solders Inc.
Solder 385

NEC
Integrated Circuits 134
Optoisolators 423

National Semiconductor
COP8 109-110
Integrated Circuits 112-118, 120-126, 132-136
Mosfets 154-155
Transistors 156

Needham's Electronics
PC EPROM Programmer 153

NJR Corporation
Integrated Circuits 132

NorComp
2mm Headers 32
D-Sub Backshells 53
D-Sub Connectors 53-54
Parallel Interface Connectors 54
Rectangular DIN, IDC 86

NVG Inc.
Adjustable Focus Laser Diode Module 434
Infrared Laser Diode 434
Power Supply 434
Visible Red Laser Diode Module 434

OK Industries
Desolder Pump 384
Fume Extraction System 385
I.C. Extraction/Insertion 97
Lead-Forming Tools 377
Socket-Wrap I.D. 87
Soldering Stations 384-385
SMT Cutters and Pliers 377
SMT Rework Equipment 385
SMT Soldering Equipment 384-385
Vacuum Pencil 385
Vacuum Vise 377
Wire Stripper 351
Wire-Wrap Cable/Wire 376-377
Wire Wrapping Tool 376-377

OKI Electric Co.
Ribbon Cable 28

Omron Electronics, Inc.
Books (Solid State Timers) 349
Counters 349
DIP Switches, Rotary 333
Mechanical Relays 344-347
Momentary Tact Switches 318
Optoisolator Mosfet Relays 421
Photo Microsensor Optoisolators 421
Solid State Relays 340
Solid State Timers 349
Switches 318, 325, 333, 340

On-Shore Technology
I.C. Sockets 87
Pin Headers 364
Terminal Blocks 364-365

Optrex America Inc.
Graphic Modules 427
LCD Modules 427-429

Paladin
Coaxial Strippers 351
Coaxial Cable Strippers 351
Crimp Tools 55, 71
Desoldering Pump 384
Modular Cable Stripper 55, 58
Modular Cable Tester 58
PC Cable Tester 28
Ribbon Cable Cutter 28
Wire Cutter 351

Panasonic
Audio Potentiometers 310
Audio Transducers 276
Batteries 386-389
Battery Charger 388
Battery Packs 389
Bead Cores 214
Buzzers 275-276
Camera, B/W CCD 392
Capacitors 220-265, 267-271
Capacitor Networks 286
Ceramic Resonators 213
Digital Noise Filters 215
EMI Filters 215
Fans 396-397
Hall Effect Sensors 157
Infrared Laser Diodes 434
Infrared LED Optoisolators 424
Integrated Circuits 131, 144, 152
LEDs 446-448, In-Bk-Cvr, Bk-Cvr
Line Filters 218
Magnetic Card Readers 392
Memory Cards 152
Microphones 276
Micro Speakers 277
Mom. Pushbutton Switches 316-317
Optoelectronics 424
Photo Diodes 424
Photo Transistors 424
Resistor Networks 284-286
Resistors 278-280
Resonators, Ceramic 213
Resonators, Saw 213
Rotary Encoder Switches 336
Slide Potentiometers 311
SMT Inductors 196-197
SMT LEDs 448
SMT Resistor Arrays 286
Solar Cells 392
Surge Absorbers 290-293
Switches 316-317
Switching Power Supplies 407
Thermistors 283
Thumbwheel Potentiometers 310
Transducer, Ultrasonic Ceramic 277
Trimmer Potentiometers 308-313
Ultrasonic Ceramic Sensors 277
Visible Red Laser Diodes 434
ZNR 290-293

Panavise
Circuit Board Holders 382
IDC Bench Assembly Press 382
Tools 382

Paracon
Backshells, D-Sub, Filtered 60
Filters, Blocks 60

Parallax Inc.
Micro-Controllers 108
PIC Programmer/Emulator 108

Parlex Corporation
1mm Flex Cable 35

Patco Electronics
Battery Charger 386

Patco Service, Inc.
Thermal Wire Stripper 351

PC Boards
Layout Software 371

Pericom
Bus Drivers 120
Clock Drivers 120
FCT Logic 119
LPT Logic 119-120

Philips Components
Capacitors 257, 259, 266

Photonic Detectors
Photo Diodes/Emitters 424

Platform Systems
Electronic Network Designer 370

Plessey
Metalized Polyester Capacitors 242

Potter & Brumfield
Circuit Breakers 417
Relays (see Siemens)

Power-One
Power Supplies 404-405

Power Switch Corp.
Linear Power Supplies 405

Power Trends
Integrated Switching Regulators 146

PRD Plastics
Bezels 430

Precision Electronic Components Ltd.
Carbon Potentiometers 315

Precision Motion
Chip Tester/Identifier 97

Quality Technologies
LEDs 434
Optoelectronics 422-425
Photo Transistors 422-423

Qualtek
AC Line Cords 355
Fans, Accessories 393
Power Cords 355

Quarton, Inc.
Laser Diode Module 434

Raychem
Resettable Fuses 420

Red Lion Controls
Counter Modules 432
Miniature Panel Mount Voltmeter 433

Richco Plastics Company
Bushings, Strain Relief 358
Cable Clamps 359
Cable Tie Gun 350
Cable Ties 350
Fuse Covers 359
Grommets 358
Insulators, Nylon Bushings 359
LED Spacers 358
Support Posts 358
Wire Ties 350

SMOS
Integrated Circuits 132

Siemens (Potter & Brumfield Div.)
Mechanical Relays 348

Sequoia Publishing
PC Reference Book 147

Serpac
Boxes 376
Plastic Enclosures 376

Shore Holders
Lamp Holders 426

Solarex
Solar Cell Modules 392

Specialty Electronics
2mm SMT Headers 31
2mm Shorting Jumpers 31

Sprague-Goodman
Trimmer Capacitors 272, 274

Stack Electronics Co. Ltd.
Oscilloscope Probes 411
Test Leads 411

Steinel America
Heat Guns 357

Sullins Electronics Corporation
Edgeboard Connectors 83
Pin Headers 30
Shorting Jumpers (.100 Centers) 30

SUPCO
Capacitor Tester 413
Megohmmeter 413

Swanstrom Tool
Cutters and Pliers 378

Switchcraft, Inc.
Audio Connectors 74-76
Phone Jacks/Plugs 74-75
Power Connectors 74
Weathertight Connectors 76

Talema
Toroidal Transformers 398

Teccor Electronics, Inc.
Alternistors 180
Bilateral Trigger Switches 180
Diacs 180
Quadracs 179
SCRs 178
Sidactors 181
Triacs 179

Telcom Semiconductor, Inc.
Integrated Circuits 137-139

Tetra Technology
Wire Ties/Wire Tie Gun 350

Textool/3M
ZIF I.C. Sockets 98

Thermometrics
NTC Thermistors 283

Toko America, Inc.
Balun Transformers 214
Ceramic Resonators 213
DC-DC Converters 212
Delay Lines 212
Filters 211-214
Inductors 205-210
Power Supply Cable Kits 406-407
SMT Inductors 207, 209-210
Switching Power Supplies 406-407
Voltage Regulators 145

Tripp Lite
Battery Backup Systems 411
Line Conditioners 410
Power Inverters 410
Protectors 410
Surge Suppressors 410
UPS Systems 411

Varitronix Limited
LCD Displays 430

Vector Electronic Company
Card Extenders 368
Card Racks 369
Circuit Board Accessories 368
Edgeboard Connectors 368
PCI Bus 367
PCI Developers Kit 367
Perfboard 368
Plugboards 367
Prepunched Insulating Board 368
Slit-N-Wrap Tool 376
VME DIN Connectors 363
Wirewrap Cable 376

Vemaline
CPU Cooler Fans 159
Heat Sinks 159

Vero Electronics
Backplanes 366
Card Extenders 366
Instrumentation Cases 366
PC Board Prototyping Boards 366
Universal Rack Kit 366

Volgen America, Inc.
Switching Power Supplies 408
Universal Input Power Supplies 408

Waldom/Cinch Connectors
Barrier Blocks 360
Jones Connectors 61

Waldom/Molex
1.25mm Connectors 41
Battery Connector, Toy Car 42
C-Grid Connectors 42
C-Grid Crimp Tool 42
Crimp Terminal Connectors 36-39, 41-42, 325, 329
DIMM Sockets 87
Extraction Tool 36-39, 41-42
Flat Cable Jumpers 28
Headers 36-39, 41-42
Mini-Fit Jr. Connectors 41
P.C. Board Connectors 40
Power Connectors 38-39
SIMM Sockets 87
Switch Connectors 325, 329
Tools 36-39, 41-42
Transistor Sockets 158
Wire Trap Connector 360

Walling Co.
EPROM Eraser 144
UV Eraser 144

Wickmann
Fuses 418-419
Fuse Holders 418-419
SMT Fuses and Holders 418
Surge Arrester, Gas Tube 419

Xilinx
Development System 100
EPLD 99
Programmable Gate Arrays 100
SPROM 100

Yageo
Resistors 278-280

Zetex
Kits 168
Mosfets 165
Surface Mount Diodes 168-169
Transistors 162-164
Voltage Regulators 166-167

Conversion Chart:

convert	to	equation
uf	pf	.1uf = 100,000pf
uf	nf	.1uf = 100nf
pf	nf	100,000pf = 100nf
nf	uf	100nf = .1uf
inch	mm	inch x 25.4
mm	inch	mm ÷ 25.4
inch	cm	inch x 2.54
cm	inch	cm x .3937
feet	meters	ft x .3048
meters	feet	meter x 3.28084
celsius	farh.	c x 1.8 + 32
farh.	celsius	f − 32 ÷ 1.8

VA = volt x amps
watt = volt x amps

MAIL/FAX ORDER FORM

#966

Digi-Key®

701 Brooks Ave. South
P.O. Box 677
Thief River Falls, MN 56701-0677

	No. of Pages:
To:	From:
Co.: *Digi-Key Corporation*	Co.:
Dept.: *Order Department*	Phone No:
Fax No: *218-681-3380*	Fax No:

(Please Check One)
Payment Method: ☐ Credit Card ☐ COD ☐ Check or MO ☐ Open Acct.

Card Number: ☐☐☐☐-☐☐☐☐-☐☐☐☐-☐☐☐☐
☐MC ☐VISA
☐AmEx ☐Discover

Expiration Date ☐☐☐☐ Mo. Yr.

____
Credit Card Holder's Name (Please Print Clearly)

☐ Personal Order ☐ Company Order (Please Check One)

Ship to:

Customer Number ______________________
Customer Name ______________________
Company Name ______________________ Phone ( ) ______________________
Shipping Address ______________________ Apartment/Suite ______________________
City ______________________ State ____________ Zip ____________

Bill to:

P.O. No. ______________________ Account No. ______________________
Company Name ______________________ Phone ( ) ______________________
Billing Address ______________________ Apartment/Suite ______________________
City ______________________ State ____________ Zip ____________

	Quantity	Digi-Key Part No.	Description (brief)	Price/Unit	Total Price
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Ship Via: ______________________
Are substitutions acceptable?
☐ Yes ☐ No
Are backorders acceptable?
☐ Yes ☐ No
Backordered for a period of ________ days.
Backorder shipping method: ______________________
Confirmation required?
☐ Yes ☐ No
Confirm VIA: ☐ Phone ☐ FAX

HANDLING CHARGES

$0.00 - $24.99	Add $5.00
$25.00 and Up	No Charge
Foreign Orders	Additional $5.00

We pay all shipping (our choice of method) and insurance to addresses in the U.S.A. and Canada when check or money order accompanies order.

1. Total of all items .... $________
2. Orders less than $25.00 add $5.00 handling charge ... $________
3. Sub Total .... $________
4. Minnesota residents add 6.5% tax of line 3....... $________
5. Foreign orders (including Canada and Mexico) add $5.00 .... $________
6. Total enclosed .... $________ (Total of all lines) (U.S. Dollars)

1-800-344-4539

Easy To Remember: 1-800-DIGI-KEY

HOW TO ORDER

☐ By Telephone: 1-800-344-4539

Our friendly sales representatives are ready to serve you from 7:30a.m. to 7:00p.m. central time Monday through Friday. For most efficient service, please have a list of quantities and part numbers and, if paying by credit card, your MasterCard, VISA, American Express or Discover card convenient before calling.

NOTE: Periodically customer telephone transactions may be recorded for the purpose of training and maintaining quality control.

☐ By FAX: (218) 681-3380

Our Fax lines are open 24 hours a day, 7 days a week, 365 days a year. Fax orders received after normal business hours are promptly processed the next business day. Please include your daytime telephone number in case we have questions about your order.

☐ By Mail: Simply Mail Your Order To:

Digi-Key Corporation
701 Brooks Avenue South
P.O. Box 677
Thief River Falls, MN 56701-0677

☐ Handling Charge:

A $5.00 handling charge applies to all orders less than $25.00.

☐ Payment:

Several convenient payment options are available: Check, money order, MasterCard, VISA, American Express, Discover, C.O.D. and we also extend credit to qualified institutions and companies.

A credit application can be obtained by calling 1-800-344-4539 and talking to any sales representative. When opening an account with us, please allow sufficient time to complete the approval process. To avoid delay in your initial order you may want to include a check or authorization for C.O.D.

We are sorry, but we are unable to process C.O.D. orders to Canadian addresses.

☐ Order Shipment:

Digi-Key ships all orders processed by 5:00p.m. the same day with no additional charge. We have also extended our hours to 7:00p.m. central standard time for your convenience.

SAME-DAY SHIPMENT

on orders by 5:00pm central time

☐ FOB Point:

FOB point is Thief River Falls, MN.

When check or money order accompanies your order, Digi-Key pays all shipping and insurance (our choice for method of shipping) to all addresses in the U.S.A. and Canada, unless such charges exceed 10% on orders of $200 or less, or 5% on orders greater than $200. Digi-Key will notify you prior to shipment if these conditions exist.

☐ Customer Service: 1-800-344-4539

A friendly, competent staff of Customer Service Representatives is available from 7:30a.m. to 5:30p.m. Central Time to assist you. Please have your sales order or invoice number available when you call.

☐ Sales Tax:

Only Minnesota residents need to remit 6.5% sales tax. Digi-Key is not able to remit sales tax to states other than Minnesota.

☐ Out of Stock:

• Orders paid by check, money order or credit card:

Items not available for immediate shipment will be shipped as they become available. Items not available at the end of 30 days will be cancelled and refunded or credited. The number of backorder days may be extended beyond 30 days with your approval. If a refund check is issued, the cancelled item can be re-entered without a handling charge if the check and cancellation notice are returned to us.

• Orders On Account:

Items not available for immediate shipment will be shipped as they become available. Items not available at the end of 90 days will be cancelled. The number of backorder days may be extended beyond 90 days with your approval.

☐ Return Policy:

Digi-Key will gladly accept merchandise returns and will replace the product or refund your money at your option.

In order to facilitate our return processing:

- Please contact a Customer Service Representative to obtain a return authorization number.
- All returns should be made within 30 days of date of invoice and be accompanied by the original invoice number and a brief explanation of the reason for the return.

- Return freight charge must be prepaid. Sorry, COD returns cannot be accepted.
- Return merchandise in original packaging and in resalable condition.
- Please note that parts returned due to customer error may be subject to a restocking charge and that "Not-in-Catalog Items" are not returnable.
- Defective merchandise may be returned within 90 days of date of invoice and need not be in original packaging.

This return policy may be altered for special circumstances.

❑ Dishonored Check Policy:

If a check you give us as payment is dishonored for any reason by the bank or other institution on which it is drawn, you agree to pay us $20.00 as a service charge (if the check cannot be redeposited) pursuant to Minnesota Statutes § 332.50. In addition, you agree to pay any other reasonable charges imposed by any check verification company or collection agency that we may use for collection.

❑ Foreign Orders:

In addition to the United States and its territories, Digi-Key also accepts orders from other countries. All orders of foreign origin are exported from the U.S. in accordance with the Export Administration Regulations. Diversion contrary to U.S. Law is prohibited. An additional handling charge of $5.00 will be included for processing and invoicing. Digi-Key cannot accept letters of credit, personal checks or certified personal checks. A cashier's check in U.S. funds will avoid processing delays; money orders can result in a 2-3 month delay.

❑ Freight Damage:

If you receive merchandise that has been damaged in transit it is important to keep the shipping carton, packing material and parts intact. Please contact Digi-Key Customer Service to initiate a claim.

❑ Prices/Quantities:

Prices are subject to change without notice and quantities may be limited.

❑ Product Liability:

Digi-Key's sole obligation for products that prove to be defective within 90 days of purchase will be replacement or refund. Digi-Key gives no warranty either expressed or implied and specifically disclaims all other warranties, including warranties for merchantability and fitness. In no event shall Digi-Key's liability exceed the buyer's purchase price nor shall Digi-Key be liable for any indirect or consequential damages.

This warranty does not apply to products which have been subject to misuse (including static discharge), neglect, accident, or modification, or which have been soldered or altered during assembly and are not capable of being tested.

DO NOT USE PRODUCTS SOLD BY DIGI-KEY AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS!

Products sold by Digi-Key are not authorized for use as critical components in life support devices or systems. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

❑ Duplicate Mailings:

If you receive more than one catalog with the same name and address, please send the labels to Digi-Key and pass the catalog along to a friend.

❑ Environmental Note:

All anti-static packing peanuts used by Digi-Key contain **NO** CFC's and are biodegradable.

❑ ISO 9002 Certified

Digi-Key's operations from order entry to shipping are fully ISO certified. Copies of our certification and quality manual are available for inspection upon request.

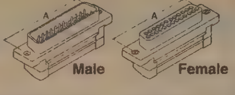
ISO
9002
CERTIFIED

VISA MasterCard DISCOVER NOVUS AMERICAN EXPRESS CARDS ups FEDERAL EXPRESS

Shipping charges and insurance will be added to C.O.D., credit card and open account orders.

AMP

D-Subminiature Connectors



Material and Finish: Plastic Shell: Housing, Cover & Cable Stabilizer — 94V-0 rated thermoplastic, black **Metal Shell: Front Shell** — Steel, tin plated **Housing, Cover & Cable Stabilizer** — 94V-0 rated thermoplastic, black **Contacts** — Phosphor bronze, duplex plated .000030 gold on mating end, tin-lead on termination end, with entire contact nickel underplated **Mounting Holes: Standard** — .120 Dia. • Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
• Certified by Canadian Standards Association, File No. LR 46568

No. of Contacts	Contact Finish	Dim. "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
Male D-Subminiature Connectors, Plastic Shell							
9	Gold	.984	AMS09G-ND	5.85	47.60	350.70	747321-4
15	Gold	1.312	AMS15G-ND	6.86	55.86	411.60	747321-3
25	Gold	1.852	AMS25G-ND	8.68	70.68	520.80	747321-2
37	Gold	2.500	AMS37G-ND	12.39	100 89	743.40	747321-1
Female D-Subminiature Connectors, Plastic Shell							
9	Gold	.984	AFS09G-ND	5.99	48.74	359.10	747318-4
15	Gold	1.312	AFS15G-ND	7.28	59.28	436.80	747318-3
25	Gold	1.852	AFS25G-ND	9.24	75.24	554.40	747318-2
37	Gold	2 500	AFS37G-ND	12.95	105.45	777.00	747318-1
Male D-Subminiature Connectors, Metal Shell							
9	Gold	.984	AMR09G-ND	6.65	54.15	399.00	747306-4
15	Gold	1.912	AMR15G-ND	8.12	66.12	487.20	747306-3
25	Gold	1.852	AMR25G-ND	10.12	82.37	606.90	747306-2
37	Gold	2.500	AMR37G-ND	14.39	117.14	863.10	747306-1
50	Gold	2.406	AMR50G-ND	21.74	176.99	1304.10	746790-1
Female D-Subminiature Connectors, Metal Shell							
9	Gold	.984	AFR09G-ND	6.65	54.15	399.00	747303-4
15	Gold	1.312	AFR15G-ND	8.37	68.12	501.90	747303-3
25	Gold	1.852	AFR25G-ND	10.99	89.49	659.40	747303-2
37	Gold	2.500	AFR37G-ND	15.54	126.54	932.40	747303-1
50	Gold	2.406	AFR50G-ND	22.93	186.68	1375.50	746789-1
Cable Strain Relief/Stabilizer							
9	—	—	ADSR09-ND	1.08	8.54	67.93	747275-4
15	—	—	ADSR15-ND	1.15	9.08	72.23	747275-3
25	—	—	ADSR25-ND	.85	6.72	53.48	747275-2
37	—	—	ADSR37-ND	1.34	10.59	84.23	747275-1
50	—	—	ADSR50-ND	3.34	26.38	209.85	746785-1

A☐☐☐☐-☐☐☐☐☐-ND

Style
7☐☐ (D-Sub)

Conn. Finish
G is ≤15μ Gold
A is >15μ Gold
T=Tin

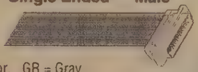
Ribbon Cable
M=Multi-color
G=Gray

Length (Feet)

No. Of Contacts

D-Subminiature Cable Assemblies

Single Ended — Male



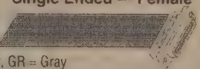
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Gold	6	MC	A7MXG-0906M-ND	8.93	72.70	535.71
	Gold	6	GR	A7MXG-0906G-ND	8.67	70.57	519.96
	Gold	10	MC	A7MXG-0910M-ND	9.91	80.66	594.30
	Gold	10	GR	A7MXG-0910G-ND	9.47	77.09	568.05
15	Gold	6	MC	A7MXG-1506M-ND	11.19	91.09	671.16
	Gold	6	GR	A7MXG-1506G-ND	10.37	84.42	622.02
	Gold	10	MC	A7MXG-1510M-ND	12.94	105.34	776.16
	Gold	10	GR	A7MXG-1510G-ND	11.57	94.22	694.26
25	Gold	6	MC	A7MXG-2506M-ND	14.23	115.91	854.07
	Gold	6	GR	A7MXG-2506G-ND	13.08	106.48	784.56
	Gold	10	MC	A7MXG-2510M-ND	16.98	138.28	1018.92
	Gold	10	GR	A7MXG-2510G-ND	15.05	122.55	903.00
37	Gold	6	MC	A7MXG-3706M-ND	20.63	167.98	1237.74
	Gold	6	GR	A7MXG-3706G-ND	19.14	155.84	1148.28
	Gold	10	MC	A7MXG-3710M-ND	24.65	200.73	1479.03
	Gold	10	GR	A7MXG-3710G-ND	22.17	180.49	1329.93

Also available in the following configuration:
A7PX☐-☐☐☐☐☐-ND – With Metal Shell Connector.
Call for complete part number and pricing!

Single Ended — Female



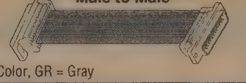
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Gold	6	MC	A7FXG-0906M-ND	9.11	74.19	546.63
	Gold	6	GR	A7FXG-0906G-ND	8.85	72.05	530.88
	Gold	10	MC	A7FXG-0910M-ND	10.09	82.14	605.22
	Gold	10	GR	A7FXG-0910G-ND	9.65	78 57	578 97
15	Gold	6	MC	A7FXG-1506M-ND	11.65	94.88	699.09
	Gold	6	GR	A7FXG-1506G-ND	10.83	88.21	649.95
	Gold	10	MC	A7FXG-1510M-ND	13.40	109.13	804.09
	Gold	10	GR	A7FXG-1510G-ND	12.04	98.01	722.19
25	Gold	6	MC	A7FXG-2506M-ND	14.82	120.70	889.35
	Gold	6	GR	A7FXG-2506G-ND	13.66	111.26	819.84
	Gold	15	MC	A7FXG-2510M-ND	17.57	143.07	1054.20
	Gold	15	GR	A7FXG-2510G-ND	15.64	127.34	938.28
37	Gold	6	MC	A7FXG-3706M-ND	21,21	172.71	1272.60
	Gold	6	GR	A7FXG-3706G-ND	19.72	160.57	1183.14
	Gold	15	MC	A7FXG-3710M-ND	25.23	205.46	1513.89
	Gold	15	GR	A7FXG-3710G-ND	22.75	185.22	1364.79

Also available in the following configuration:
A7SX☐-☐☐☐☐☐-ND – With Metal Shell Connector.
Call for complete part number and pricing!

Male to Male



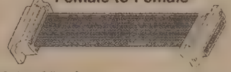
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Gold	6	MC	A7MMG-0906M-ND	16.39	133.47	983.43
	Gold	6	GR	A7MMG-0906G-ND	16.13	131.33	967.68
	Gold	10	MC	A7MMG-0910M-ND	16.38	133.41	983.01
	Gold	10	GR	A7MMG-0910G-ND	16.12	131.27	967.26
15	Gold	6	MC	A7MMG-1506M-ND	18.93	154.13	1135.68
	Gold	6	GR	A7MMG-1506G-ND	16.92	137.80	1015.35
	Gold	10	MC	A7MMG-1510M-ND	21.50	175.05	1289.82
	Gold	10	GR	A7MMG-1510G-ND	19.75	160.80	1184.82
25	Gold	6	MC	A7MMG-2506M-ND	24.35	198.27	1460.97
	Gold	6	GR	A7MMG-2506G-ND	23.19	188.84	1391.46
	Gold	10	MC	A7MMG-2510M-ND	27.10	220.65	1625.82
	Gold	10	GR	A7MMG-2510G-ND	25.17	204.92	1509.90
37	Gold	6	MC	A7MMG-3706M-ND	35.22	286.82	2113.44
	Gold	6	GR	A7MMG-3706G-ND	33.73	274.68	2023.98
	Gold	10	MC	A7MMG-3710M-ND	39.25	319.57	2354.73
	Gold	10	GR	A7MMG-3710G-ND	36.76	299.34	2205.63

Also available in the following configuration:
A7PP☐-☐☐☐☐☐-ND – With Metal Shell Connector.
Call for complete part number and pricing!

Female to Female



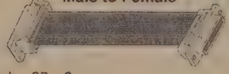
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No:	Pricing 1	10	100
9	Gold	6	MC	A7FFG-0906M-ND	16.75	136.43	1005.27
	Gold	6	GR	A7FFG-0906G-ND	16.49	134.29	989.52
	Gold	10	MC	A7FFG-0910M-ND	17.73	144.38	1063.86
	Gold	10	GR	A7FFG-0910G-ND	17.29	140.82	1037.61
15	Gold	6	MC	A7FFG-1506M-ND	20.68	168.38	1240.68
	Gold	6	GR	A7FFG-1506G-ND	19.86	161.71	1191.54
	Gold	10	MC	A7FFG-1510M-ND	22.43	182.63	1345.68
	Gold	10	GR	A7FFG-1510G-ND	21.06	171.51	1263.78
25	Gold	6	MC	A7FFG-2506M-ND	25.53	207.85	1531.53
	Gold	6	GR	A7FFG-2506G-ND	24.36	198.39	1461.81
	Gold	10	MC	A7FFG-2510M-ND	28.27	230.22	1696 38
	Gold	10	GR	A7FFG-2510G-ND	26.34	214.46	1580.25
37	Gold	6	MC	A7FFG-3706M-ND	36.39	296.31	2183.37
	Gold	6	GR	A7FFG-3706G-ND	34.90	284.17	2093.91
	Gold	10	MC	A7FFG-3710M-ND	40.41	329.06	2424.66
	Gold	10	GR	A7FFG-3710G-ND	37.93	308.83	2275.56

Also available in the following configuration:
A7SS☐-☐☐☐☐☐-ND – With Metal Shell Connector.
Call for complete part number and pricing!

Male to Female



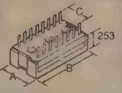
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Gold	6	MC	A7MFG-0906M-ND	16.57	134.89	993.93
	Gold	6	GR	A7MFG-0906G-ND	16.30	132.75	978.18
	Gold	10	MC	A7MFG-0910M-ND	17.54	142.84	1052.52
	Gold	10	GR	A7MFG-0910G-ND	17.10	139.28	1026.27
15	Gold	6	MC	A7MFG-1506M-ND	20.21	164.59	1212.75
	Gold	6	GR	A7MFG-1506G-ND	19.39	157.92	1163.61
	Gold	10	MC	A7MFG-1510M-ND	21.96	178.84	1317.75
	Gold	10	GR	A7MFG-1510G-ND	20.60	167.72	1235.85
25	Gold	6	MC	A7MFG-2506M-ND	24.94	203.09	1496.46
	Gold	6	GR	A7MFG-2506G-ND	23.78	193.66	1426.95
	Gold	10	MC	A7MFG-2510M-ND	27.69	225.46	1661.31
	Gold	10	GR	A7MFG-2510G-ND	25.76	209.73	1545.39
37	Gold	6	MC	A7MFG-3706M-ND	35.81	291.58	2148.51
	Gold	6	GR	A7MFG-3706G-ND	34.32	279.44	2059.05
	Gold	10	MC	A7MFG-3710M-ND	39.83	324.33	2389.80
	Gold	10	GR	A7MFG-3710G-ND	37.35	304.10	2240.70

Also available in the following configuration:
A7PS☐-☐☐☐☐☐-ND – With Metal Shell Connector.
Call for complete part number and pricing!

DIP Connectors



Material and Finish: Housing & Cover — Black thermoplastic, 94V-0 rated **Contacts** — Phosphor bronze, tin or duplex plated **Gold** — .000015 gold on pin end; .000100-.000200 bright tin-lead on cable termination end; entire contact underplated with .000050 nickel **Tin** — .000100-.000200 bright tin-lead over .000050 nickel on entire contact **Mateable Sockets** — DIP Sockets (for .100x.300 and .100x.600 versions) • Connectors Recognized under Component Program of Underwriters Laboratories Inc., File No. E28476 • Connectors Certified by Canadian Standards Association, File No. LR 16455

# of Pins	Dimensions A	B	C
14	.428	.788	300
16	.428	.888	.300
24	.720	1.288	.600
40	.720	2.088	.600

No. of Contacts	Contact Finish	Dim "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
Dip Connectors (.175" Pin Length)							
14	Gold	.754	ADP14G-ND	2.49	20.24	149.10	746612-2
14	Tin	.754	ADP14T-ND	1.16	9.41	69.30	746613-2
16	Gold	.854	ADP16G-ND	1.40	11.40	84.00	746612-3
16	Tin	.854	ADP16T-ND	1.30	10.55	77.70	746613-3
24	Gold	1.264	ADP24G-ND	3.99	32.49	239.40	746615-1
24	Tin	1.264	ADP24T-ND	3.78	30.78	226.80	746616-1
40	Gold	2.067	ADP40G-ND	5.92	48.17	354.90	746615-3
40	Tin	2.067	ADP40T-ND	2.56	20.81	153.30	746616-3

A☐☐☐☐-☐☐☐☐☐-ND

Style
2☐☐ = Single-Ended
4☐☐ = Single-Ended
6☐☐ = Double-Ended
8☐☐ = Double-Ended
0☐☐ = Double-Ended

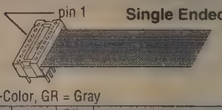
Conn. Finish
G is ≤15μ Gold
A is >15μ Gold
T = Tin

Ribbon Cable
M = Multi-Color
G = Gray

Length (Inches)

No. of Contacts

Single Ended – Style 2

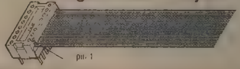


* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	A2PXG-1406M-ND	2.68	21.80	160.65
	Tin	6	MC	A2PXT-1406M-ND	1.35	10.97	80.85
	Gold	6	GR	A2PXG-1406G-ND	2.62	21.32	157.08
	Tin	6	GR	A2PXT-1406G-ND	1.29	10.49	77.28
	Gold	18	MC	A2PXG-1418M-ND	3.06	24.91	183.54
	Tin	18	MC	A2PXT-1418M-ND	1.73	14.08	103.74
	Gold	18	GR	A2PXG-1418G-ND	2.88	23.48	173.04
	Tin	18	GR	A2PXT-1418G-ND	1.55	12.65	93.24
	Gold	36	MC	A2PXG-1436M-ND	3.64	29.61	218.19
	Tin	36	MC	A2PXT-1436M-ND	2.31	18.78	138.39
	Gold	36	GR	A2PXG-1436G-ND	3.28	26.73	196.98
	Tin	36	GR	A2PXT-1436G-ND	1.95	15.90	117.18
16	Gold	6	MC	A2PXG-1606M-ND	1.62	13.20	97.23
	Tin	6	MC	A2PXT-1606M-ND	1.52	12.34	90.93
	Gold	6	GR	A2PXG-1606G-ND	1.55	12.63	93.03
	Tin	6	GR	A2PXT-1606G-ND	1.45	11.77	86.73
	Gold	18	MC	A2PXG-1618M-ND	2.06	16.76	123.48
	Tin	18	MC	A2PXT-1618M-ND	1.95	15.90	117.18
	Gold	18	GR	A2PXG-1618G-ND	1.85	15.08	111.09
	Tin	18	GR	A2PXT-1618G-ND	1.75	14.22	104.79
	Gold	36	MC	A2PXG-1636M-ND	2.71	22.09	162.75
	Tin	36	MC	A2PXT-1636M-ND	2.61	21.23	156.45
	Gold	36	GR	A2PXG-1636G-ND	2.30	18.75	138 18
	Tin	36	GR	A2PXT-1636G-ND	2.20	17.90	131.88
24	Gold	6	MC	A2PXG-2406M-ND	4.32	35.17	259.14
	Tin	6	MC	A2PXT-2406M-ND	4.11	33.46	246.54
	Gold	6	GR	A2PXG-2406G-ND	4.22	34.34	253.05
	Tin	6	GR	A2PXT-2406G-ND	4.01	32.63	240.45
	Gold	18	MC	A2PXG-2418M-ND	4.98	40.53	298.62
	Tin	18	MC	A2PXT-2418M-ND	4.77	38.82	286.02
	Gold	18	GR	A2PXG-2418G-ND	4.67	38.02	280.14
	Tin	18	GR	A2PXT-2418G-ND	4.46	36.31	267.54
	Gold	36	MC	A2PXG-2436M-ND	5.96	48.56	357.84
	Tin	36	MC	A2PXT-2436M-ND	5.75	46.85	345.24
	Gold	36	GR	A2PXG-2436G-ND	5.34	43.52	320.67
	Tin	36	GR	A2PXT-2436G-ND	5.13	41.81	308 07
40	Gold	6	MC	A2PXG-4006M-ND	6.46	52.64	387.87
	Tin	6	MC	A2PXT-4006M-ND	4.64	37.76	278.25
	Gold	6	GR	A2PXG-4006G-ND	6.29	51.24	377.58
	Tin	6	GR	A2PXT-4006G-ND	4.47	36.37	267.96
	Gold	18	MC	A2PXG-4018M-ND	7.56	61.56	453.60
	Tin	18	MC	A2PXT-4018M-ND	5.73	46.68	343.98
	Gold	18	GR	A2PXG-4018G-ND	7.05	57.40	422.94
	Tin	18	GR	A2PXT-4018G-ND	5.22	42.52	313.32
	Gold	36	MC	A2PXG-4036M-ND	9.20	74.93	552.09
	Tin	36	MC	A2PXT-4036M-ND	7.37	60.05	442.47
	Gold	36	GR	A2PXG-4036G-ND	8.19	66.66	491.19
	Tin	36	GR	A2PXT-4036G-ND	6.36	51.78	381.57

Single Ended — Style 4



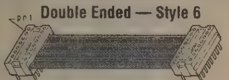
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	A4PXG-1406M-ND	2.68	21.80	160.65
	Tin	6	MC	A4PXT-1406M-ND	1.35	10.97	80.85
	Gold	6	GR	A4PXG-1406G-ND	2.62	21.32	157.08
	Tin	6	GR	A4PXT-1406G-ND	1.29	10.49	77.28
	Gold	18	MC	A4PXG-1418M-ND	3.06	24.91	183.54
	Tin	18	MC	A4PXT-1418M-ND	1.73	14.08	103.74
	Gold	18	GR	A4PXG-1418G-ND	2.88	23.48	173.04
	Tin	18	GR	A4PXT-1418G-ND	1.55	12.65	93.24
	Gold	36	MC	A4PXG-1436M-ND	3.64	29.61	218.19
	Tin	36	MC	A4PXT-1436M-ND	2.31	18.78	138.39
	Gold	36	GR	A4PXG-1436G-ND	3.28	26.73	196 98
	Tin	36	GR	A4PXT-1436G-ND	1.95	15.90	117.18
16	Gold	6	MC	A4PXG-1606M-ND	1.62	13.20	97.23
	Tin	6	MC	A4PXT-1606M-ND	1.52	12.34	90.93
	Gold	6	GR	A4PXG-1606G-ND	1.55	12.63	93.03
	Tin	6	GR	A4PXT-1606G-ND	1.45	11.77	86.73
	Gold	18	MC	A4PXG-1618M-ND	2.06	16.76	123.48
	Tin	18	MC	A4PXT-1618M-ND	1.95	15.90	117.18
	Gold	18	GR	A4PXG-1618G-ND	1.85	15.08	111.09
	Tin	18	GR	A4PXT-1618G-ND	1.75	14.22	104.79
	Gold	36	MC	A4PXG-1636M-ND	2.71	22.09	162.75
	Tin	36	MC	A4PXT-1636M-ND	2.61	21.23	156.45
	Gold	36	GR	A4PXG-1636G-ND	2.30	18.75	138.18
	Tin	36	GR	A4PXT-1636G-ND	2.20	17.90	131.88
24	Gold	6	MC	A4PXG-2406M-ND	4.11	33.46	246.54
	Tin	6	MC	A4PXT-2406M-ND	4.11	33.46	246.54
	Gold	6	GR	A4PXG-2406G-ND	4.01	32.63	240.45
	Tin	6	GR	A4PXT-2406G-ND	4.01	32.63	240.45
	Gold	18	MC	A4PXG-2418M-ND	4.98	40.53	298.62
	Tin	18	MC	A4PXT-2418M-ND	4.77	38.82	286.02
	Gold	18	GR	A4PXG-2418G-ND	4.67	38.02	280.14
	Tin	18	GR	A4PXT-2418G-ND	4.46	36.31	267.54
	Gold	36	MC	A4PXG-2436M-ND	5.96	48.56	357.84
	Tin	36	MC	A4PXT-2436M-ND	5.75	46.85	345.24
	Gold	36	GR	A4PXG-2436G-ND	5.34	43.52	320.67
	Tin	36	GR	A4PXT-2436G-ND	5.13	41.81	308.07
40	Gold	6	MC	A4PXG-4006M-ND	6.46	52.64	387.87
	Tin	6	MC	A4PXT-4006M-ND	4.64	37.76	278.25
	Gold	6	GR	A4PXG-4006G-ND	6.29	51.24	377.58
	Tin	6	GR	A4PXT-4006G-ND	4.47	36.37	267.96

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
40	Gold	18	MC	A4PXG-4018M-ND	7.56	61.56	453.60
	Tin	18	MC	A4PXT-4018M-ND	5.73	46.68	343.98
	Gold	18	GR	A4PXG-4018G-ND	7.05	57.40	422.94
	Tin	18	GR	A4PXT-4018G-ND	5.22	42.52	313.32
	Gold	36	MC	A4PXG-4036M-ND	9.20	74.93	552.09
	Tin	36	MC	A4PXT-4036M-ND	7.37	60.05	442.47
	Gold	36	GR	A4PXG-4036G-ND	8.19	66.66	491.19
	Tin	36	GR	A4PXT-4036G-ND	6.36	51.78	381.57

Double Ended — Style 6

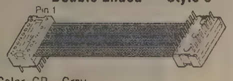


* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	A6PPG-1406M-ND	5.16	42.04	309.75
	Tin	6	MC	A6PPT-1406M-ND	2.50	20.38	150.15
	Gold	6	GR	A6PPG-1406G-ND	5.10	41.55	306.18
	Tin	6	GR	A6PPT-1406G-ND	2.44	19.89	146.58
	Gold	18	MC	A6PPG-1418M-ND	5.54	45.14	332.64
	Tin	18	MC	A6PPT-1418M-ND	2.88	23.48	173.04
	Gold	18	GR	A6PPG-1418G-ND	5.37	43.72	322.14
	Tin	18	GR	A6PPT-1418G-ND	2.71	22.06	162.54
	Gold	36	MC	A6PPG-1436M-ND	6.12	49.85	367.29
	Tin	36	MC	A6PPT-1436M-ND	3.46	28.19	207.69
	Gold	36	GR	A6PPG-1436G-ND	5.77	46.97	346.08
	Tin	36	GR	A6PPT-1436G-ND	3.11	25.31	186.48
16	Gold	6	MC	A6PPG-1606M-ND	3.02	24.60	181.23
	Tin	6	MC	A6PPT-1606M-ND	2.81	22.89	168.63
	Gold	6	GR	A6PPG-1606G-ND	2.95	24.03	177.03
	Tin	6	GR	A6PPT-1606G-ND	2.74	22.32	164.43
	Gold	18	MC	A6PPG-1618M-ND	3.46	28.16	207.48
	Tin	18	MC	A6PPT-1618M-ND	3.25	26.45	194.88
	Gold	18	GR	A6PPG-1618G-ND	3.25	26.48	195.09
	Tin	18	GR	A6PPT-1618G-ND	3.04	24.77	182.49
	Gold	36	MC	A6PPG-1636M-ND	4.11	33.49	246.75
	Tin	36	MC	A6PPT-1636M-ND	3.90	31.78	234.15
	Gold	36	GR	A6PPG-1636G-ND	3.70	30.15	222.18
	Tin	36	GR	A6PPT-1636G-ND	3.49	28.44	209.58
24	Gold	6	MC	A6PPG-2406M-ND	8.31	67.66	498.54
	Tin	6	MC	A6PPT-2406M-ND	7.89	64.24	473.34
	Gold	6	GR	A6PPG-2406G-ND	8.21	66.83	492.45
	Tin	6	GR	A6PPT-2406G-ND	7.79	63.41	467.25
	Gold	18	MC	A6PPG-2418M-ND	8.97	73.02	538.02
	Tin	18	MC	A6PPT-2418M-ND	8.55	69.60	512.82
	Gold	18	GR	A6PPG-2418G-ND	8.66	70.51	519.54
	Tin	18	GR	A6PPT-2418G-ND	8.24	67.09	494.34
	Gold	36	MC	A6PPG-2436M-ND	9.95	81.05	597.24
	Tin	36	MC	A6PPT-2436M-ND	9.53	77.63	572.04
	Gold	36	GR	A6PPG-2436G-ND	9.33	76.01	560.07
	Tin	36	GR	A6PPT-2436G-ND	8.91	72.59	534.87
40	Gold	6	MC	A6PPG-4006M-ND	12.38	100.80	742.77
	Tin	6	MC	A6PPT-4006M-ND	8.73	71.05	523.53
	Gold	6	GR	A6PPG-4006G-ND	12.21	99.41	732.48
	Tin	6	GR	A6PPT-4006G-ND	8.55	69.65	513.24
	Gold	18	MC	A6PPG-4018M-ND	13.48	109.73	808.50
	Tin	18	MC	A6PPT-4018M-ND	9.82	79.97	589.26
	Gold	18	GR	A6PPG-4018G-ND	12.96	105.56	777.84
	Tin	18	GR	A6PPT-4018G-ND	9.31	75 81	558.60
	Gold	36	MC	A6PPG-4036M-ND	15.12	123.09	906.99
	Tin	36	MC	A6PPT-4036M-ND	11.46	93.34	687.75
	Gold	36	GR	A6PPG-4036G-ND	14.10	114.83	846.09
	Tin	36	GR	A6PPT-4036G-ND	10.35	84.30	621 18

Double Ended — Style 8



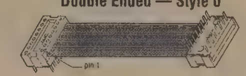
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	A8PPG-1406M-ND	5.16	42.04	309.75
	Tin	6	MC	A8PPT-1406M-ND	2.50	20.38	150.15
	Gold	6	GR	A8PPG-1406G-ND	5.10	41.55	306.18
	Tin	6	GR	A8PPT-1406G-ND	2.44	19.89	146.58
	Gold	18	MC	A8PPG-1418M-ND	5.54	45.14	332.64
	Tin	18	MC	A8PPT-1418M-ND	2.88	23.48	173 04
	Gold	18	GR	A8PPG-1418G-ND	5.37	43.72	322.14
	Tin	18	GR	A8PPT-1418G-ND	2.71	22.06	162.54
	Gold	36	MC	A8PPG-1436M-ND	6.12	49.85	367.29
	Tin	36	MC	A8PPT-1436M-ND	3.46	28.19	207.69
	Gold	36	GR	A8PPG-1436G-ND	5.77	46.97	346.08
	Tin	36	GR	A8PPT-1436G-ND	3.11	25.31	186.48
16	Gold	6	MC	A8PPG-1606M-ND	3.02	24.60	181.23
	Tin	6	MC	A8PPT-1606M-ND	2.81	22.89	168.63
	Gold	6	GR	A8PPG-1606G-ND	2.95	24.03	177.03
	Tin	6	GR	A8PPT-1606G-ND	2.74	22.32	164.43
	Gold	18	MC	A8PPG-1618M-ND	3.46	28.16	207.48
	Tin	18	MC	A8PPT-1618M-ND	3.25	26.45	194.88
	Gold	18	GR	A8PPG-1618G-ND	3.25	26.48	195.09
	Tin	18	GR	A8PPT-1618G-ND	3.04	24.77	182.49
	Gold	36	MC	A8PPG-1636M-ND	4.11	33.49	246.75
	Tin	36	MC	A8PPT-1636M-ND	3.90	31.78	234.15
	Gold	36	GR	A8PPG-1636G-ND	3.70	30.15	222.18
	Tin	36	GR	A8PPT-1636G-ND	3.49	28.44	209.58
24	Gold	6	MC	A8PPG-2406M-ND	8.31	67.66	498.54
	Tin	6	MC	A8PPT-2406M-ND	7.89	64.24	473.34
	Gold	6	GR	A8PPG-2406G-ND	8.21	66.83	492.45
	Tin	6	GR	A8PPT-2406G-ND	7.79	63.41	467.25
	Gold	18	MC	A8PPG-2418M-ND	8.97	73.02	538.02
	Tin	18	MC	A8PPT-2418M-ND	8.55	69.60	512.82
	Gold	18	GR	A8PPG-2418G-ND	8.66	70.51	519.54
	Tin	18	GR	A8PPT-2418G-ND	8.24	67.09	494.34
	Gold	36	MC	A8PPG-2436M-ND	9.95	81.05	597.24
	Tin	36	MC	A8PPT-2436M-ND	9.53	77.63	572.04
	Gold	36	GR	A8PPG-2436G-ND	9.33	76.01	560.07
	Tin	36	GR	A8PPT-2436G-ND	8.91	72.59	534.87
40	Gold	6	MC	A8PPG-4006M-ND	12.38	100.80	742.77
	Tin	6	MC	A8PPT-4006M-ND	8.73	71.05	523.53
	Gold	6	GR	A8PPG-4006G-ND	12.21	99.41	732.48
	Tin	6	GR	A8PPT-4006G-ND	8.55	69.65	513.24

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
40	Gold	18	MC	A8PPG-4018M-ND	13.48	109.73	808.50
	Tin	18	MC	A8PPT-4018M-ND	9.82	79.97	589.26
	Gold	18	GR	A8PPG-4018G-ND	12.96	105.56	777.84
	Tin	18	GR	A8PPT-4018G-ND	9.31	75.81	558.60
	Gold	36	MC	A8PPG-4036M-ND	15.12	123.09	906.99
	Tin	36	MC	A8PPT-4036M-ND	11.46	93.34	687.75
	Gold	36	GR	A8PPG-4036G-ND	14.10	114.83	846.09
	Tin	36	GR	A8PPT-4036G-ND	10.45	85.07	626.85

Double Ended — Style 0

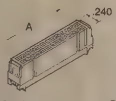


* MC = Multi-Color, GR = Gray

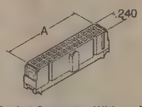
AMP

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	A0PPG-1406M-ND	5.16	42.04	309.75
	Tin	6	MC	A0PPT-1406M-ND	2.50	20.38	150.15
	Gold	6	GR	A0PPG-1406G-ND	5.10	41.55	306.18
	Tin	6	GR	A0PPT-1406G-ND	2.44	19.89	146.58
	Gold	18	MC	A0PPG-1418M-ND	5.54	45.14	332.64
	Tin	18	MC	A0PPT-1418M-ND	2.88	23.48	173.04
	Gold	18	GR	A0PPG-1418G-ND	5.37	43.72	322.14
	Tin	18	GR	A0PPT-1418G-ND	2.71	22.06	162.54
	Gold	36	MC	A0PPG-1436M-ND	6.12	49.85	367.29
	Tin	36	MC	A0PPT-1436M-ND	3.46	28.19	207.69
	Gold	36	GR	A0PPG-1436G-ND	5.77	46.97	346.08
	Tin	36	GR	A0PPT-1436G-ND	3.11	25.31	186.48
16	Gold	6	MC	A0PPG-1606M-ND	3.02	24.60	181.23
	Tin	6	MC	A0PPT-1606M-ND	2.81	22.89	168.63
	Gold	6	GR	A0PPG-1606G-ND	2.95	24.03	177 03
	Tin	6	GR	A0PPT-1606G-ND	2.74	22.32	164.43
	Gold	18	MC	A0PPG-1618M-ND	3.46	28.16	207.48
	Tin	18	MC	A0PPT-1618M-ND	3.25	26.45	194.88
	Gold	18	GR	A0PPG-1618G-ND	3.25	26.48	195.09
	Tin	18	GR	A0PPT-1618G-ND	3.04	24.77	182.49
	Gold	36	MC	A0PPG-1636M-ND	4.11	33.49	246.75
	Tin	36	MC	A0PPT-1636M-ND	3.90	31.78	234.15
	Gold	36	GR	A0PPG-1636G-ND	3.70	30.15	222.18
	Tin	36	GR	A0PPT-1636G-ND	3.49	28.44	209 58
24	Gold	6	MC	A0PPG-2406M-ND	8.31	67.66	498.54
	Tin	6	MC	A0PPT-2406M-ND	7.89	64.24	473.34
	Gold	6	GR	A0PPG-2406G-ND	8.21	66.83	492 45
	Tin	6	GR	A0PPT-2406G-ND	7.79	63.41	467.25
	Gold	18	MC	A0PPG-2418M-ND	8.97	73.02	538.02
	Tin	18	MC	A0PPT-2418M-ND	8.55	69.60	512.82
	Gold	18	GR	A0PPG-2418G-ND	8.66	70.51	519.54
	Tin	18	GR	A0PPT-2418G-ND	8.24	67.09	494.34
	Gold	36	MC	A0PPG-2436M-ND	9.95	81.05	597.24
	Tin	36	MC	A0PPT-2436M-ND	9.53	77.63	572.04
	Gold	36	GR	A0PPG-2436G-ND	9.33	76.01	560.07
	Tin	36	GR	A0PPT-2436G-ND	8.91	72.59	534.87
40	Gold	6	MC	A0PPG-4006M-ND	12.38	100.80	742.77
	Tin	6	MC	A0PPT-4006M-ND	8.73	71.05	523.53
	Gold	6	GR	A0PPG-4006G-ND	12.21	99.41	732.48
	Tin	6	GR	A0PPT-4006G-ND	8.55	69.65	513.24
	Gold	18	MC	A0PPG-4018M-ND	13.48	109.73	808.50
	Tin	18	MC	A0PPT-4018M-ND	9.82	79.97	589.26
	Gold	18	GR	A0PPG-4018G-ND	12.96	105.56	777.84
	Tin	18	GR	A0PPT-4018G-ND	9.31	75.81	558.60
	Gold	36	MC	A0PPG-4036M-ND	15.12	123.09	906.99
	Tin	36	MC	A0PPT-4036M-ND	11.46	93.34	687.75
	Gold	36	GR	A0PPG-4036G-ND	14.10	114.83	846.09
	Tin	36	GR	A0PPT-4036G-ND	10.45	85.07	626.85

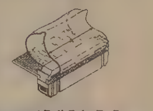
AMP Socket Connectors



Socket Connector



Socket Connector With Central Polarizing Key



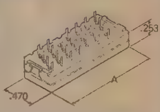
Permanent Pull-Tabs To Be Used With Strain Relief Version

Material and Finish: • Housing, Cover & Strain Relief — Black thermoplastic, 94V-0 rated **• Gold Finish: Contacts** — Phosphor bronze, duplex .000015 gold or .000030 gold on post/pin mating end, .000100-.000200 bright tin-lead on termination end, with entire contact underplated .000050 nickel

No. of Contacts	Contact Finish	Dim "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
Socket Connector Only (Strain Reliefs Sold Separately)							
10	15µ" AU	.680	ASC10G-ND	1.12	9.12	67.20	499997-1
14	15µ" AU	.880	ASC14G-ND	1.65	13.40	98.70	499997-2
16	15µ" AU	.980	ASC16G-ND	1.79	14.54	107.10	499997-3
20	15µ" AU	1.180	ASC20G-ND	2.24	18.24	134.40	499997-4
26	15µ" AU	1.480	ASC26G-ND	2.59	21.09	155.40	499997-6
34	15µ" AU	1.880	ASC34G-ND	3.22	26.22	193.20	499997-8
40	15µ" AU	2.180	ASC40G-ND	3.68	29.93	220.50	499997-9
50	15µ" AU	2.680	ASC50G-ND	4.45	36.20	266.70	1-499997-0
60	15µ" AU	3.180	ASC60G-ND	5.15	41.90	308.70	1-499997-1
Socket Connector With Polarizing Key							
10	15µ" AU	.680	AKC10G-ND	1.12	9.12	67.20	746285-1
14	15µ" AU	.880	AKC14G-ND	1.58	12.83	94.50	746285-2
16	15µ" AU	.980	AKC16G-ND	1.79	14.54	107.10	746285-3
20	15µ" AU	1.180	AKC20G-ND	1.79	14.54	107.10	746285-4
26	15µ" AU	1.480	AKC26G-ND	2.17	17.67	130.20	746285-6
34	15µ" AU	1.880	AKC34G-ND	3.22	26.22	193.20	746285-8
40	15µ" AU	2.180	AKC40G-ND	3.68	29.93	220.50	746285-9
50	15µ" AU	2.680	AKC50G-ND	4.45	36.20	266.70	1-746285-0
60	15µ" AU	3.180	AKC60G-ND	5.15	41.90	308.70	1-746285-1
Strain Relief For Socket Connectors							
10	—	.680	ASSR10-ND	.19	1.70	12.76	499252-5
14	—	.880	ASSR14-ND	.20	1.78	13.42	499252-9
16	—	.980	ASSR16-ND	.20	1.84	13.86	499252-8
20	—	1.180	ASSR20-ND	.24	2.19	16.50	499252-2
26	—	1.480	ASSR26-ND	.24	2.19	16.50	499252-3
34	—	1.880	ASSR34-ND	.28	2.52	18 92	499252-6
40	—	2.180	ASSR40-ND	.30	2.69	20.24	499252-1
50	—	2.680	ASSR50-ND	.34	3.04	22.88	499252-4
60	—	3.180	ASSR60-ND	.37	3 36	25.30	499252-7
Permanent Pull Tabs (For Connectors w/Strain Reliefs)							
10	—	.440	ASPT10-ND	.16	1.41	10.60	88450-2
14	—	.640	ASPT14-ND	.17	1.50	11.29	88450-3
16	—	.740	ASPT16-ND	.17	1.53	11.54	88450-4
20	—	.880	ASPT20-ND	.19	1.69	12.74	88450-5
26	—	1.180	ASPT26-ND	.21	1.93	14.53	88450-7
34	—	1.580	ASPT34-ND	.25	2.25	16.92	88450-8
40	—	1.820	ASPT40-ND	.28	2.49	18 72	88450-9
50	—	2.320	ASPT50-ND	.32	2.89	21.70	1-88450-0
60	—	2.800	ASPT60-ND	.36	3.28	24.69	1-88450-1
Keying Plug For Socket Connectors							
—	—	—	ASKP01-ND	.20	1.77	13.33	499712-1
Socket Connector Only (Strain Reliefs Sold Separately)							
16	30µ" AU	.980	ASC16A-ND	1.44	11.69	86.10	111634-3
26	30µ" AU	1.480	ASC26A-ND	1.82	14.82	109.20	111634-6
34	30µ" AU	1.880	ASC34A-ND	2.03	16.53	121.80	111634-8
40	30µ" AU	2.180	ASC40A-ND	2.28	18.53	136.50	111634-9
50	30µ" AU	2.680	ASC50A-ND	2:87	23.37	172.20	1-111634-0
60	30µ" AU	3.180	ASC60A-ND	3.40	27.65	203.70	1-111634-1
Socket Connector With Polarizing Key							
10	30µ" AU	.680	AKC10A-ND	.91	7.41	54.60	111633-1
14	30µ" AU	.880	AKC14A-ND	1.33	10.83	79.80	111633-2
16	30µ" AU	.980	AKC16A-ND	1.44	11.69	86.10	111633-3
20	30µ" AU	1.180	AKC20A-ND	1.47	11.97	88.20	111633-4
26	30µ" AU	1.480	AKC26A-ND	1.82	14.82	109.20	111633-6
34	30µ" AU	1.880	AKC34A-ND	2.03	16.53	121.80	111633-8
40	30µ" AU	2.180	AKC40A-ND	2.84	23.09	170.10	111633-9
50	30µ" AU	2.680	AKC50A-ND	2.87	23.37	172.20	1-111633-0
60	30µ" AU	3.180	AKC60A-ND	3.40	27.65	203.70	1-111633-1
64	30µ" AU	3.380	AKC64A-ND	3.71	30.21	222.60	1-111633-2
Strain Relief							
10	—	.680	ASSU10-ND	,19	1.70	12.76	111564-5
14	—	.880	ASSU14-ND	.20	1.78	13.42	111564-9
16	—	.980	ASSU16-ND	.20	1.84	13.86	111564-8
20	—	1.180	ASSU20-ND	.22	2.02	15.18	111564-2
26	—	1.480	ASSU26-ND	.24	2.19	16.50	111564-3
34	—	1.880	ASSU34-ND	.28	2.52	18.92	111564-6
40	—	2.180	ASSU40-ND	.30	2.69	20.24	111564-1
50	—	2.680	ASSU50-ND	.34	3.04	22.88	111564-4
60	—	3.180	ASSU60-ND	.37	3.36	25.30	111564-7
64	—	3.380	ASSU64-ND	.41	3.71	27.94	1-111564-3

AMP PCB Connectors

Material and Finish: Housing & Cover — Black thermoplastic, 94V-0 rated **Contacts** — Phosphor bronze plated .000100-.000200 bright tin-lead over .000050 nickel on entire contact
• Recognized under Com-ponent Program of Under-writers Laboratories Inc. File No. E28476
• Certified by Canadian Standards Association File No. LR16455

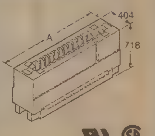


No. of Contacts	Contact Finish	Dim "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
PCB Connectors							
40•	Tin	2.114	APF40T-ND	4.59	37.34	275.10	111035-8

• Full-Row version. ("Special-Center" version shown above).

AMP Card Edge Connectors

Material and Finish: Housing & Cover — Black thermoplastic, 94V-0 rated **Contacts** — Phosphor bronze, duplex plated .000015 gold on pc board mating end, .000100-.000200 bright tin-lead on termination end, with entire contact underplated with .000050 nickel **Contact Centers:** .100 Typ. • Recognized under Component Program of Under-writers Laboratories Inc. File No. E28476 • Certified by Canadian Standards Association File No. LR16455

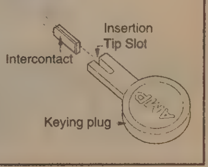


No. of Contacts	Contact Finish	Dim "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
Card Edge Connectors							
10	Gold	.960	ACE10G-ND	1.89	15.39	113.40	111110-8
20	Gold	1.460	ACE20G-ND	3.75	30.50	224.70	111110-6
26	Gold	1.760	ACE26G-ND	4.24	34.49	254.10	111110-5
34	Gold	2.160	ACE34G-ND	4.66	37.91	279.30	111110-3
40	Gold	2.460	ACE40G-ND	5.36	43.61	321.30	111110-2
50	Gold	2.960	ACE50G-ND	6.58	53.58	394.80	.111110-1
Polarizing Keys For Card Edge Connectors							
—	—	—	ACKP01-ND	.31	2.80	21.05	88113-1
—	—	—	ACKP02-ND	.43	3.88	29.20	88114-1
Keying Plug For Card Edge Connectors							
—	—	—	AKPT01-ND	3.41	30.71	231.00	91233-1

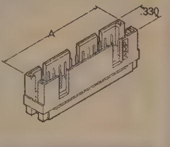
ACKP01-ND

ACKP02-ND

AKPT01-ND



AMP Pin Connectors



Material and Finish: Housing & Cover — Black thermoplastic, 94V-0 rated **Contacts** — Phosphor bronze, duplex plated .000015 gold pin end; .000100- .000200 bright tin-lead on cable termination end; entire contact underplated with .000050 nickel • Recognized under Component Program of Underwriters Laboratories Inc. File No. E28476 • Certified by Canadian Standards Association File No. LR16455

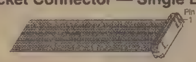
No. of Contacts	Contact Finish	Dim "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
Pin Connectors (Strain Reliefs Sold Separately)							
14	Gold	1.072	APK14G-ND	11.76	95.76	705.60	746492-2
60	Gold	3.372	APK60G-ND	16.56	134.81	993.30	1-746492-2
Strain Reliefs For Pin Connectors							
10	—	—	APSR10-ND	1.64	14.80	111.32	746362-1
14	—	—	APSR14-ND	1.81	16.28	122.45	746362-2
16	—	—	APSR16-ND	1.97	17.76	133.58	746362-3
20	—	—	APSR20-ND	2.05	18.46	138.83	746362-4
26	—	—	APSR26-ND	2.47	22.20	166.98	746362-6
34	—	—	APSR34-ND	2.96	26.64	200.38	746362-8
50	—	—	APSR50-ND	2.27	20.42	153.61	1-746362-1
60	—	—	APSR60-ND	2.89	25.97	195.37	1-746362-2

A□□□□-□□□□□-ND

Style
Conn. Finish
G is ≤15μ Gold
A is >15μ Gold
T=Tin
No. Of Contacts
Length (Inches)
Ribbon Cable
M=Multi-color
G=Gray

Termination Jumpers

Socket Connector — Single Ended



* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	36	MC	A1AXG-1036M-ND	1.94	15.79	116.34
	Gold	36	MC	A1AXA-1036M-ND	1.73	14.08	103.74
	Gold	36	GR	A1AXG-1036G-ND	1.68	13.71	101.01
	Gold	36	GR	A1AXA-1036G-ND	1.47	12.00	88.41
14	Gold	36	MC	A1AXG-1436M-ND	2.80	22.77	167.79
	Gold	36	MC	A1AXA-1436M-ND	2.48	20.19	148.79
	Gold	36	GR	A1AXG-1436G-ND	2.44	19.89	146.58
	Gold	36	GR	A1AXA-1436G-ND	2.13	17.33	127.68
16	Gold	36	MC	A1AXG-1636M-ND	3.06	24.94	183.75
	Gold	36	MC	A1AXA-1636M-ND	2.75	22.37	164.85
	Gold	36	GR	A1AXG-1636G-ND	2.65	21.60	159.18
	Gold	36	GR	A1AXA-1636G-ND	2.34	19.04	140.28
20	Gold	36	MC	A1AXG-2036M-ND	3.57	29.07	214.20
	Gold	36	MC	A1AXA-2036M-ND	3.11	25.35	186.80
	Gold	36	GR	A1AXG-2036G-ND	3.06	24.94	183.75
	Gold	36	GR	A1AXA-2036G-ND	2.60	21.20	156.24
26	Gold	36	MC	A1AXG-2636M-ND	4.31	35.06	258.30
	Gold	36	MC	A1AXA-2636M-ND	3.96	32.21	237.30
	Gold	36	GR	A1AXG-2636G-ND	3.65	29.73	219.03
	Gold	36	GR	A1AXA-2636G-ND	3.30	26.88	198.03
34	Gold	36	MC	A1AXG-3436M-ND	5.23	42.61	313.95
	Gold	36	MC	A1AXA-3436M-ND	4.81	39.19	288.75
	Gold	36	GR	A1AXG-3436G-ND	4.38	35.68	262.92
	Gold	36	GR	A1AXA-3436G-ND	3.96	32.26	237.72
40	Gold	36	MC	A1AXG-4036M-ND	6.96	56.69	417.69
	Gold	36	MC	A1AXA-4036M-ND	5.66	45.29	333.69
	Gold	36	GR	A1AXG-4036G-ND	5.95	48.42	356.79
	Gold	36	GR	A1AXA-4036G-ND	4.55	37.02	272.79
50	Gold	36	MC	A1AXG-5036M-ND	8.19	66.66	491.19
	Gold	36	MC	A1AXA-5036M-ND	6.98	56.86	418.95
	Gold	36	GR	A1AXG-5036G-ND	6.91	56.26	414.54
	Gold	36	GR	A1AXA-5036G-ND	5.71	46.46	342.30
60	Gold	36	MC	A1AXG-6036M-ND	9.78	79.66	586.95
	Gold	36	MC	A1AXA-6036M-ND	8.31	67.63	498.33
	Gold	36	GR	A1AXG-6036G-ND	8.27	67.32	496.02
	Gold	36	GR	A1AXA-6036G-ND	6.79	55.29	407.40

Also available in the following versions:
A1BXG-□□□□□-ND — Socket Connector with Strain Relief.
A1CXG-□□□□□-ND — Socket Connector with Central Polarizing Key.
A1DXG-□□□□□-ND — Socket Connector w/Strain Relief & Central Polarizing Key.
A1BXA-□□□□□-ND — Socket Connector with Strain Relief.
A1CXA-□□□□□-ND — Socket Connector with Central Polarizing Key.
A1DXA-□□□□□-ND — Socket Connector w/Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

Pin Connector — Single Ended

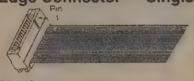
* MC = Multi-Color. GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	36	MC	A1KXG-1036M-ND	9.85	80.20	590.94
	Gold	36	GR	A1KXG-1036G-ND	9.59	78.12	575.61
14	Gold	36	MC	A1KXG-1436M-ND	12.91	105.14	774.69
	Gold	36	GR	A1KXG-1436G-ND	12.56	102.26	753.48
16	Gold	36	MC	A1KXG-1636M-ND	7.86	63.98	471.45
	Gold	36	GR	A1KXG-1636G-ND	7.45	60.65	446.88
20	Gold	36	MC	A1KXG-2036M-ND	9.28	75.53	556.50
	Gold	36	GR	A1KXG-2036G-ND	8.76	71.36	525.84
26	Gold	36	MC	A1KXG-2636M-ND	16.84	137.09	1010.10
	Gold	36	GR	A1KXG-2636G-ND	16.18	131.76	970.83
34	Gold	36	MC	A1KXG-3436M-ND	20.21	164.59	1212.75
	Gold	36	GR	A1KXG-3436G-ND	19.36	157.66	1161.72
40	Gold	36	MC	A1KXG-4036M-ND	15.43	125.66	925.89
	Gold	36	GR	A1KXG-4036G-ND	14.42	117.39	864.99
50	Gold	36	MC	A1KXG-5036M-ND	18.36	149.48	1101.45
	Gold	36	GR	A1KXG-5036G-ND	17.08	139.08	1024.80
60	Gold	36	MC	A1KXG-6036M-ND	21.47	174.79	1287.93
	Gold	36	GR	A1KXG-6036G-ND	19.95	162.45	1197.00

Also available in the following version:
A1RXG-□□□□□-ND — Pin Connector with Strain Relief.
Call for complete part number and pricing!

Card Edge Connector — Single Ended

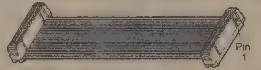


* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	36	MC	A1EXG-1036M-ND	2.71	22.06	162.54
	Gold	36	GR	A1EXG-1036G-ND	2.45	19.98	147.21
20	Gold	36	MC	A1EXG-2036M-ND	5.39	43.89	323.40
	Gold	36	GR	A1EXG-2036G-ND	4.88	39.73	292.74
26	Gold	36	MC	A1EXG-2636M-ND	6.37	51.87	382.20
	Gold	36	GR	A1EXG-2636G-ND	5.72	46.54	342.93
34	Gold	36	MC	A1EXG-3436M-ND	7.44	60.56	446.25
	Gold	36	GR	A1EXG-3436G-ND	6.59	53.64	395.22
40	Gold	36	MC	A1EXG-4036M-ND	8.64	70.37	518.49
	Gold	36	GR	A1EXG-4036G-ND	7.63	62.10	457.59
50	Gold	36	MC	A1EXG-5036M-ND	10.69	87.07	641.55
	Gold	36	GR	A1EXG-5036G-ND	9.42	76.67	564.90

Socket Connector to Socket Connector



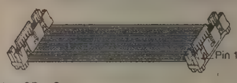
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	6	MC	A3AAG-1006M-ND	2.38	19.35	142.59
	Gold	6	MC	A3AAA-1006M-ND	1.96	15.93	117.39
	Gold	6	GR	A3AAG-1006G-ND	2.33	19.01	140.07
	Gold	6	GR	A3AAA-1006G-ND	1.91	15.59	114.87
	Gold	18	MC	A3AAG-1018M-ND	2.65	21.57	158.97
	Gold	18	MC	A3AAA-1018M-ND	2.23	18.15	133.77
	Gold	18	GR	A3AAG-1018G-ND	2.52	20.52	151.20
	Gold	18	GR	A3AAA-1018G-ND	2.10	17.10	126.00
	Gold	36	MC	A3AAG-1036M-ND	3.06	24.91	183.54
	Gold	36	MC	A3AAA-1036M-ND	2.64	21.49	158.34
	Gold	36	GR	A3AAG-1036G-ND	2.80	22.83	168.21
	Gold	36	GR	A3AAA-1036G-ND	2.38	19.41	143.01
14	Gold	6	MC	A3AAG-1406M-ND	3.48	28.36	208.95
	Gold	6	MC	A3AAA-1406M-ND	2.85	23.23	171.15
	Gold	6	GR	A3AAG-1406G-ND	3.42	27.87	205.38
	Gold	6	GR	A3AAA-1406G-ND	2.79	22.74	167.58
	Gold	18	MC	A3AAG-1418M-ND	3.86	31.46	231.84
	Gold	18	MC	A3AAA-1418M-ND	3.23	26.33	194.04
	Gold	18	GR	A3AAG-1418G-ND	3.69	30.04	221.34
	Gold	18	GR	A3AAA-1418G-ND	3.06	24.91	183.54
	Gold	36	MC	A3AAG-1436M-ND	4.44	36.17	266.49
	Gold	36	MC	A3AAA-1436M-ND	3.81	31.04	228.69
	Gold	36	GR	A3AAG-1436G-ND	4.09	33.29	245.28
	Gold	36	GR	A3AAA-1436G-ND	3.46	28.16	207.48
16	Gold	6	MC	A3AAG-1606M-ND	3.72	30.30	223.23
	Gold	6	MC	A3AAA-1606M-ND	3.09	25.17	185.43
	Gold	6	GR	A3AAG-1606G-ND	3.65	29.73	219.03
	Gold	6	GR	A3AAA-1606G-ND	3.02	24.60	181.23
	Gold	18	MC	A3AAG-1618M-ND	4.16	33.86	249.48
	Gold	18	MC	A3AAA-1618M-ND	3.53	28.73	211.68
	Gold	18	GR	A3AAG-1618G-ND	3.95	32.18	237.09
	Gold	18	GR	A3AAA-1618G-ND	3.32	27.05	199.29
	Gold	36	MC	A3AAG-1636M-ND	4.81	39.19	288.75
	Gold	36	MC	A3AAA-1636M-ND	4.18	34.06	250.95
	Gold	36	GR	A3AAG-1636G-ND	4.40	35.85	264.18
	Gold	36	GR	A3AAA-1636G-ND	3.77	30.72	226.38
20	Gold	6	MC	A3AAG-2006M-ND	4.13	33.63	247.80
	Gold	6	MC	A3AAA-2006M-ND	3.21	26.17	192.84
	Gold	6	GR	A3AAG-2006G-ND	4.05	32.95	242.76
	Gold	6	GR	A3AAA-2006G-ND	3.13	25.48	187.74
	Gold	18	MC	A3AAG-2018M-ND	4.68	38.08	280.56
	Gold	18	MC	A3AAA-2018M-ND	3.76	30.63	225.71
	Gold	18	GR	A3AAG-2018G-ND	4.42	36.02	265.44
	Gold	18	GR	A3AAA-2018G-ND	3.51	28.56	210.42
	Gold	36	MC	A3AAG-2036M-ND	5.50	44.77	329.91
	Gold	36	MC	A3AAA-2036M-ND	4.58	37.32	275.00
	Gold	36	GR	A3AAG-2036G-ND	4.99	40.64	299.46
	Gold	36	GR	A3AAA-2036G-ND	4.07	33.17	244.44
26	Gold	6	MC	A3AAG-2606M-ND	4.70	38.25	281.82
	Gold	6	MC	A3AAA-2606M-ND	4.00	32.55	239.82
	Gold	6	GR	A3AAG-2606G-ND	4.59	37.36	275.31
	Gold	6	GR	A3AAA-2606G-ND	3.89	31.66	233.31
	Gold	18	MC	A3AAG-2618M-ND	5.41	44.03	324.45
	Gold	18	MC	A3AAA-2618M-ND	4.71	38.33	282.45
	Gold	18	GR	A3AAG-2618G-ND	5.08	41.38	304.92
	Gold	18	GR	A3AAA-2618G-ND	4.38	35.68	262.92
	Gold	36	MC	A3AAG-2636M-ND	6.48	52.73	388.50
	Gold	36	MC	A3AAA-2636M-ND	5.78	47.03	346.50
	Gold	36	GR	A3AAG-2636G-ND	5.82	47.40	349.23
	Gold	36	GR	A3AAA-2636G-ND	5.12	41.70	307.23
34	Gold	6	MC	A3AAG-3406M-ND	5.37	43.69	321.93
	Gold	6	MC	A3AAA-3406M-ND	4.53	36.85	271.53
	Gold	6	GR	A3AAG-3406G-ND	5.22	42.52	313.32
	Gold	6	GR	A3AAA-3406G-ND	4.38	35.68	262.92
	Gold	18	MC	A3AAG-3418M-ND	6.29	51.24	377.58
	Gold	18	MC	A3AAA-3418M-ND	5.45	44.40	327.18
	Gold	18	GR	A3AAG-3418G-ND	5.87	47.77	351.96
	Gold	18	GR	A3AAA-3418G-ND	5.03	40.93	301.56
	Gold	36	MC	A3AAG-3436M-ND	7.68	62.56	460.95
	Gold	36	MC	A3AAA-3436M-ND	6.84	55.72	410.55
	Gold	36	GR	A3AAG-3436G-ND	6.83	55.63	409.92
	Gold	36	GR	A3AAA-3436G-ND	5.99	48.79	359.52
40	Gold	6	MC	A3AAG-4006M-ND	7.90	64.32	473.97
	Gold	6	MC	A3AAA-4006M-ND	5.10	41.52	305.97
	Gold	6	GR	A3AAG-4006G-ND	7.73	62.93	463.68
	Gold	6	GR	A3AAA-4006G-ND	4.93	40.13	295.68
	Gold	18	MC	A3AAG-4018M-ND	9.00	73.25	539.70
	Gold	18	MC	A3AAA-4018M-ND	6.20	50.45	371.70
	Gold	18	GR	A3AAG-4018G-ND	8.48	69.08	509.04
	Gold	18	GR	A3AAA-4018G-ND	5.68	46.28	341.04
	Gold	36	MC	A3AAG-4036M-ND	10.64	86.61	638.19
	Gold	36	MC	A3AAA-4036M-ND	7.84	63.81	470.19
	Gold	36	GR	A3AAG-4036G-ND	9.62	78.35	577.29
	Gold	36	GR	A3AAA-4036G-ND	6.82	55.55	409.29
50	Gold	6	MC	A3AAG-5006M-ND	8.83	71.93	530.04
	Gold	6	MC	A3AAA-5006M-ND	6.43	52.33	385.56
	Gold	6	GR	A3AAG-5006G-ND	8.62	70.20	517.23
	Gold	6	GR	A3AAA-5006G-ND	6.21	50.59	372.75
	Gold	18	MC	A3AAG-5018M-ND	10.20	83.08	612.15
	Gold	18	MC	A3AAA-5018M-ND	7.80	63.50	467.88
	Gold	18	GR	A3AAG-5018G-ND	9.57	77.89	573.93
	Gold	18	GR	A3AAA-5018G-ND	7.16	58.28	429.45
	Gold	36	MC	A3AAG-5036M-ND	12.26	99.84	735.63
	Gold	36	MC	A3AAA-5036M-ND	9.85	80.23	591.15
	Gold	36	GR	A3AAG-5036G-ND	10.98	89.43	658.98
	Gold	36	GR	A3AAA-5036G-ND	8.58	69.83	514.50
60	Gold	6	MC	A3AAG-6006M-ND	10.56	86.01	633.78
	Gold	6	MC	A3AAA-6006M-ND	7.61	61.96	456.54
	Gold	6	GR	A3AAG-6006G-ND	10.31	83.96	618.66
	Gold	6	GR	A3AAA-6006G-ND	7.36	59.91	441.42
	Gold	18	MC	A3AAG-6018M-ND	12.20	99.32	731.85
	Gold	18	MC	A3AAA-6018M-ND	9.24	75.27	554.61
	Gold	18	GR	A3AAG-6018G-ND	11.44	93.17	686.49
	Gold	18	GR	A3AAA-6018G-ND	8.49	69.11	509.25
	Gold	36	MC	A3AAG-6036M-ND	14.65	119.33	879.27
	Gold	36	MC	A3AAA-6036M-ND	11.70	95.28	702.03
	Gold	36	GR	A3AAG-6036G-ND	13.14	106.99	788.34
	Gold	36	GR	A3AAA-6036G-ND	10.19	82.94	611.10

Also available in the following versions:
A3BBG-□□□□□-ND — Socket Connector with Strain Relief.
A3CCG-□□□□□-ND — Socket Connector with Central Polarizing Key.
A3DDG-□□□□□-ND — Socket Connector w/Strain Relief & Central Polarizing Key.
A3BBA-□□□□□-ND — Socket Connector with Strain Relief.
A3CCA-□□□□□-ND — Socket Connector with Central Polarizing Key.
A3DDA-□□□□□-ND — Socket Connector w/Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

Pin Connector to Pin Connector



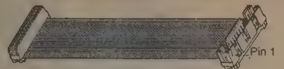
* MC = Multi-Color, GR = Gray

AMP

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	6	MC	A3KKG-1006M-ND	18.20	148.17	1091.79
	Gold	6	GR	A3KKG-1006G-ND	18.15	147.83	1089.27
	Gold	18	MC	A3KKG-1018M-ND	18.47	150.39	1108.17
	Gold	18	GR	A3KKG-1018G-ND	18.34	149.34	1100.40
	Gold	36	MC	A3KKG-1036M-ND	18.88	153.73	1132.74
	Gold	36	GR	A3KKG-1036G-ND	18.62	151.65	1117.41
14	Gold	6	MC	A3KKG-1406M-ND	23.71	193.09	1422.75
	Gold	6	GR	A3KKG-1406G-ND	23.65	192.60	1419.18
	Gold	18	MC	A3KKG-1418M-ND	24.09	196.19	1445.64
	Gold	18	GR	A3KKG-1418G-ND	23.92	194.77	1435.14
	Gold	36	MC	A3KKG-1436M-ND	24.67	200.88	1480.19
	Gold	36	GR	A3KKG-1436G-ND	24.32	198.02	1459.08
16	Gold	6	MC	A3KKG-1606M-ND	13.31	108.39	798.63
	Gold	6	GR	A3KKG-1606G-ND	13.24	107.82	794.43
	Gold	18	MC	A3KKG-1618M-ND	13.75	111.95	824.88
	Gold	18	GR	A3KKG-1618G-ND	13.54	110.27	812.49
	Gold	36	MC	A3KKG-1636M-ND	14.40	117.28	864.15
	Gold	36	GR	A3KKG-1636G-ND	13.99	113.94	839.58
20	Gold	6	MC	A3KKG-2006M-ND	15.53	126.48	931.98
	Gold	6	GR	A3KKG-2006G-ND	15.45	125.80	926.94
	Gold	18	MC	A3KKG-2018M-ND	16.08	130.96	964.95
	Gold	18	GR	A3KKG-2018G-ND	15.83	128.88	949.62
	Gold	36	MC	A3KKG-2036M-ND	16.91	137.66	1014.30
	Gold	36	GR	A3KKG-2036G-ND	16.39	133.49	983.64
26	Gold	6	MC	A3KKG-2606M-ND	29.76	242.31	1785.42
	Gold	6	GR	A3KKG-2606G-ND	29.65	241.42	1778.91
	Gold	18	MC	A3KKG-2618M-ND	30.47	248.09	1828.05
	Gold	18	GR	A3KKG-2618G-ND	30.14	245.44	1808.52
	Gold	36	MC	A3KKG-2636M-ND	31.54	256.79	1892.10
	Gold	36	GR	A3KKG-2636G-ND	30.88	251.46	1852.83
34	Gold	6	MC	A3KKG-3406M-ND	35.33	287.65	2119.53
	Gold	6	GR	A3KKG-3406G-ND	35.18	286.48	2110.92
	Gold	18	MC	A3KKG-3418M-ND	36.25	295.20	2175.18
	Gold	18	GR	A3KKG-3418G-ND	35.83	291.73	2149.56
	Gold	36	MC	A3KKG-3436M-ND	37.64	306.52	2258.55
	Gold	36	GR	A3KKG-3436G-ND	36.79	299.59	2207.52
40	Gold	6	MC	A3KKG-4006M-ND	24.84	202.26	1490.37
	Gold	6	GR	A3KKG-4006G-ND	24.67	200.87	1480.08
	Gold	18	MC	A3KKG-4018M-ND	25.94	211.19	1556.10
	Gold	18	GR	A3KKG-4018G-ND	25.42	207.02	1525.44
	Gold	36	MC	A3KKG-4036M-ND	27.58	224.55	1654.59
	Gold	36	GR	A3KKG-4036G-ND	26.56	216.29	1593.69
50	Gold	6	MC	A3KKG-5006M-ND	29.18	237.58	1750.56
	Gold	6	GR	A3KKG-5006G-ND	28.96	235.84	1737.75
	Gold	18	MC	A3KKG-5018M-ND	30.54	248.72	1832.67
	Gold	18	GR	A3KKG-5018G-ND	29.91	243.53	1794.45
	Gold	36	MC	A3KKG-5036M-ND	32.60	265.48	1956.15
	Gold	36	GR	A3KKG-5036G-ND	31.33	255.08	1879.50
60	Gold	6	MC	A3KKG-6006M-ND	33.93	276.28	2035.74
	Gold	6	GR	A3KKG-6006G-ND	33.68	274.23	2020.62
	Gold	18	MC	A3KKG-6018M-ND	35.56	289.59	2133.81
	Gold	18	GR	A3KKG-6018G-ND	34.81	283.43	2088.45
	Gold	36	MC	A3KKG-6036M-ND	38.02	309.60	2281.23
	Gold	36	GR	A3KKG-6036G-ND	36.51	297.26	2190.30

Also available in the following version:
A3RRG-□□□□□-ND — Pin Connector with Strain Relief.
Call for complete part number and pricing!

Socket Connector to Pin Connector

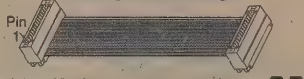


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Gold	6	MC	A3AKG-1006M-ND	10.29	83.76	617.19
	Gold	6	MC	A3AKA-1006M-ND	10.08	82.05	604.59
	Gold	6	GR	A3AKG-1006G-ND	10.26	83.51	615.30
	Gold	6	GR	A3AKA-1006G-ND	10.03	81.71	602.07
	Gold	18	MC	A3AKG-1018M-ND	10.56	85.98	633.57
	Gold	18	MC	A3AKA-1018M-ND	10.35	84.27	620.97
	Gold	18	GR	A3AKG-1018G-ND	10.43	84.93	625.80
	Gold	18	GR	A3AKA-1018G-ND	10.22	83.22	613.20
	Gold	36	MC	A3AKG-1036M-ND	10.97	89.32	658.14
	Gold	36	MC	A3AKA-1036M-ND	10.76	87.61	645.54
	Gold	36	GR	A3AKG-1036G-ND	10.71	87.24	642.81
	Gold	36	GR	A3AKA-1036G-ND	10.50	85.53	630.21
14	Gold	6	MC	A3AKG-1406M-ND	13.60	110.72	815.85
	Gold	6	MC	A3AKA-1406M-ND	13.28	108.15	796.91
	Gold	6	GR	A3AKG-1406G-ND	13.54	110.24	812.28
	Gold	6	GR	A3AKA-1406G-ND	13.22	107.67	793.38
	Gold	18	MC	A3AKG-1418M-ND	13.98	113.83	838.74
	Gold	18	MC	A3AKA-1418M-ND	13.67	111.27	819.90
	Gold	18	GR	A3AKG-1418G-ND	13.80	112.40	828.24
	Gold	18	GR	A3AKA-1418G-ND	13.49	109.84	809.34
	Gold	36	MC	A3AKG-1436M-ND	14.55	118.52	873.29
	Gold	36	MC	A3AKA-1436M-ND	14.24	115.95	854.39
	Gold	36	GR	A3AKG-1436G-ND	14.20	115.65	852.18
	Gold	36	GR	A3AKA-1436G-ND	13.89	113.09	833.28
16	Gold	6	MC	A3AKG-1606M-ND	8.52	69.34	510.93
	Gold	6	MC	A3AKA-1606M-ND	8.20	66.78	492.03
	Gold	6	GR	A3AKG-1606G-ND	8.45	68.77	506.73
	Gold	6	GR	A3AKA-1606G-ND	8.13	66.21	487.83
	Gold	18	MC	A3AKG-1618M-ND	8.95	72.90	537.18
	Gold	18	MC	A3AKA-1618M-ND	8.64	70.34	518.28
	Gold	18	GR	A3AKG-1618G-ND	8.75	71.22	524.79
	Gold	18	GR	A3AKA-1618G-ND	8.43	68.66	505.89
	Gold	36	MC	A3AKG-1636M-ND	9.61	78.23	576.45
	Gold	36	MC	A3AKA-1636M-ND	9.29	75.67	557.55
	Gold	36	GR	A3AKG-1636G-ND	9.20	74.90	551.88
	Gold	36	GR	A3AKA-1636G-ND	8.88	72.33	532.98
20	Gold	6	MC	A3AKG-2006M-ND	9.83	80.06	589.89
	Gold	6	MC	A3AKA-2006M-ND	9.37	76.33	562.44
	Gold	6	GR	A3AKG-2006G-ND	9.75	79.37	584.85
	Gold	6	GR	A3AKA-2006G-ND	9.29	75.64	557.34
	Gold	18	MC	A3AKG-2018M-ND	10.38	84.52	622.78
	Gold	18	MC	A3AKA-2018M-ND	9.92	80.79	595.31
	Gold	18	GR	A3AKG-2018G-ND	10.12	82.44	607.49
	Gold	18	GR	A3AKA-2018G-ND	9.67	78.72	580.02
	Gold	36	MC	A3AKG-2036M-ND	11.20	91.21	672.06
	Gold	36	MC	A3AKA-2036M-ND	10.74	87.48	644.60
	Gold	36	GR	A3AKG-2036G-ND	10.69	87.06	641.51
	Gold	36	GR	A3AKA-2036G-ND	10.23	83.33	614.04
26	Gold	6	MC	A3AKG-2606M-ND	17.23	140.27	1033.54
	Gold	6	MC	A3AKA-2606M-ND	16.88	137.43	1012.62
	Gold	6	GR	A3AKG-2606G-ND	17.12	139.38	1027.01
	Gold	6	GR	A3AKA-2606G-ND	16.77	136.54	1006.11
	Gold	18	MC	A3AKG-2618M-ND	17.94	146.06	1076.23
	Gold	18	MC	A3AKA-2618M-ND	17.59	143.21	1055.25
	Gold	18	GR	A3AKG-2618G-ND	17.61	143.40	1056.62
	Gold	18	GR	A3AKA-2618G-ND	17.26	140.56	1035.72
	Gold	36	MC	A3AKG-2636M-ND	19.00	154.75	1140.26
	Gold	36	MC	A3AKA-2636M-ND	18.66	151.91	1119.30
	Gold	36	GR	A3AKG-2636G-ND	18.35	149.43	1101.03
	Gold	36	GR	A3AKA-2636G-ND	18.00	146.58	1080.03
34	Gold	6	MC	A3AKG-3406M-ND	20.34	165.66	1220.63
	Gold	6	MC	A3AKA-3406M-ND	19.93	162.25	1195.53
	Gold	6	GR	A3AKG-3406G-ND	20.20	164.50	1212.12
	Gold	6	GR	A3AKA-3406G-ND	19.78	161.08	1186.92
	Gold	18	MC	A3AKG-3418M-ND	21.27	173.21	1276.28
	Gold	18	MC	A3AKA-3418M-ND	20.85	169.80	1251.18
	Gold	18	GR	A3AKG-3418G-ND	20.85	169.75	1250.76
	Gold	18	GR	A3AKA-3418G-ND	20.43	166.33	1225.56
	Gold	36	MC	A3AKG-3436M-ND	23.61	192.23	1416.45
	Gold	36	MC	A3AKA-3436M-ND	22.24	181.12	1334.55
	Gold	36	GR	A3AKG-3436G-ND	21.81	177.61	1308.72
	Gold	36	GR	A3AKA-3436G-ND	21.39	174.19	1283.52
40	Gold	6	MC	A3AKG-4006M-ND	16.37	133.29	982.17
	Gold	6	MC	A3AKA-4006M-ND	14.97	121.89	898.17
	Gold	6	GR	A3AKG-4006G-ND	16.20	131.90	971.88
	Gold	6	GR	A3AKA-4006G-ND	14.80	120.50	887.88
	Gold	18	MC	A3AKG-4018M-ND	17.47	142.22	1047.90
	Gold	18	MC	A3AKA-4018M-ND	16.07	130.82	963.90
	Gold	18	GR	A3AKG-4018G-ND	16.95	138.05	1017.24
	Gold	18	GR	A3AKA-4018G-ND	15.55	126.65	933.24
	Gold	36	MC	A3AKG-4036M-ND	19.11	155.58	1146.39
	Gold	36	MC	A3AKA-4036M-ND	17.71	144.18	1062.39
	Gold	36	GR	A3AKG-4036G-ND	18.09	147.32	1085.49
	Gold	36	GR	A3AKA-4036G-ND	16.69	135.92	1001.49
50	Gold	6	MC	A3AKG-5006M-ND	19.00	154.75	1140.26
	Gold	6	MC	A3AKA-5006M-ND	17.80	144.95	1068.06
	Gold	6	GR	A3AKG-5006G-ND	18.79	153.02	1127.49
	Gold	6	GR	A3AKA-5006G-ND	17.59	143.21	1055.25
	Gold	18	MC	A3AKG-5018M-ND	20.37	165.91	1222.47
	Gold	18	MC	A3AKA-5018M-ND	19.17	156.09	1150.17
	Gold	18	GR	A3AKG-5018G-ND	19.74	160.71	1184.19
	Gold	18	GR	A3AKA-5018G-ND	18.53	150.91	1111.95
	Gold	36	MC	A3AKG-5036M-ND	22.43	182.64	1345.79
	Gold	36	MC	A3AKA-5036M-ND	21.23	172.85	1273.65
	Gold	36	GR	A3AKG-5036G-ND	21.15	172.25	1269.24
	Gold	36	GR	A3AKA-5036G-ND	19.95	162.45	1197.00
60	Gold	6	MC	A3AKG-6006M-ND	22.25	181.14	1334.72
	Gold	6	MC	A3AKA-6006M-ND	20.77	169.12	1246.14
	Gold	6	GR	A3AKG-6006G-ND	21.99	179.08	1319.56
	Gold	6	GR	A3AKA-6006G-ND	20.52	167.07	1231.02
	Gold	18	MC	A3AKG-6018M-ND	23.88	194.46	1432.89
	Gold	18	MC	A3AKA-6018M-ND	22.40	182.43	1344.21
	Gold	18	GR	A3AKG-6018G-ND	23.12	188.30	1387.45
	Gold	18	GR	A3AKA-6018G-ND	21.65	176.27	1298.85
	Gold	36	MC	A3AKG-6036M-ND	26.34	214.45	1580.15
	Gold	36	MC	A3AKA-6036M-ND	24.86	202.44	1491.63
	Gold	36	GR	A3AKG-6036G-ND	24.82	202.12	1489.28
	Gold	36	GR	A3AKA-6036G-ND	23.35	190.10	1400.70

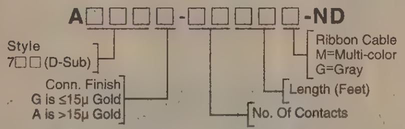
Also available in the following versions:
A3BRG-□□□□□-ND — Socket Conn. w. SR, Pin Conn. w. SR.
A3CKG-□□□□□-ND — Socket Connector with Central Polarizing Key.
A3DRG-□□□□□-ND — Socket Conn. w. SR & PK, Pin Conn. w. SR.
A3BRA-□□□□□-ND — Socket Conn. w. SR, Pin Conn. w. SR.
A3CKA-□□□□□-ND — Socket Connector with Central Polarizing Key.
A3DRA-□□□□□-ND — Socket Conn. w. SR & PK, Pin Conn. w, SR.
Call for complete part number and pricing!

Card Edge to Card Edge

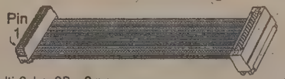


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Gold	6	MC	A3EEG-1006M-ND	3.92	31.89	234.99
	Gold	6	GR	A3EEG-1006G-ND	3.87	31.55	232.47
	Gold	18	MC	A3EEG-1018M-ND	4.19	34.11	251.37
	Gold	18	GR	A3EEG-1018G-ND	4.06	33.06	243.60
	Gold	36	MC	A3EEG-1036M-ND	4.60	37.45	275.94
	Gold	36	GR	A3EEG-1036G-ND	4.34	35.37	260.61
20	Gold	6	MC	A3EEG-2006M-ND	7.76	63.21	465.78
	Gold	6	GR	A3EEG-2006G-ND	7.68	62.53	460.74
	Gold	18	MC	A3EEG-2018M-ND	8.31	67.69	498.75
	Gold	18	GR	A3EEG-2018G-ND	8.06	65.61	483.42
	Gold	36	MC	A3EEG-2036M-ND	9.14	74.39	548.10
	Gold	36	GR	A3EEG-2036G-ND	8.62	70.22	517.44
26	Gold	6	MC	A3EEG-2606M-ND	8.83	71.88	529.62
	Gold	6	GR	A3EEG-2606G-ND	8.72	70.99	523.11
	Gold	18	MC	A3EEG-2618M-ND	9.54	77.66	572.25
	Gold	18	GR	A3EEG-2618G-ND	9.21	75.01	552.72
	Gold	36	MC	A3EEG-2636M-ND	10.61	86.36	636.30
	Gold	36	GR	A3EEG-2636G-ND	9.95	81.03	597.03
34	Gold	6	MC	A3EEG-3406M-ND	9.78	79.60	586.53
	Gold	6	GR	A3EEG-3406G-ND	9.63	78.43	577.92
	Gold	18	MC	A3EEG-3418M-ND	10.70	87.15	642.18
	Gold	18	GR	A3EEG-3418G-ND	10.28	83.68	616.56
	Gold	36	MC	A3EEG-3436M-ND	12.09	98.47	725.55
	Gold	36	GR	A3EEG-3436G-ND	11.24	91.54	674.52
40	Gold	6	MC	A3EEG-4006M-ND	11.26	91.68	675.57
	Gold	6	GR	A3EEG-4006G-ND	11.09	90.29	665.28
	Gold	18	MC	A3EEG-4018M-ND	12.36	100.61	741.30
	Gold	18	GR	A3EEG-4018G-ND	11.84	96.44	710.64
	Gold	36	MC	A3EEG-4036M-ND	14.00	113.97	839.79
	Gold	36	GR	A3EEG-4036G-ND	12.98	105.71	778.89
50	Gold	6	MC	A3EEG-5006M-ND	13.85	112.75	830.76
	Gold	6	GR	A3EEG-5006G-ND	13.63	111.01	817.95
	Gold	18	MC	A3EEG-5018M-ND	15.21	123.89	912.87
	Gold	18	GR	A3EEG-5018G-ND	14.58	118.70	874.65
	Gold	36	MC	A3EEG-5036M-ND	17.27	140.65	1036.35
	Gold	36	GR	A3EEG-5036G-ND	16.00	130.25	959.70



Socket Connector to Card Edge Connector

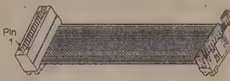


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Gold	6	MC	A3AEG-1006M-ND	3.15	25.62	188.79
	Gold	6	MC	A3AEA-1006M-ND	2.94	23.91	176.19
	Gold	6	GR	A3AEG-1006G-ND	3.10	25.28	186.27
	Gold	6	GR	A3AEA-1006G-ND	2.89	23.57	173.67
	Gold	18	MC	A3AEG-1018M-ND	3.42	27.84	205.17
	Gold	18	MC	A3AEA-1018M-ND	3.21	26.13	192.57
	Gold	18	GR	A3AEG-1018G-ND	3.29	26.79	197.40
	Gold	18	GR	A3AEA-1018G-ND	3.08	25.08	184.80
	Gold	36	MC	A3AEG-1036M-ND	3.83	31.18	229.74
	Gold	36	MC	A3AEA-1036M-ND	3.62	29.47	217.14
	Gold	36	GR	A3AEG-1036G-ND	3.57	29.10	214.41
	Gold	36	GR	A3AEA-1036G-ND	3.36	27.39	201.81
20	Gold	6	MC	A3AEG-2006M-ND	5.95	48.42	356.79
	Gold	6	MC	A3AEA-2006M-ND	5.49	44.70	329.34
	Gold	6	GR	A3AEG-2006G-ND	5.86	47.73	351.71
	Gold	6	GR	A3AEA-2006G-ND	5.40	44.00	324.24
	Gold	18	MC	A3AEG-2018M-ND	6.49	52.88	389.68
	Gold	18	MC	A3AEA-2018M-ND	6.04	49.16	362.25
	Gold	18	GR	A3AEG-2018G-ND	6.24	50.81	374.39
	Gold	18	GR	A3AEA-2018G-ND	5.78	47.08	346.92
	Gold	36	MC	A3AEG-2036M-ND	7.32	59.57	438.96
	Gold	36	MC	A3AEA-2036M-ND	6.86	55.86	411.60
	Gold	36	GR	A3AEG-2036G-ND	6.81	55.43	408.41
	Gold	36	GR	A3AEA-2036G-ND	6.35	51.70	380.94
26	Gold	6	MC	A3AEG-2606M-ND	6.76	55.05	405.66
	Gold	6	MC	A3AEA-2606M-ND	6.41	52.21	384.72
	Gold	6	GR	A3AEG-2606G-ND	6.65	54.16	399.11
	Gold	6	GR	A3AEA-2606G-ND	6.30	51.33	378.21
	Gold	18	MC	A3AEG-2618M-ND	7.47	60.84	448.33
	Gold	18	MC	A3AEA-2618M-ND	7.12	58.00	427.35
	Gold	18	GR	A3AEG-2618G-ND	7.15	58.18	428.72
	Gold	18	GR	A3AEA-2618G-ND	6.80	55.35	407.82
	Gold	36	MC	A3AEG-2636M-ND	8.54	69.53	512.36
	Gold	36	MC	A3AEA-2636M-ND	8.19	66.69	491.40
	Gold	36	GR	A3AEG-2636G-ND	7.89	64.21	473.13
	Gold	36	GR	A3AEA-2636G-ND	7.54	61.36	452.13
34	Gold	6	MC	A3AEG-3406M-ND	7.57	61.63	454.13
	Gold	6	MC	A3AEA-3406M-ND	7.15	58.23	429.03
	Gold	6	GR	A3AEG-3406G-ND	7.43	60.48	445.62
	Gold	6	GR	A3AEA-3406G-ND	7.01	57.06	420.42
	Gold	18	MC	A3AEG-3418M-ND	8.50	69.18	509.78
	Gold	18	MC	A3AEA-3418M-ND	8.08	65.78	484.68
	Gold	18	GR	A3AEG-3418G-ND	8.07	65.72	484.26
	Gold	18	GR	A3AEA-3418G-ND	7.65	62.30	459.06
	Gold	36	MC	A3AEG-3436M-ND	9.89	80.51	593.25
	Gold	36	MC	A3AEA-3436M-ND	9.47	77.09	568.05
	Gold	36	GR	A3AEG-3436G-ND	9.04	73.59	542.22
	Gold	36	GR	A3AEA-3436G-ND	8.62	70.17	517.02
40	Gold	6	MC	A3AEG-4006M-ND	9.58	78.00	574.77
	Gold	6	MC	A3AEA-4006M-ND	8.18	66.60	490.77
	Gold	6	GR	A3AEG-4006G-ND	9.41	76.61	564.48
	Gold	6	GR	A3AEA-4006G-ND	8.01	65.21	480.48
	Gold	18	MC	A3AEG-4018M-ND	10.68	86.93	640.50
	Gold	18	MC	A3AEA-4018M-ND	9.27	75.51	556.40
	Gold	18	GR	A3AEG-4018G-ND	10.16	82.76	609.84
	Gold	18	GR	A3AEA-4018G-ND	8.76	71.36	525.84
	Gold	36	MC	A3AEG-4036M-ND	12.32	100.29	738.99
	Gold	36	MC	A3AEA-4036M-ND	10.92	88.89	654.99
	Gold	36	GR	A3AEG-4036G-ND	11.30	92.03	678.09
	Gold	36	GR	A3AEA-4036G-ND	9.90	80.63	594.09
50	Gold	6	MC	A3AEG-5006M-ND	11.34	92.33	680.36
	Gold	6	MC	A3AEA-5006M-ND	10.14	82.54	608.16
	Gold	6	GR	A3AEG-5006G-ND	11.13	90.60	667.59
	Gold	6	GR	A3AEA-5006G-ND	9.92	80.80	595.35
	Gold	18	MC	A3AEG-5018M-ND	12.71	103.49	762.57
	Gold	18	MC	A3AEA-5018M-ND	11.50	93.68	690.27
	Gold	18	GR	A3AEG-5018G-ND	12.07	98.30	724.29
	Gold	18	GR	A3AEA-5018G-ND	10.87	88.49	652.05
	Gold	36	MC	A3AEG-5036M-ND	14.76	120.23	885.89
	Gold	36	MC	A3AEA-5036M-ND	13.56	110.44	813.75
	Gold	36	GR	A3AEG-5036G-ND	13.49	109.84	809.34
	Gold	36	GR	A3AEA-5036G-ND	12.29	100.04	737.10

Also available in the following versions:
A3BEG-□□□□□-ND — Socket Connector with Strain Relief.
A3CEG-□□□□□-ND — Socket Connector with Central Polarizing Key.
A3DEG-□□□□□-ND — Socket Connector w. Strain Relief & Central Polarizing Key.
A3BEA-□□□□□-ND — Socket Connector with Strain Relief.
A3CEA-□□□□□-ND — Socket Connector with Central Polarizing Key.
A3DEA-□□□□□-ND — Socket Connector w. Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

Card Edge Connector to Pin Connector



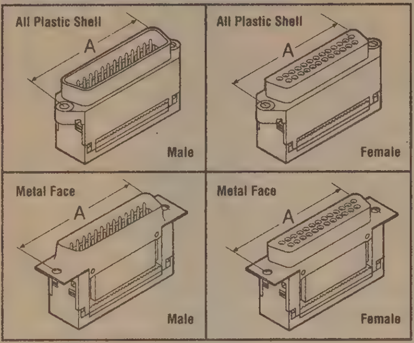
* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Gold	6	MC	A3EKG-1006M-ND	11.06	90.03	663.39
	Gold	6	GR	A3EKG-1006G-ND	11.01	89.69	660.87
	Gold	18	MC	A3EKG-1018M-ND	11.33	92.25	679.77
	Gold	18	GR	A3EKG-1018G-ND	11.20	91.20	672.00
	Gold	36	MC	A3EKG-1036M-ND	11.74	95.59	704.34
	Gold	36	GR	A3EKG-1036G-ND	11.48	93.51	689.01
20	Gold	6	MC	A3EKG-2006M-ND	11.65	94.85	698.88
	Gold	6	GR	A3EKG-2006G-ND	11.56	94.16	693.84
	Gold	18	MC	A3EKG-2018M-ND	12.20	99.32	731.85
	Gold	18	GR	A3EKG-2018G-ND	11.94	97.24	716.52
	Gold	36	MC	A3EKG-2036M-ND	13.02	106.02	781.20
	Gold	36	GR	A3EKG-2036G-ND	12.51	101.86	750.54
26	Gold	6	MC	A3EKG-2606M-ND	19.29	157.09	1157.52
	Gold	6	GR	A3EKG-2606G-ND	19.18	156.21	1151.01
	Gold	18	MC	A3EKG-2618M-ND	20.00	162.88	1200.15
	Gold	18	GR	A3EKG-2618G-ND	19.68	160.23	1180.62
	Gold	36	MC	A3EKG-2636M-ND	21.07	171.57	1264.20
	Gold	36	GR	A3EKG-2636G-ND	20.42	166.24	1224.93
34	Gold	6	MC	A3EKG-3406M-ND	22.55	183.63	1353.03
	Gold	6	GR	A3EKG-3406G-ND	22.41	182.46	1344.42
	Gold	18	MC	A3EKG-3418M-ND	23.48	191.18	1408.68
	Gold	18	GR	A3EKG-3418G-ND	23.05	187.70	1383.06
	Gold	36	MC	A3EKG-3436M-ND	24.87	202.49	1492.05
	Gold	36	GR	A3EKG-3436G-ND	24.02	195.57	1441.02
40	Gold	6	MC	A3EKG-4006M-ND	18.05	146.97	1082.97
	Gold	6	GR	A3EKG-4006G-ND	17.88	145.58	1072.68
	Gold	18	MC	A3EKG-4018M-ND	19.15	155.90	1148.70
	Gold	18	GR	A3EKG-4018G-ND	18.63	151.73	1118.04
	Gold	36	MC	A3EKG-4036M-ND	20.79	169.26	1247.19
	Gold	36	GR	A3EKG-4036G-ND	19.77	161.00	1186.29
50	Gold	6	MC	A3EKG-5006M-ND	21.51	175.16	1290.66
	Gold	6	GR	A3EKG-5006G-ND	21.30	173.42	1277.85
	Gold	18	MC	A3EKG-5018M-ND	22.88	186.30	1372.77
	Gold	18	GR	A3EKG-5018G-ND	22.24	181.12	1334.55
	Gold	36	MC	A3EKG-5036M-ND	24.94	203.06	1496.25
	Gold	36	GR	A3EKG-5036G-ND	23.66	192.66	1419.60

Also available in the following configuration:
A3ERG-□□□□□-ND – Pin Connector with Strain Relief.
Call for complete part number and pricing!

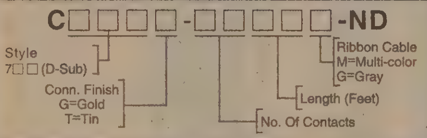
CW INDUSTRIES

D-Subminiature Connectors



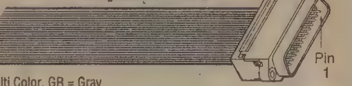
Specifications: • Contacts: phosphor bronze • Contact Plating: Gold –10μ in. gold (in mating area) over 50μ in. nickel; Tin -100μ in. tin-lead • Insulator material UL 94V-0 flame-retardant thermoplastic • Cover pull-off force 8 oz./contact minimum (force applied along contacts' primary axis) • Withdrawal force 2-8 oz./contact, typical • Color: blue • Operating temp.: –55° to +125°C • Current 1A (maximum) per contact • Dielectric Withstand Voltage: 500Vdc (sea level) • Insulation resistance: 5 x 10^9 ohms

No. of Contacts	Contact Finish	Dim. "A"	Digi-Key Part No.	Pricing			
				1	10	100	1,000
Male D-Subminiature Connectors, Plastic Shell							
9	Gold	.984	CMP09G-ND	3.15	25.65	189.00	1309.50
9	Tin	.984	CMP09T-ND	2.56	20.81	153.30	1062.15
15	Gold	1 312	CMP15G-ND	4.13	33.63	247 80	1716 90
15	Tin	1.312	CMP15T-ND	3.33	27 08	199.50	1382.25
25	Gold	1.852	CMP25G-ND	5.57	45.32	333.90	2313.45
25	Tin	1.852	CMP25T-ND	4.52	36 77	270.90	1876.95
37	Gold	2.500	CMP37G-ND	8.23	66.98	493.50	3419.25
37	Tin	2.500	CMP37T-ND	6.65	54.15	399.00	2764.50
Female D-Subminiature Connectors, Plastic Shell							
9	Gold	.984	CFP09G-ND	3.61	29.36	216.30	1498.65
9	Tin	984	CFP09T-ND	2.91	23 66	174.30	1207 65
15	Gold	1 312	CFP15G-ND	4.73	38.48	283 50	1964 25
15	Tin	1.312	CFP15T-ND	3.82	31.07	228.90	1585.95
25	Gold	1.852	CFP25G-ND	6.41	52.16	384.30	2662.65
25	Tin	1.852	CFP25T-ND	5.18	42.18	310.80	2153.40
37	Gold	2.500	CFP37G-ND	9.49	77.24	569.10	3943.05
37	Tin	2.500	CFP37T-ND	7 63	62 13	457 80	3171.90
Male D-Subminiature Connectors, Metal Face							
9	Gold	.984	CMM09G-ND	3.43	27.93	205.80	1425.90
9	Tin	.984	CMM09T-ND	2.80	22.80	168.00	1164 00
15	Gold	1.312	CMM15G-ND	4.52	36.77	270.90	1876.95
15	Tin	1.312	CMM15T-ND	3.64	29.64	218.40	1513.20
25	Gold	1.852	CMM25G-ND	6.13	49.88	367.50	2546.25
25	Tin	1.852	CMM25T-ND	4.97	40.47	298.20	2066.10
37	Gold	2.500	CMM37G-ND	9.07	73.82	543.90	3768.45
37	Tin	2 500	CMM37T-ND	7.35	59 85	441.00	3055.50
Female D-Subminiature Connectors, Metal Face							
9	Gold	.984	CFM09G-ND	3.99	32.49	239.40	1658.70
9	Tin	.984	CFM09T-ND	3.26	26.51	195.30	1353 15
15	Gold	1.312	CFM15G-ND	5.18	42.18	310.80	2153.40
15	Tin	1.312	CFM15T-ND	4.20	34.20	252.00	1746.00
25	Gold	1.852	CFM25G-ND	7.04	57.29	422.10	2924.55
25	Tin	1.852	CFM25T-ND	5.71	46.46	342.30	2371.65
37	Gold	2.500	CFM37G-ND	10.43	84.93	625.80	4335.90
37	Tin	2.500	CFM37T-ND	8.44	68.69	506.10	3506.55



D-Subminiature Cable Assemblies

Single Ended — Male

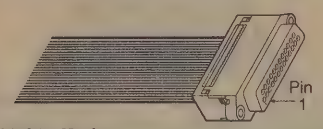


* MC = Multi Color, GR = Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
Using Plastic Shell Connectors							
9	Gold	6	MC	C7MXG-0906M-ND	4.74	38.60	284.45
	Tin	6	MC	C7MXT-0906M-ND	4.12	33.56	247.32
	Gold	6	GR	C7MXG-0906G-ND	4.48	36.47	268.70
	Tin	6	GR	C7MXT-0906G-ND	3 86	31.43	231.57
	Gold	10	MC	C7MXG-0910M-ND	5.72	46.55	343.04
	Tin	10	MC	C7MXT-0910M-ND	5.10	41.52	305.91
	Gold	10	GR	C7MXG-0910G-ND	5.28	42.99	316.79
	Tin	10	GR	C7MXT-0910G-ND	4.66	37.95	279.66
15	Gold	6	MC	C7MXG-1506M-ND	6.92	56.35	415.21
	Tin	6	MC	C7MXT-1506M-ND	6.08	49 53	364.98
	Gold	6	GR	C7MXG-1506G-ND	6.10	49.68	366.07
	Tin	6	GR	C7MXT-1506G-ND	5.26	42.86	315.84
	Gold	10	MC	C7MXG-1510M-ND	8.67	70.60	520.21
	Tin	10	MC	C7MXT-1510M-ND	7.83	63.78	469.98
	Gold	10	GR	C7MXG-1510G-ND	7.31	59.49	438.31
	Tin	10	GR	C7MXT-1510G-ND	6.47	52.67	388.08
25	Gold	6	MC	C7MXG-2506M-ND	9.91	80.69	594.53
	Tin	6	MC	C7MXT-2506M-ND	8.82	71.79	529.01
	Gold	6	GR	C7MXG-2506G-ND	8.75	71.24	524.92
	Tin	6	GR	C7MXT-2506G-ND	7.66	62.35	459.40
	Gold	10	MC	C7MXG-2510M-ND	12.66	103.06	759.38
	Tin	10	MC	C7MXT-2510M-ND	11.56	94.17	693.86
	Gold	10	GR	C7MXG-2510G-ND	10.72	87.31	643.36
	Tin	10	GR	C7MXT-2510G-ND	9.63	78.42	577.84
37	Gold	6	MC	C7MXG-3706M-ND	14.59	118.77	875.18
	Tin	6	MC	C7MXT-3706M-ND	12.95	105.44	776.90
	Gold	6	GR	C7MXG-3706G-ND	13.10	106.63	785.72
	Tin	6	GR	C7MXT-3706G-ND	11.46	93.29	687.44
	Gold	10	MC	C7MXG-3710M-ND	18.61	151.52	1116.47
	Tin	10	MC	C7MXT-3710M-ND	16.97	138.18	1018.19
	Gold	10	GR	C7MXG-3710G-ND	16.12	131.29	967.37
	Tin	10	GR	C7MXT-3710G-ND	14.48	117.95	869.09

Also available in the following configuration:
C7PX□-□□□□□-ND — With Metal Face Connector.
Call for complete part number pricing!

Single Ended — Female

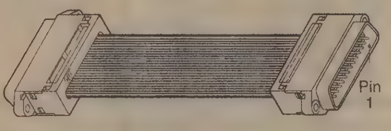


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
Using Plastic Shell Connectors							
9	Gold	6	MC	C7FXG-0906M-ND	5.21	42.46	312.84
	Tin	6	MC	C7FXT-0906M-ND	4.49	36.53	269.16
	Gold	6	GR	C7FXG-0906G-ND	4.95	40.32	297.09
	Tin	6	GR	C7FXT-0906G-ND	4.22	34.39	253.41
	Gold	10	MC	C7FXG-0910M-ND	6.19	50.41	371.43
	Tin	10	MC	C7FXT-0910M-ND	5.46	44.48	327.75
	Gold	10	GR	C7FXG-0910G-ND	5.75	46.85	345.18
	Tin	10	GR	C7FXT-0910G-ND	5.02	40.92	301.50
15	Gold	6	MC	C7FXG-1506M-ND	7.54	61.39	452.34
	Tin	6	MC	C7FXT-1506M-ND	6.59	53.68	395.56
	Gold	6	GR	C7FXG-1506G-ND	6.72	54.72	403.20
	Tin	6	GR	C7FXT-1506G-ND	5.77	47.01	346.42
	Gold	10	MC	C7FXG-1510M-ND	9.29	75.64	557.34
	Tin	10	MC	C7FXT-1510M-ND	8 34	67 93	500.56
	Gold	10	GR	C7FXG-1510G-ND	7.92	64.52	475.44
	Tin	10	GR	C7FXT-1510G-ND	6.98	56.82	418 66
25	Gold	6	MC	C7FXG-2506M-ND	9.91	80.69	594.53
	Tin	6	MC	C7FXT-2506M-ND	8.82	71.79	529.01
	Gold	6	GR	C7FXG-2506G-ND	8.75	71.24	524.92
	Tin	6	GR	C7FXT-2506G-ND	7.66	62.35	459.40
	Gold	10	MC	C7FXG-2510M-ND	13.53	110 17	811.80
	Tin	10	MC	C7FXT-2510M-ND	12.26	99.80	735 36
	Gold	10	GR	C7FXG-2510G-ND	11.60	94.43	695 77
	Tin	10	GR	C7FXT-2510G-ND	10.32	84.05	619.33
37	Gold	6	MC	C7FXG-3706M-ND	15.90	129.44	953.80
	Tin	6	MC	C7FXT-3706M-ND	13.97	113.73	838.05
	Gold	6	GR	C7FXG-3706G-ND	14.41	117.30	864.34
	Tin	6	GR	C7FXT-3706G-ND	12.48	101.59	748.59
	Gold	10	MC	C7FXG-3710M-ND	19.92	162.19	1195.09
	Tin	10	MC	C7FXT-3710M-ND	17.99	146.48	1079.34
	Gold	10	GR	C7FXG-3710G-ND	17.43	141.96	1045.99
	Tin	10	GR	C7FXT-3710G-ND	15.50	126.25	930.24

Also available in the following configuration:
C7SX□-□□□□□-ND — With Metal Face Connector.
Call for complete part number pricing!

Male to Male

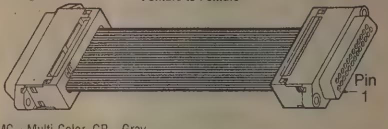


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
Using Plastic Shell Connectors							
9	Gold	6	MC	C7MMG-0906M-ND	8.02	65.28	481 01
	Tin	6	MC	C7MMT-0906M-ND	6.78	55.20	406.75
	Gold	6	GR	C7MMG-0906G-ND	7.75	63.14	465.26
	Tin	6	GR	C7MMT-0906G-ND	6.52	53.06	391 00
	Gold	10	MC	C7MMG-0910M-ND	8.99	73.23	539 60
	Tin	10	MC	C7MMT-0910M-ND	7.76	63.15	465.34
	Gold	10	GR	C7MMG-0910G-ND	8.56	69.67	513 35
	Tin	10	GR	C7MMT-0910G-ND	7.32	59.59	439.09
15	Gold	6	MC	C7MMG-1506M-ND	11.22	91.33	672.92
	Tin	6	MC	C7MMT-1506M-ND	9 54	77.69	572.46
	Gold	6	GR	C7MMG-1506G-ND	10 40	84.66	623.78
	Tin	6	GR	C7MMT-1506G-ND	8.72	71.02	523.32
	Gold	10	MC	C7MMG-1510M-ND	12.97	105.58	777.92
	Tin	10	MC	C7MMT-1510M-ND	11.29	91.94	677.46
	Gold	10	GR	C7MMG-1510G-ND	11.60	94.46	696.02
	Tin	10	GR	C7MMT-1510G-ND	9.93	80.83	595.56
25	Gold	6	MC	C7MMG-2506M-ND	15.70	127.81	941.79
	Tin	6	MC	C7MMT-2506M-ND	13.51	110.03	810.75
	Gold	6	GR	C7MMG-2506G-ND	14.54	118.37	872.17
	Tin	6	GR	C7MMT-2506G-ND	12.35	100.58	741.13
	Gold	10	MC	C7MMG-2510M-ND	18.44	150.19	1106.64
	Tin	10	MC	C7MMT-2510M-ND	16.26	132.40	975.60
	Gold	10	GR	C7MMG-2510G-ND	16.51	134.44	990.61
	Tin	10	GR	C7MMT-2510G-ND	14.33	116.66	859.57
37	Gold	6	MC	C7MMG-3706M-ND	23.14	188.43	1388.42
	Tin	6	MC	C7MMT-3706M-ND	19.86	161.75	1191.86
	Gold	6	GR	C7MMG-3706G-ND	21.65	176.29	1298.96
	Tin	6	GR	C7MMT-3706G-ND	18.37	149.61	1102.40
	Gold	10	MC	C7MMG-3710M-ND	27.16	221.17	1629.71
	Tin	10	MC	C7MMT-3710M-ND	23.89	194.50	1433.15
	Gold	10	GR	C7MMG-3710G-ND	24.68	200.94	1480.61
	Tin	10	GR	C7MMT-3710G-ND	21.40	174.26	1284.05

Also available in the following configuration:
C7PP□-□□□□□-ND — With Metal Face Connector.
Call for complete part number pricing!

Female to Female

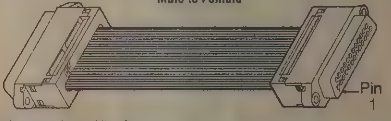


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
Using Plastic Shell Connectors							
9	Gold	6	MC	C7FFG-0906M-ND	8.96	72.99	537.79
	Tin	6	MC	C7FFT-0906M-ND	7.51	61.13	450.43
	Gold	6	GR	C7FFG-0906G-ND	8.70	70.85	522.04
	Tin	6	GR	C7FFT-0906G-ND	7.24	58.99	434.68
	Gold	10	MC	C7FFG-0910M-ND	9.94	80.94	596.38
	Tin	10	MC	C7FFT-0910M-ND	8.48	69.08	509.02
	Gold	10	GR	C7FFG-0910G-ND	9.50	77.37	570.13
	Tin	10	GR	C7FFT-0910G-ND	8.05	65.52	482.77
15	Gold	6	MC	C7FFG-1506M-ND	12.45	101.40	747.18
	Tin	6	MC	C7FFT-1506M-ND	10.56	85.99	633.61
	Gold	6	GR	C7FFG-1506G-ND	11.63	94.73	698.04
	Tin	6	GR	C7FFT-1506G-ND	9.74	79.32	584.47
	Gold	10	MC	C7FFG-1510M-ND	14.20	115.65	852 18
	Tin	10	MC	C7FFT-1510M-ND	12.31	100.24	738.61
	Gold	10	GR	C7FFG-1510G-ND	12.84	104.54	770.28
	Tin	10	GR	C7FFT-1510G-ND	10.95	89.13	656.71
25	Gold	6	MC	C7FFG-2506M-ND	17.44	142.04	1046.62
	Tin	6	MC	C7FFT-2506M-ND	14.90	121.29	893.74
	Gold	6	GR	C7FFG-2506G-ND	16.28	132.59	977.00
	Tin	6	GR	C7FFT-2506G-ND	13.74	111.85	824.12
	Gold	10	MC	C7FFG-2510M-ND	20.19	164.41	1211.47
	Tin	10	MC	C7FFT-2510M-ND	17.64	143.67	1058.59
	Gold	10	GR	C7FFG-2510G-ND	18.26	148.67	1095.44
	Tin	10	GR	C7FFT-2510G-ND	15.71	127.92	942.56
37	Gold	6	MC	C7FFG-3706M-ND	25.76	209.77	1545.66
	Tin	6	MC	C7FFT-3706M-ND	21.90	178.35	1314 16
	Gold	6	GR	C7FFG-3706G-ND	24.27	197.63	1456.20
	Tin	6	GR	C7FFT-3706G-ND	20.41	166.21	1224.70
	Gold	10	MC	C7FFG-3710M-ND	29.78	242.52	1786.95
	Tin	10	MC	C7FFT-3710M-ND	25.92	211.10	1555.45
	Gold	10	GR	C7FFG-3710G-ND	27 30	222.28	1637 85
	Tin	10	GR	C7FFT-3710G-ND	23.44	190.86	1406.35

Also available in the following configuration:
C7SS□-□□□□□-ND — With Metal Face Connector.
Call for complete part number pricing!

Male to Female



* MC = Multi-Color, GR = Gray

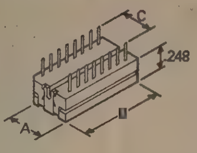
No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
Using Plastic Shell Connectors							
9	Gold	6	MC	C7MFG-0906M-ND	8.49	69.13	509.40
	Tin	6	MC	C7MFT-0906M-ND	7.14	58.17	428.59
	Gold	6	GR	C7MFG-0906G-ND	8.23	66.99	493.65
	Tin	6	GR	C7MFT-0906G-ND	6.88	56.03	412.84
	Gold	10	MC	C7MFG-0910M-ND	9.47	77.08	567.99
	Tin	10	MC	C7MFT-0910M-ND	8.12	66.12	487 18
	Gold	10	GR	C7MFG-0910G-ND	9.03	73.52	541.74
	Tin	10	GR	C7MFT-0910G-ND	7.68	62.55	460.93
15	Gold	6	MC	C7MFG-1506M-ND	11.83	96.36	710.05
	Tin	6	MC	C7MFT-1506M-ND	10.05	81.84	603.04
	Gold	6	GR	C7MFG-1506G-ND	11.02	89.70	660.91
	Tin	6	GR	C7MFT-1506G-ND	9.23	75.17	553.90
	Gold	10	MC	C7MFG-1510M-ND	13.58	110.61	815.05
	Tin	10	MC	C7MFT-1510M-ND	11.80	96.09	708.04
	Gold	10	GR	C7MFG-1510G-ND	12.22	99.50	733.15
	Tin	10	GR	C7MFT-1510G-ND	10.44	84.98	626.14
25	Gold	6	MC	C7MFG-2506M-ND	16.57	134.93	994.20
	Tin	6	MC	C7MFT-2506M-ND	14.20	115.66	852.24
	Gold	6	GR	C7MFG-2506G-ND	15.41	125.48	924.59
	Tin	6	GR	C7MFT-2506G-ND	13.04	106.21	782.63
	Gold	10	MC	C7MFG-2510M-ND	19.32	157.30	1159.05
	Tin	10	MC	C7MFT-2510M-ND	16.95	138.03	1017.09
	Gold	10	GR	C7MFG-2510G-ND	17.38	141.55	1043.03
	Tin	10	GR	C7MFT-2510G-ND	15.02	122.29	901.07
37	Gold	6	MC	C7MFG-3706M-ND	23.14	188.43	1388.42
	Tin	6	MC	C7MFT-3706M-ND	19.86	161.75	1191.86
	Gold	6	GR	C7MFG-3706G-ND	21.65	176.29	1298.96
	Tin	6	GR	C7MFT-3706G-ND	18.37	149.61	1102.40
	Gold	10	MC	C7MFG-3710M-ND	28.47	231.84	1708.33
	Tin	10	MC	C7MFT-3710M-ND	24.90	202.80	1494.30
	Gold	10	GR	C7MFG-3710G-ND	25.99	211.61	1559.23
	Tin	10	GR	C7MFT-3710G-ND	22.42	182.56	1345.20

Also available in the following configuration:
C7PS□-□□□□□-ND — With Metal Face Connector.
Call for complete part number pricing!

CW INDUSTRIES

DIP Connectors

No. of Pins	Dimensions A	B	C
14	.42	.754	.300
16	.42	.854	.300
24	.72	1.264	.600
40	.72	2.067	.600



Specifications:

- Contacts phosphor bronze
- Contact Plating: Gold - 10µ in. gold over 50µ in. nickel Tin - 100µ in. tin-lead
- Insulator Material: UL 94V 0 retardant glass filled thermoplastic
- Strain Relief Strap Material: tin-plated steel
- Color: blue
- Operating Temperature: -55°C to -125°C
- Current Rating: 1 A (maximum) per contact
- Dielectric Withstand Voltage: Greater than 500Vdc at sea level
- Insulation Resistance: Greater than 5 x 109 ohms
- Mates with .050 in. centered round conductor flat cable and standard Dip socket with .100 in. x .300 in. or 100 in. x .600 in. contact spacing
- Cover pull-off force, with strain relief 20 lb. minimum (force along contacts' primary axis)

No. of Contacts	Contact Finish	Digi-Key Part No.	Pricing 1	10	100	1,000
DIP Connectors (.175" Pin Length)						
14	Gold	CDP14G-ND	1.51	12.26	90.30	625.65
14	Tin	CDP14T-ND	1.23	9.98	73.50	509.25
16	Gold	CDP16G-ND	1.61	13.11	96.60	669.30
16	Tin	CDP16T-ND	1.30	10.55	77.70	538.35
24	Gold	CDP24G-ND	2.66	21.66	159.60	1105.80
24	Tin	CDP24T-ND	2.14	17.39	128.10	887.55
40	Gold	CDP40G-ND	3.82	31.07	228.90	1585.95
40	Tin	CDP40T-ND	3.08	25.08	184.80	1280.40
Strain Relief Straps For DIP Connectors						
14	—	CDSR14-ND	.18	1.43	10.50	72.75
16	—	CDSR16-ND	.21	1.71	12.60	87.30
24	—	CDSR24-ND	.25	2.00	14.70	101.85
40	—	CDSR40-ND	.28	2.28	16.80	116.40

C□□□□-□□□□□-ND

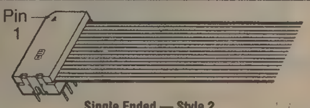
Style
2 □□ = Single-Ended
4 □□ = Single-Ended
6 □□ = Double-Ended
8 □□ = Double-Ended
0 □□ = Double-Ended

Conn. Finish
G = Gold
T = Tin

No. of Contacts

Length (Inches)

Ribbon Cable
M = Multi-Color
G = Gray

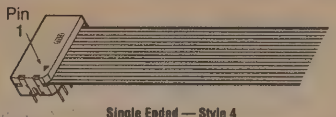


Single Ended — Style 2

* MC = Multi Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	C2PXG-1406M-ND	1.70	13.82	101.81
	Tin	6	MC	C2PXT-1406M-ND	1.42	11.54	85.01
	Gold	6	GR	C2PXG-1406G-ND	1.64	13.34	98.28
	Tin	6	GR	C2PXT-1406G-ND	1.36	11.06	81.48
	Gold	18	MC	C2PXG-1418M-ND	2.08	16.94	124.80
	Tin	18	MC	C2PXT-1418M-ND	1.80	14.66	108.00
	Gold	18	GR	C2PXG-1418G-ND	1.90	15.50	114.24
	Tin	18	GR	C2PXT-1418G-ND	1.62	13.22	97.44
	Gold	36	MC	C2PXG-1436M-ND	2.65	21.62	159.29
	Tin	36	MC	C2PXT-1436M-ND	2.37	19.34	142.49
	Gold	36	GR	C2PXG-1436G-ND	2.30	18.75	138.18
	Tin	36	GR	C2PXT-1436G-ND	2.02	16.47	121.38
16	Gold	6	MC	C2PXG-1606M-ND	1.83	14.89	109.73
	Tin	6	MC	C2PXT-1606M-ND	1.51	12.33	90.83
	Gold	6	GR	C2PXG-1606G-ND	1.76	14.34	105.63
	Tin	6	GR	C2PXT-1606G-ND	1.45	11.77	86.73
	Gold	18	MC	C2PXG-1618M-ND	2.27	18.45	135.98
	Tin	18	MC	C2PXT-1618M-ND	1.95	15.89	117.08
	Gold	18	GR	C2PXG-1618G-ND	2.06	16.79	123.69
	Tin	18	GR	C2PXT-1618G-ND	1.75	14.22	104.79
	Gold	36	MC	C2PXG-1636M-ND	2.92	23.80	175.35
	Tin	36	MC	C2PXT-1636M-ND	2.61	21.23	156.45
	Gold	36	GR	C2PXG-1636G-ND	2.51	20.46	150.78
	Tin	36	GR	C2PXT-1636G-ND	2.20	17.90	131.88
24	Gold	6	MC	C2PXG-2406M-ND	2.99	24.34	179.34
	Tin	6	MC	C2PXT-2406M-ND	2.46	20.06	147.84
	Gold	6	GR	C2PXG-2406G-ND	2.89	23.50	173.15
	Tin	6	GR	C2PXT-2406G-ND	2.36	19.22	141.65
	Gold	18	MC	C2PXG-2418M-ND	3.65	29.70	218.82
	Tin	18	MC	C2PXT-2418M-ND	3.12	25.42	187.32
	Gold	18	GR	C2PXG-2418G-ND	3.34	27.17	200.24
	Tin	18	GR	C2PXT-2418G-ND	2.81	22.90	168.74
	Gold	36	MC	C2PXG-2436M-ND	4.63	37.73	278.04
	Tin	36	MC	C2PXT-2436M-ND	4.11	33.46	246.54
	Gold	36	GR	C2PXG-2436G-ND	4.01	32.69	240.87
	Tin	36	GR	C2PXT-2436G-ND	3.49	28.41	209.37
40	Gold	6	MC	C2PXG-4006M-ND	4.36	35.53	261.77
	Tin	6	MC	C2PXT-4006M-ND	3.63	29.54	217.67
	Gold	6	GR	C2PXG-4006G-ND	4.19	34.15	251.60
	Tin	6	GR	C2PXT-4006G-ND	3.46	28.16	207.50
	Gold	18	MC	C2PXG-4018M-ND	5.46	44.45	327.50
	Tin	18	MC	C2PXT-4018M-ND	4.72	38.46	283.40
	Gold	18	GR	C2PXG-4018G-ND	4.95	40.31	297.02
	Tin	18	GR	C2PXT-4018G-ND	4.22	34.33	252.92
	Gold	36	MC	C2PXG-4036M-ND	7.10	57.83	426.09
	Tin	36	MC	C2PXT-4036M-ND	6.37	51.84	381.99
	Gold	36	GR	C2PXG-4036G-ND	6.09	49.56	365.15
	Tin	36	GR	C2PXT-4036G-ND	5.35	43.57	321.05

Also available in the following version:
C2RX□-□□□□□-ND — Dip Connector with Strain Relief Strap.
Call for complete part number pricing!

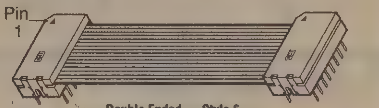


Single Ended — Style 4

* MC = Multi Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	C4PXG-1406M-ND	1.70	13.82	101.81
	Tin	6	MC	C4PXT-1406M-ND	1.42	11.54	85.01
	Gold	6	GR	C4PXG-1406G-ND	1.64	13.34	98.28
	Tin	6	GR	C4PXT-1406G-ND	1.36	11.06	81.48
	Gold	18	MC	C4PXG-1418M-ND	2.08	16.94	124.80
	Tin	18	MC	C4PXT-1418M-ND	1.80	14.66	108.00
	Gold	18	GR	C4PXG-1418G-ND	1.90	15.50	114.24
	Tin	18	GR	C4PXT-1418G-ND	1.62	13.22	97.44
	Gold	36	MC	C4PXG-1436M-ND	2.82	22.94	169.05
	Tin	36	MC	C4PXT-1436M-ND	2.37	19.34	142.49
	Gold	36	GR	C4PXG-1436G-ND	2.30	18.75	138.18
	Tin	36	GR	C4PXT-1436G-ND	2.02	16.47	121.38
16	Gold	6	MC	C4PXG-1606M-ND	1.86	15.13	111.51
	Tin	6	MC	C4PXT-1606M-ND	1.51	12.33	90.83
	Gold	6	GR	C4PXG-1606G-ND	1.89	15.38	113.30
	Tin	6	GR	C4PXT-1606G-ND	1.45	11.77	86.73
	Gold	18	MC	C4PXG-1618M-ND	2.36	19.18	141.33
	Tin	18	MC	C4PXT-1618M-ND	1.95	15.89	117.08
	Gold	18	GR	C4PXG-1618G-ND	2.44	19.91	146.69
	Tin	18	GR	C4PXT-1618G-ND	1.75	14.22	104.79
	Gold	36	MC	C4PXG-1636M-ND	3.10	25.25	186.06
	Tin	36	MC	C4PXT-1636M-ND	2.61	21.23	156.45
	Gold	36	GR	C4PXG-1636G-ND	3.28	26.70	196.77
	Tin	36	GR	C4PXT-1636G-ND	2.20	17.90	131.88
24	Gold	6	MC	C4PXG-2406M-ND	3.03	24.71	182.07
	Tin	6	MC	C4PXT-2406M-ND	2.46	20.06	147.84
	Gold	6	GR	C4PXG-2406G-ND	2.87	23.34	171.99
	Tin	6	GR	C4PXT-2406G-ND	2.36	19.22	141.65
	Gold	18	MC	C4PXG-2418M-ND	3.65	29.70	218.82
	Tin	18	MC	C4PXT-2418M-ND	3.12	25.42	187.32
	Gold	18	GR	C4PXG-2418G-ND	3.34	27.17	200.24
	Tin	18	GR	C4PXT-2418G-ND	2.81	22.90	168.74
	Gold	36	MC	C4PXG-2436M-ND	4.63	37.73	278.04
	Tin	36	MC	C4PXT-2436M-ND	4.11	33.46	246.54
	Gold	36	GR	C4PXG-2436G-ND	4.01	32.69	240.87
	Tin	36	GR	C4PXT-2436G-ND	3.49	28.41	209.37
40	Gold	6	MC	C4PXG-4006M-ND	4.36	35.53	261.77
	Tin	6	MC	C4PXT-4006M-ND	3.63	29.54	217.67
	Gold	6	GR	C4PXG-4006G-ND	4.19	34.15	251.60
	Tin	6	GR	C4PXT-4006G-ND	3.46	28.16	207.50
	Gold	18	MC	C4PXG-4018M-ND	5.46	44.45	327.50
	Tin	18	MC	C4PXT-4018M-ND	4.72	38.46	283.40
	Gold	18	GR	C4PXG-4018G-ND	4.95	40.31	297.02
	Tin	18	GR	C4PXT-4018G-ND	4.22	34.33	252.92
	Gold	36	MC	C4PXG-4036M-ND	7.10	57.83	426.09
	Tin	36	MC	C4PXT-4036M-ND	6.37	51.84	381.99
	Gold	36	GR	C4PXG-4036G-ND	6.09	49.56	365.15
	Tin	36	GR	C4PXT-4036G-ND	5.35	43.57	321.05

Also available in the following version:
C4RX□-□□□□□-ND — Dip Connector with Strain Relief Strap.
Call for complete part number pricing!

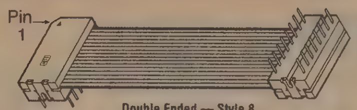


Double Ended — Style 6

* MC = Multi Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	C6PPG-1406M-ND	3.20	26.07	192.11
	Tin	6	MC	C6PPT-1406M-ND	2.64	21.51	158.51
	Gold	6	GR	C6PPG-1406G-ND	3.14	25.59	188.58
	Tin	6	GR	C6PPT-1406G-ND	2.58	21.03	154.98
	Gold	18	MC	C6PPG-1418M-ND	3.59	29.19	215.10
	Tin	18	MC	C6PPT-1418M-ND	3.03	24.63	181.50
	Gold	18	GR	C6PPG-1418G-ND	3.41	27.76	204.54
	Tin	18	GR	C6PPT-1418G-ND	2.85	23.20	170.94
	Gold	36	MC	C6PPG-1436M-ND	4.16	33.87	249.59
	Tin	36	MC	C6PPT-1436M-ND	3.60	29.31	215.99
	Gold	36	GR	C6PPG-1436G-ND	3.81	31.01	228.48
	Tin	36	GR	C6PPT-1436G-ND	3.25	26.45	194.88
16	Gold	6	MC	C6PPG-1606M-ND	3.44	28.00	206.33
	Tin	6	MC	C6PPT-1606M-ND	2.81	22.87	168.53
	Gold	6	GR	C6PPG-1606G-ND	3.37	27.45	202.23
	Tin	6	GR	C6PPT-1606G-ND	2.74	22.32	164.43
	Gold	18	MC	C6PPG-1618M-ND	3.88	31.56	232.58
	Tin	18	MC	C6PPT-1618M-ND	3.25	26.43	194.78
	Gold	18	GR	C6PPG-1618G-ND	3.67	29.90	220.29
	Tin	18	GR	C6PPT-1618G-ND	3.04	24.77	182.49
	Gold	36	MC	C6PPG-1636M-ND	4.53	36.91	271.95
	Tin	36	MC	C6PPT-1636M-ND	3.90	31.78	234.15
	Gold	36	GR	C6PPG-1636G-ND	4.12	33.57	247.38
	Tin	36	GR	C6PPT-1636G-ND	3.49	28.44	209.58
24	Gold	6	MC	C6PPG-2406M-ND	5.65	46.00	338.94
	Tin	6	MC	C6PPT-2406M-ND	4.60	37.45	275.94
	Gold	6	GR	C6PPG-2406G-ND	5.55	45.16	332.75
	Tin	6	GR	C6PPT-2406G-ND	4.50	36.61	269.75
	Gold	18	MC	C6PPG-2418M-ND	6.31	51.36	378.42
	Tin	18	MC	C6PPT-2418M-ND	5.26	42.81	315.42
	Gold	18	GR	C6PPG-2418G-ND	6.00	48.83	359.84
	Tin	18	GR	C6PPT-2418G-ND	4.95	40.28	296.84
	Gold	36	MC	C6PPG-2436M-ND	7.29	59.39	437.64
	Tin	36	MC	C6PPT-2436M-ND	6.24	50.84	374.64
	Gold	36	GR	C6PPG-2436G-ND	6.67	54.35	400.47
	Tin	36	GR	C6PPT-2436G-ND	5.62	45.80	337.47
40	Gold	6	MC	C6PPG-4006M-ND	8.18	66.59	490.67
	Tin	6	MC	C6PPT-4006M-ND	6.71	54.62	402.47
	Gold	6	GR	C6PPG-4006G-ND	8.01	65.21	480.50
	Tin	6	GR	C6PPT-4006G-ND	6.54	53.24	392.30
	Gold	18	MC	C6PPG-4018M-ND	9.27	75.51	556.40
	Tin	18	MC	C6PPT-4018M-ND	7.80	63.54	468.20
	Gold	18	GR	C6PPG-4018G-ND	8.77	71.38	525.92
	Tin	18	GR	C6PPT-4018G-ND	7.30	59.41	437.72
	Gold	36	MC	C6PPG-4036M-ND	10.92	88.89	654.99
	Tin	36	MC	C6PPT-4036M-ND	9.45	76.92	566.79
	Gold	36	GR	C6PPG-4036G-ND	9.90	80.62	594.05
	Tin	36	GR	C6PPT-4036G-ND	8.43	68.65	505.85

Also available in the following version:
C6RR□-□□□□□-ND — Dip Connector with Strain Relief Strap.
Call for complete part number pricing!

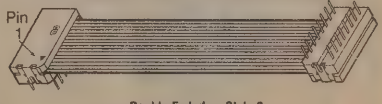


Double Ended — Style 8

* MC = Multi Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	C8PPG-1406M-ND	3.20	26.07	192.11
	Tin	6	MC	C8PPT-1406M-ND	2.64	21.51	158.51
	Gold	6	GR	C8PPG-1406G-ND	3.14	25.59	188.58
	Tin	6	GR	C8PPT-1406G-ND	2.58	21.03	154.98
	Gold	18	MC	C8PPG-1418M-ND	3.59	29.19	215.10
	Tin	18	MC	C8PPT-1418M-ND	3.03	24.63	181.50
	Gold	18	GR	C8PPG-1418G-ND	3.41	27.76	204.54
	Tin	18	GR	C8PPT-1418G-ND	2.85	23.20	170.94
	Gold	36	MC	C8PPG-1436M-ND	4.16	33.87	249.59
	Tin	36	MC	C8PPT-1436M-ND	3.60	29.31	215.99
	Gold	36	GR	C8PPG-1436G-ND	3.81	31.01	228.48
	Tin	36	GR	C8PPT-1436G-ND	3.25	26.45	194.88
16	Gold	6	MC	C8PPG-1606M-ND	3.44	28.00	206.33
	Tin	6	MC	C8PPT-1606M-ND	2.81	22.87	168.53
	Gold	6	GR	C8PPG-1606G-ND	3.37	27.45	202.23
	Tin	6	GR	C8PPT-1606G-ND	2.74	22.32	164.43
	Gold	18	MC	C8PPG-1618M-ND	3.88	31.56	232.58
	Tin	18	MC	C8PPT-1618M-ND	3.25	26.43	194.78
	Gold	18	GR	C8PPG-1618G-ND	3.67	29.90	220.29
	Tin	18	GR	C8PPT-1618G-ND	3.04	24.77	182.49
	Gold	36	MC	C8PPG-1636M-ND	4.53	36.91	271.95
	Tin	36	MC	C8PPT-1636M-ND	3.90	31.78	234.15
	Gold	36	GR	C8PPG-1636G-ND	4.12	33.57	247.38
	Tin	36	GR	C8PPT-1636G-ND	3.49	28.44	209.58
24	Gold	6	MC	C8PPG-2406M-ND	5.65	46.00	338.94
	Tin	6	MC	C8PPT-2406M-ND	4.60	37.45	275.94
	Gold	6	GR	C8PPG-2406G-ND	5.55	45.16	332.75
	Tin	6	GR	C8PPT-2406G-ND	4.50	36.61	269.75
	Gold	18	MC	C8PPG-2418M-ND	6.31	51.36	378.42
	Tin	18	MC	C8PPT-2418M-ND	5.26	42.81	315.42
	Gold	18	GR	C8PPG-2418G-ND	6.00	48.83	359.84
	Tin	18	GR	C8PPT-2418G-ND	4.95	40.28	296.84
	Gold	36	MC	C8PPG-2436M-ND	7.29	59.39	437.64
	Tin	36	MC	C8PPT-2436M-ND	6.24	50.84	374.64
	Gold	36	GR	C8PPG-2436G-ND	6.67	54.35	400.47
	Tin	36	GR	C8PPT-2436G-ND	5.62	45.80	337.47
40	Gold	6	MC	C8PPG-4006M-ND	8.18	66.59	490.67
	Tin	6	MC	C8PPT-4006M-ND	6.71	54.62	402.47
	Gold	6	GR	C8PPG-4006G-ND	8.01	65.21	480.50
	Tin	6	GR	C8PPT-4006G-ND	6.54	53.24	392.30
	Gold	18	MC	C8PPG-4018M-ND	9.27	75.51	556.40
	Tin	18	MC	C8PPT-4018M-ND	7.80	63.54	468.20
	Gold	18	GR	C8PPG-4018G-ND	8.77	71.38	525.92
	Tin	18	GR	C8PPT-4018G-ND	7.30	59.41	437.72
	Gold	36	MC	C8PPG-4036M-ND	10.92	88.89	654.99
	Tin	36	MC	C8PPT-4036M-ND	9.45	76.92	566.79
	Gold	36	GR	C8PPG-4036G-ND	9.90	80.62	594.05
	Tin	36	GR	C8PPT-4036G-ND	8.43	68.65	505.85

Also available in the following version:
C8RR□-□□□□□-ND — Dip Connector with Strain Relief Strap.
Call for complete part number pricing!



Double Ended — Style 0

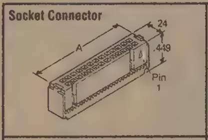
* MC = Multi Color, GR = Gray

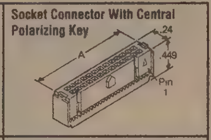
No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Gold	6	MC	C0PPG-1406M-ND	3.20	26.07	192.11
	Tin	6	MC	C0PPT-1406M-ND	2.64	21.51	158.51
	Gold	6	GR	C0PPG-1406G-ND	3.14	25.59	188.58
	Tin	6	GR	C0PPT-1406G-ND	2.58	21.03	154.98
	Gold	18	MC	C0PPG-1418M-ND	3.59	29.19	215.10
	Tin	18	MC	C0PPT-1418M-ND	3.03	24.63	181.50
	Gold	18	GR	C0PPG-1418G-ND	3.41	27.76	204.54
	Tin	18	GR	C0PPT-1418G-ND	2.85	23.20	170.94
	Gold	36	MC	C0PPG-1436M-ND	4.16	33.87	249.59
	Tin	36	MC	C0PPT-1436M-ND	3.60	29.31	215.99
	Gold	36	GR	C0PPG-1436G-ND	3.81	31.01	228.48
	Tin	36	GR	C0PPT-1436G-ND	3.25	26.45	194.88
16	Gold	6	MC	C0PPG-1606M-ND	3.44	28.00	206.33
	Tin	6	MC	C0PPT-1606M-ND	2.81	22.87	168.53
	Gold	6	GR	C0PPG-1606G-ND	3.37	27.45	202.23
	Tin	6	GR	C0PPT-1606G-ND	2.74	22.32	164.43
	Gold	18	MC	C0PPG-1618M-ND	3.88	31.56	232.58
	Tin	18	MC	C0PPT-1618M-ND	3.25	26.43	194.78
	Gold	18	GR	C0PPG-1618G-ND	3.67	29.90	220.29
	Tin	18	GR	C0PPT-1618G-ND	3.04	24.77	182.49
	Gold	36	MC	C0PPG-1636M-ND	4.53	36.91	271.95
	Tin	36	MC	C0PPT-1636M-ND	3.90	31.78	234.15
	Gold	36	GR	C0PPG-1636G-ND	4.12	33.57	247.38
	Tin	36	GR	C0PPT-1636G-ND	3.49	28.44	209.58
24	Gold	6	MC	C0PPG-2406M-ND	5.65	46.00	338.94
	Tin	6	MC	C0PPT-2406M-ND	4.60	37.45	275.94
	Gold	6	GR	C0PPG-2406G-ND	5.55	45.16	332.75
	Tin	6	GR	C0PPT-2406G-ND	4.50	36.61	269.75
	Gold	18	MC	C0PPG-2418M-ND	6.31	51.36	378.42
	Tin	18	MC	C0PPT-2418M-ND	5.26	42.81	315.42
	Gold	18	GR	C0PPG-2418G-ND	6.00	48.83	359.84
	Tin	18	GR	C0PPT-2418G-ND	4.95	40.28	296.84
	Gold	36	MC	C0PPG-2436M-ND	7.29	59.39	437.64
	Tin	36	MC	C0PPT-2436M-ND	6.24	50.84	374.64
	Gold	36	GR	C0PPG-2436G-ND	6.67	54.35	400.47
	Tin	36	GR	C0PPT-2436G-ND	5.62	45.80	337.47
40	Gold	6	MC	C0PPG-4006M-ND	8.18	66.59	490.67
	Tin	6	MC	C0PPT-4006M-ND	6.71	54.62	402.47
	Gold	6	GR	C0PPG-4006G-ND	8.01	65.21	480.50
	Tin	6	GR	C0PPT-4006G-ND	6.54	53.24	392.30
	Gold	18	MC	C0PPG-4018M-ND	9.27	75.51	556.40
	Tin	18	MC	C0PPT-4018M-ND	7.80	63.54	468.20
	Gold	18	GR	C0PPG-4018G-ND	8.77	71.38	525.92
	Tin	18	GR	C0PPT-4018G-ND	7.30	59.41	437.72
	Gold	36	MC	C0PPG-4036M-ND	10.92	88.89	654.99
	Tin	36	MC	C0PPT-4036M-ND	9.45	76.92	566.79
	Gold	36	GR	C0PPG-4036G-ND	9.90	80.62	594.05
	Tin	36	GR	C0PPT-4036G-ND	8.43	68.65	505.85

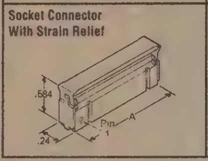
Also available in the following version:
C0RR□-□□□□□-ND — Dip Connector with Strain Relief Strap.
Call for complete part number pricing!

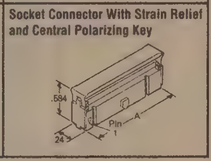
CW INDUSTRIES

Socket Connectors


Socket Connector


Socket Connector With Central Polarizing Key

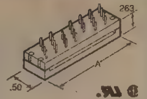

Socket Connector With Strain Relief


Socket Connector With Strain Relief and Central Polarizing Key

SPECIFICATIONS: • Contacts: Phosphor bronze. • Contact Plating: Gold — 10μ in. gold (in mating area) over 50μ in. nickel. Tin — 100μ in. tin-lead. • Insulator Material: UL 94V-0 flame-retardant thermoplastic. • Strain Relief Strap Material: Insulated stainless steel. • Color: Blue • Operating Temperature: -55°C to +125°C. • Current Rating: 1A (maximum) per contact. • Dielectric Withstand Voltage; Greater than 500 Vdc at sea level. • Insulation Resistance: Greater than 5x10⁹ ohms. • Withdrawal force 2-8 oz/contact, typical. • Cover pull-off force 8 oz/contact, minimum (force along contacts' primary axis).

No. of Contacts	Contact Finish	Dim. "A"	Digi-Key Part No.	Pricing 1	10	100	1,000
Socket Connector							
10	Gold	.677	CSC10G-ND	1.12	9.12	67.20	465.60
10	Tin	.677	CSC10T-ND	.98	7.98	58.80	407.40
14	Gold	877	CSC14G-ND	1.44	11.69	86.10	596.55
14	Tin	.877	CSC14T-ND	1.23	9.98	73.50	509.25
16	Gold	.977	CSC16G-ND	1.61	13.11	96.60	669 30
16	Tin	.977	CSC16T-ND	1.51	12.26	90.30	625.65
20	Gold	1.177	CSC20G-ND	1.93	15.68	115.50	800.25
20	Tin	1.177	CSC20T-ND	1.65	13.40	98.70	683 85
26	Gold	1.477	CSC26G-ND	2.28	18.53	136.50	945.75
26	Tin	1.477	CSC26T-ND	1.82	14.82	109.20	756.60
34	Gold	1.877	CSC34G-ND	2.80	22.80	168.00	1164.00
34	Tin	1.877	CSC34T-ND	2.14	17.39	128.10	887.55
40	Gold	2.177	CSC40G-ND	3.08	25.08	184.80	1280.40
40	Tin	2.177	CSC40T-ND	2.45	19.95	147.00	1018.50
50	Gold	2.677	CSC50G-ND	3.71	30.21	222.60	1542.30
50	Tin	2.677	CSC50T-ND	2.87	23.37	172.20	1193.10
60	Gold	3.177	CSC60G-ND	4.52	36.77	270.90	1876.95
60	Tin	3 177	CSC60T-ND	3.33	27.08	199.50	1382.25
Socket Connector With Strain Relief							
10	Gold	.677	CSR10G-ND	1.37	11.12	81.90	567.45
10	Tin	.677	CSR10T-ND	1.26	10.26	75.60	523 80
14	Gold	.877	CSR14G-ND	1.82	14.82	109.20	756.60
14	Tin	.877	CSR14T-ND	1.54	12.54	92.40	640.20
16	Gold	.977	CSR16G-ND	2.03	16.53	121.80	843.90
16	Tin	.977	CSR16T-ND	1.68	13.68	100.80	698.40
20	Gold	1.177	CSR20G-ND	2.14	17.39	128.10	887.55
20	Tin	1.177	CSR20T-ND	1.82	14.82	109.20	756.60
26	Gold	1.477	CSR26G-ND	2.49	20.24	149.10	1033.05
26	Tin	1.477	CSR26T-ND	2.00	16.25	119.70	829.35
34	Gold	1.877	CSR34G-ND	3.05	24.80	182.70	1265.85
34	Tin	1.877	CSR34T-ND	2.35	19.10	140.70	974.85
40	Gold	2.177	CSR40G-ND	3.29	26.79	197.40	1367.70
40	Tin	2.177	CSR40T-ND	2.63	21.38	157.50	1091.25
50	Gold	2.677	CSR50G-ND	3.92	31.92	235.20	1629.60
50	Tin	2.677	CSR50T-ND	3.05	24.80	182.70	1265.85
60	Gold	3.177	CSR60G-ND	4.76	38.76	285.60	1978.[illegible]
60	Tin	3.177	CSR60T-ND	3.54	28.79	212.10	1469.55
Socket Connector With Polarizing Key							
10	Gold	.677	CKC10G-ND	1.12	9.12	67.20	465 60
10	Tin	.677	CKC10T-ND	1.05	8.55	63.00	436.50
14	Gold	.877	CKC14G-ND	1.58	12.83	94.50	654 75
14	Tin	.877	CKC14T-ND	1.33	10.83	79.80	552.90
16	Gold	.977	CKC16G-ND	1.82	14.82	109.20	756.60
16	Tin	.977	CKC16T-ND	1.51	12.26	90.30	625 65
20	Gold	1.177	CKC20G-ND	1.93	15.68	115.50	800.25
20	Tin	1.177	CKC20T-ND	1.65	13.40	98.70	683.85
26	Gold	1.477	CKC26G-ND	2.28	18.53	136.50	945.75
26	Tin	1.477	CKC26T-ND	1.82	14.82	109.20	756.60
34	Gold	1.877	CKC34G-ND	2.80	22.80	168.00	1164.00
34	Tin	1.877	CKC34T-ND	2.14	17.39	128.10	887.55
40	Gold	2.177	CKC40G-ND	3.08	25.08	184.80	1280.40
40	Tin	2.177	CKC40T-ND	2.45	19.95	147.00	1018.50
50	Gold	2.677	CKC50G-ND	3.71	30.21	222.60	1542.30
50	Tin	2.677	CKC50T-ND	2.87	23.37	172.20	1193.10
60	Gold	3.177	CKC60G-ND	4.52	36.77	270.90	1876.95
60	Tin	3.177	CKC60T-ND	3.33	27.08	199.50	1382.25
Socket Connector w/Polarizing Key and Strain Relief							
10	Gold	.677	CKR10G-ND	1.37	11.12	81.90	567.45
10	Tin	.677	CKR10T-ND	1.30	10.55	77.70	538.35
14	Gold	.877	CKR14G-ND	1.82	14.82	109.20	756.60
14	Tin	.877	CKR14T-ND	1.54	12.54	92.40	640.20
16	Gold	.977	CKR16G-ND	2.03	16.53	121.80	843.90
16	Tin	.977	CKR16T-ND	1.68	13.68	100.80	698.40
20	Gold	1.177	CKR20G-ND	2.14	17.39	128.10	887.55
20	Tin	1.177	CKR20T-ND	1.82	14.82	109.20	756.60
26	Gold	1.477	CKR26G-ND	2.49	20.24	149.10	1033.05
26	Tin	1.477	CKR26T-ND	2.00	16.25	119.70	829.35
34	Gold	1.877	CKR34G-ND	3.05	24.80	182.70	1265.85
34	Tin	1.877	CKR34T-ND	2.35	19.10	140.70	974.85
40	Gold	2.177	CKR40G-ND	3.29	26.79	197.40	1367.70
40	Tin	2.177	CKR40T-ND	2.63	21.38	157.50	1091.25
50	Gold	2.677	CKR50G-ND	3.92	31.92	235.20	1629.60
50	Tin	2.677	CKR50T-ND	3.05	24.80	182.70	1265.85
60	Gold	3.177	CKR60G-ND	4.76	38.76	285.60	1978.80
60	Tin	3.177	CKR60T-ND	3.54	28.79	212.10	1469.55
Polarizing Key			PK-1-ND	.22/2	.86	6.30	46.65

PCB Connectors

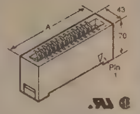


SPECIFICATIONS: Contacts: Phosphor bronze. **Contact Plating:** Tin – 100μ in. tin-lead. **Insulator Material:** UL 94V-0 flame-retardant thermoplastic. **Color:** Blue. **Operating Temperature:** -55°C to +125°C. **Current Rating:** 1A (maximum) per contact. **Dielectric Withstand Voltage:** Greater than 500 VDC at sea level. **Insulation Resistance:** Greater than 5 x 10⁹ ohms. Cover pull-off force, without strain relief, 15 lb. min. (force along contacts' primary axis).

No. of Contacts	Contact Finish	Dim. "A"	Digi-Key Part No.	Pricing 1	10	100	1,000
PCB Connectors							
10	Tin	.700	CPC10T-ND	1.16	9.41	69.30	480.15
•20	Tin	1.200	CPC20T-ND	1.37	11.12	81.90	567.45
26	Tin	1.500	CPC26T-ND	1.75	14.25	105.00	727 50
34	Tin	1.900	CPC34T-ND	2.14	17.39	128.10	887.55
•40	Tin	2.200	CPC40T-ND	2.45	19.95	147.00	1018.50
50	Tin	2.700	CPC50T-ND	3.05	24.80	182.70	1265.85
•60	Tin	3 200	CPC60T-ND	3.50	28.50	210.00	1455 00

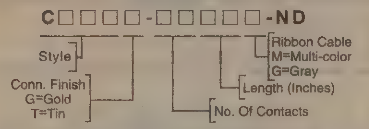
• Full row version. ("Special Center" version shown above).

Card Edge Connectors



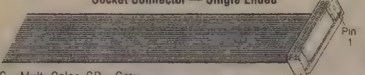
SPECIFICATIONS: Contacts: Phosphor bronze. **Contact Plating:** Gold – 10μ in. gold (in mating area) over 50μ in. nickel. Tin – 100μ in. tin-lead. **Insulator Material:** UL 94V-0 flame-retardant thermoplastic. **Color:** Blue. **Operating Temperature:** -55°C to +125°C. **Current Raging:** 1 A (maximum) per contact. **Dielectric Withstand Voltage:** Greater than 500 Vdc at sea level. **Insulation Resistance:** Greater than 5x10⁹ ohms. Cover pull-off force 8 oz/contact min. (force along contacts' primary axis).

No. of Contacts	Contact Finish	Dim. "A"	Digi-Key Part No.	Pricing 1	10	100	1,000
Card Edge Connectors							
10	Gold	.976	CCE10G-ND	2.00	16.25	119.70	829.35
10	Tin	.976	CCE10T-ND	1.75	14.25	105.00	727.50
20	Gold	1.476	CCE20G-ND	3.05	24.80	182.70	1265.85
20	Tin	1.476	CCE20T-ND	2.45	19.95	147.00	1018.50
26	Gold	1 776	CCE26G-ND	3.64	29.64	218.40	1513.20
26	Tin	1.776	CCE26T-ND	2.91	23.66	174.30	1207.65
34	Gold	2.176	CCE34G-ND	4.52	36.77	270.90	1876.95
34	Tin	2.176	CCE34T-ND	3.50	28.50	210.00	1455.00
40	Gold	2.476	CCE40G-ND	5.25	42.75	315.00	2182.50
40	Tin	2.476	CCE40T-ND	4.38	35.63	262.50	1818.75
50	Gold	2.976	CCE50G-ND	6.23	50.73	373.80	2589.90
50	Tin	2.976	CCE50T-ND	4.80	39.05	287.70	1993.35
Polarizing Key			PK-2-ND	.22/2	.86	6.30	46.65



Termination Jumpers

Socket Connector — Single Ended

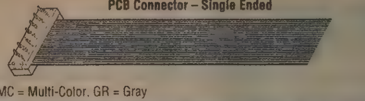


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	36	MC	C1AXG-1036M-ND	1.94	15.79	116.34
	Tin	36	MC	C1AXT-1036M-ND	1.80	14.65	107.94
	Gold	36	GR	C1AXG-1036G-ND	1.68	13.69	100.91
	Tin	36	GR	C1AXT-1036G-ND	1.54	12.55	92.51
14	Gold	36	MC	C1AXG-1436M-ND	2.58	21.05	155 09
	Tin	36	MC	C1AXT-1436M-ND	2.37	19.34	142 49
	Gold	36	GR	C1AXG-1436G-ND	2.23	18.18	133.98
	Tin	36	GR	C1AXT-1436G-ND	2.02	16.47	121.38
16	Gold	36	MC	C1AXG-1636M-ND	2.92	23.80	175.35
	Tin	36	MC	C1AXT-1636M-ND	2.82	22.94	169.05
	Gold	36	GR	C1AXG-1636G-ND	2.51	20.46	150 78
	Tin	36	GR	C1AXT-1636G-ND	2.41	19.61	144.48
20	Gold	36	MC	C1AXG-2036M-ND	3.57	29.06	214 10
	Tin	36	MC	C1AXT-2036M-ND	3.29	26.78	197 30
	Gold	36	GR	C1AXG-2036G-ND	3.06	24.91	183.54
	Tin	36	GR	C1AXT-2036G-ND	2.78	22.63	166.74
26	Gold	36	MC	C1AXG-2636M-ND	4.41	35.90	264.56
	Tin	36	MC	C1AXT-2636M-ND	3.95	32.20	237 26
	Gold	36	GR	C1AXG-2636G-ND	3 76	30.58	225 33
	Tin	36	GR	C1AXT-2636G-ND	3.30	26.88	198.03
34	Gold	36	MC	C1AXG-3436M-ND	5.58	45.46	334 95
	Tin	36	MC	C1AXT-3436M-ND	4.92	40.04	295.05
	Gold	36	GR	C1AXG-3436G-ND	4.73	38.53	283 92
	Tin	36	GR	C1AXT-3436G-ND	4.07	33.12	244.02
40	Gold	36	MC	C1AXG-4036M-ND	6 37	51 84	381.99
	Tin	36	MC	C1AXT-4036M-ND	5.74	46.71	344.19
	Gold	36	GR	C1AXG-4036G-ND	5.35	43.57	321.05
	Tin	36	GR	C1AXT-4036G-ND	4.72	38.44	283.25
50	Gold	36	MC	C1AXG-5036M-ND	7.82	63.68	469.25
	Tin	36	MC	C1AXT-5036M-ND	6.98	56.84	418.85
	Gold	36	GR	C1AXG-5036G-ND	6.55	53.30	392.70
	Tin	36	GR	C1AXT-5036G-ND	5.71	46.46	342.30
60	Gold	36	MC	C1AXG-6036M-ND	9.42	76.74	565.43
	Tin	36	MC	C1AXT-6036M-ND	8.23	67.05	494.03
	Gold	36	GR	C1AXG-6036G-ND	7.91	64.40	474.56
	Tin	36	GR	C1AXT-6036G-ND	6.72	54.71	403.16

Also available in the following versions:
C1BX□-□□□□□-ND – Socket Connector with Strain Relief.
C1CX□-□□□□□-ND – Socket Connector with Central Polarizing Key.
C1DX□-□□□□□-ND – Socket Connector w. Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

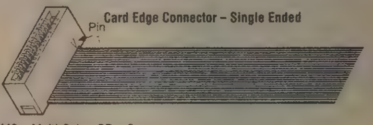
PCB Connector – Single Ended



* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Tin	36	MC	C1PXT-1036M-ND	1.97	16.07	118.44
	Tin	36	GR	C1PXT-1036G-ND	1.54	12.55	92.51
20	Tin	36	MC	C1PXT-2036M-ND	3.01	24.50	180.50
	Tin	36	GR	C1PXT-2036G-ND	2.50	20.35	149.94
26	Tin	36	MC	C1PXT-2636M-ND	3.88	31.63	233.06
	Tin	36	GR	C1PXT-2636G-ND	3.23	26.31	193.83
34	Tin	36	MC	C1PXT-3436M-ND	4.92	40.04	295.05
	Tin	36	GR	C1PXT-3436G-ND	4.07	33.12	244.02
40	Tin	36	MC	C1PXT-4036M-ND	5.74	46.71	344.19
	Tin	36	GR	C1PXT-4036G-ND	4.72	38.44	283.25
50	Tin	36	MC	C1PXT-5036M-ND	7.16	58.27	429.35
	Tin	36	GR	C1PXT-5036G-ND	5.88	47.88	352.80
60	Tin	36	MC	C1PXT-6036M-ND	6.06	49.38	363.83
	Tin	36	GR	C1PXT-6036G-ND	4.55	37.04	272.96

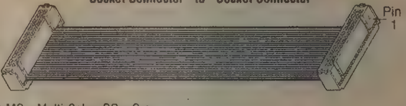
Card Edge Connector – Single Ended



* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	36	MC	C1EXG-1036M-ND	2.81	22.91	168.84
	Tin	36	MC	C1EXT-1036M-ND	2.57	20.92	154.14
	Gold	36	GR	C1EXG-1036G-ND	2.56	20.82	153.41
	Tin	36	GR	C1EXT-1036G-ND	2.31	18.82	138 71
20	Gold	36	MC	C1EXG-2036M-ND	4.69	38.18	281.30
	Tin	36	MC	C1EXT-2036M-ND	4.09	33.33	245.60
	Gold	36	GR	C1EXG-2036G-ND	4.18	34.03	250.74
	Tin	36	GR	C1EXT-2036G-ND	3.58	29.18	215.04
26	Gold	36	MC	C1EXG-2636M-ND	5.77	47.02	346.46
	Tin	36	MC	C1EXT-2636M-ND	5.04	41.03	302.36
	Gold	36	GR	C1EXG-2636G-ND	5.12	41.70	307.23
	Tin	36	GR	C1EXT-2636G-ND	4.39	35.71	263.13
34	Gold	36	MC	C1EXG-3436M-ND	7.30	59.42	437.85
	Tin	36	MC	C1EXT-3436M-ND	6.28	51.16	376.95
	Gold	36	GR	C1EXG-3436G-ND	6.45	52.50	386.82
	Tin	36	GR	C1EXT-3436G-ND	5.43	44 23	325.92
40	Gold	36	MC	C1EXG-4036M-ND	8.54	69.51	512.19
	Tin	36	MC	C1EXT-4036M-ND	7.66	62.39	459.69
	Gold	36	GR	C1EXG-4036G-ND	7.52	61.24	451.25
	Tin	36	GR	C1EXT-4036G-ND	6.65	54.12	398.75
50	Gold	36	MC	C1EXG-5036M-ND	10.34	84.20	620.45
	Tin	36	MC	C1EXT-5036M-ND	8.91	72.52	534.35
	Gold	36	GR	C1EXG-5036G-ND	9.07	73 82	543.90
	Tin	36	GR	C1EXT-5036G-ND	7.63	62.13	457 80

Socket Connector - to - Socket Connector



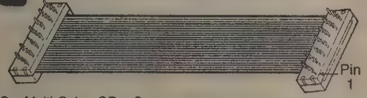
* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Gold	6	MC	C3AAG-1006M-ND	2.38	19.35	142.59
	Tin	6	MC	C3AAT-1006M-ND	2.10	17.07	125.79
	Gold	6	GR	C3AAG-1006G-ND	2.33	19.00	140.03
	Tin	6	GR	C3AAT-1006G-ND	2.05	16.72	123.23
	Gold	18	MC	C3AAG-1018M-ND	2.65	21.57	158.97
	Tin	18	MC	C3AAT-1018M-ND	2.37	19.29	142.17
	Gold	18	GR	C3AAG-1018G-ND	2.52	20.53	151.26
	Tin	18	GR	C3AAT-1018G-ND	2.24	18.25	134.46
	Gold	36	MC	C3AAG-1036M-ND	3.06	24.91	183.54
	Tin	36	MC	C3AAT-1036M-ND	2.78	22.63	166 74
	Gold	36	GR	C3AAG-1036G-ND	2.80	22.81	168.11
	Tin	36	GR	C3AAT-1036G-ND	2.52	20.53	151.31
14	Gold	6	MC	C3AAG-1406M-ND	3.06	24.93	183.71
	Tin	6	MC	C3AAT-1406M-ND	2.64	21.51	158.51
	Gold	6	GR	C3AAG-1406G-ND	3.00	24.45	180.18
	Tin	6	GR	C3AAT-1406G-ND	2.58	21.03	154.98
	Gold	18	MC	C3AAG-1418M-ND	3.45	28.05	206 70
	Tin	18	MC	C3AAT-1418M-ND	3.03	24.63	181.50
	Gold	18	GR	C3AAG-1418G-ND	3.27	26.62	196.14
	Tin	18	GR	C3AAT-1418G-ND	2.85	23.20	170.94
	Gold	36	MC	C3AAG-1436M-ND	4.02	32.73	241.19
	Tin	36	MC	C3AAT-1436M-ND	3.60	29.31	215.99
	Gold	36	GR	C3AAG-1436G-ND	3.67	29 87	220.08
	Tin	36	GR	C3AAT-1436G-ND	3.25	26.45	194.88
16	Gold	6	MC	C3AAG-1606M-ND	3.44	28.00	206.33
	Tin	6	MC	C3AAT-1606M-ND	3.23	26.29	193.73
	Gold	6	GR	C3AAG-1606G-ND	3.37	27.45	202.23
	Tin	6	GR	C3AAT-1606G-ND	3.16	25.74	189.63
	Gold	18	MC	C3AAG-1618M-ND	3.88	31.56	232.58
	Tin	18	MC	C3AAT-1618M-ND	3.67	29.85	219.98
	Gold	18	GR	C3AAG-1618G-ND	3.67	29.90	220.29
	Tin	18	GR	C3AAT-1618G-ND	3.46	28.19	207.69
	Gold	36	MC	C3AAG-1636M-ND	4.53	36.91	271.95
	Tin	36	MC	C3AAT-1636M-ND	4.32	35.20	259.35
	Gold	36	GR	C3AAG-1636G-ND	4.12	33.57	247.38
	Tin	36	GR	C3AAT-1636G-ND	3.91	31.86	234.78

20	Gold	6	MC	C3AAG-2006M-ND	4.12	33.58	247.44
	Tin	6	MC	C3AAT-2006M-ND	3.56	29.02	213 84
	Gold	6	GR	C3AAG-2006G-ND	4.04	32.89	242.34
	Tin	6	GR	C3AAT-2006G-ND	3.48	28.33	208.74
	Gold	18	MC	C3AAG-2018M-ND	4.67	38.04	280.31
	Tin	18	MC	C3AAT-2018M-ND	4.11	33.48	246.71
	Gold	18	GR	C3AAG-2018G-ND	4.42	35.97	265.02
	Tin	18	GR	C3AAT-2018G-ND	3.86	31.41	231.42
	Gold	36	MC	C3AAG-2036M-ND	5.49	44.73	329.60
	Tin	36	MC	C3AAT-2036M-ND	4.93	40.17	296.00
	Gold	36	GR	C3AAG-2036G-ND	4.98	40.58	299.04
	Tin	36	GR	C3AAT-2036G-ND	4.42	36.02	265.44
26	Gold	6	MC	C3AAG-2606M-ND	4.91	39.95	294.34
	Tin	6	MC	C3AAT-2606M-ND	4.00	32.54	239.74
	Gold	6	GR	C3AAG-2606G-ND	4.80	39.06	287.81
	Tin	6	GR	C3AAT-2606G-ND	3.89	31.65	233.21
	Gold	18	MC	C3AAG-2618M-ND	5.62	45.74	337.03
	Tin	18	MC	C3AAT-2618M-ND	4.71	38.33	282.43
	Gold	18	GR	C3AAG-2618G-ND	5.29	43.08	317.42
	Tin	18	GR	C3AAT-2618G-ND	4.38	35.67	262.82
	Gold	36	MC	C3AAG-2636M-ND	6.68	54.43	401.06
	Tin	36	MC	C3AAT-2636M-ND	5.77	47.02	346.46
	Gold	36	GR	C3AAG-2636G-ND	6.03	49.11	361.83
	Tin	36	GR	C3AAT-2636G-ND	5.12	41.70	307.23
34	Gold	6	MC	C3AAG-3406M-ND	6.06	49.38	363.83
	Tin	6	MC	C3AAT-3406M-ND	4.73	38.55	284.03
	Gold	6	GR	C3AAG-3406G-ND	5.92	48.22	355.32
	Tin	6	GR	C3AAT-3406G-ND	4.59	37.39	275.52
	Gold	18	MC	C3AAG-3418M-ND	6.99	56.93	419.48
	Tin	18	MC	C3AAT-3418M-ND	5.66	46.10	339.68
	Gold	18	GR	C3AAG-3418G-ND	6.57	53.47	393.96
	Tin	18	GR	C3AAT-3418G-ND	5.24	42.64	314.16
	Gold	36	MC	C3AAG-3436M-ND	8.38	68.26	502.95
	Tin	36	MC	C3AAT-3436M-ND	7.05	57.43	423.15
	Gold	36	GR	C3AAG-3436G-ND	7.53	61.33	451.92
	Tin	36	GR	C3AAT-3436G-ND	6.20	50.50	372.12
40	Gold	6	MC	C3AAG-4006M-ND	6.71	54.62	402.47
	Tin	6	MC	C3AAT-4006M-ND	5.45	44.36	326.87
	Gold	6	GR	C3AAG-4006G-ND	6.54	53.24	392.30
	Tin	6	GR	C3AAT-4006G-ND	5.28	42.98	316.70
	Gold	18	MC	C3AAG-4018M-ND	7.80	63.54	468.20
	Tin	18	MC	C3AAT-4018M-ND	6.54	53.28	392.60
	Gold	18	GR	C3AAG-4018G-ND	7.30	59.41	437.72
	Tin	18	GR	C3AAT-4018G-ND	6.04	49.15	362.12
	Gold	36	MC	C3AAG-4036M-ND	9.45	76.92	566.79
	Tin	36	MC	C3AAT-4036M-ND	8.19	66.66	491.19
	Gold	36	GR	C3AAG-4036G-ND	8.43	68.65	505 85
	Tin	36	GR	C3AAT-4036G-ND	7.17	58.39	430.25
50	Gold	6	MC	C3AAG-5006M-ND	8.11	66.00	486.32
	Tin	6	MC	C3AAT-5006M-ND	6.43	52.32	385.52
	Gold	6	GR	C3AAG-5006G-ND	7.89	64.27	473.55
	Tin	6	GR	C3AAT-5006G-ND	6.21	50.59	372.75
	Gold	18	MC	C3AAG-5018M-ND	9.48	77.16	568.53
	Tin	18	MC	C3AAT-5018M-ND	7.80	63.48	467.73
	Gold	18	GR	C3AAG-5018G-ND	8.84	71.96	530.25
	Tin	18	GR	C3AAT-5018G-ND	7.16	58 28	429.45
	Gold	36	MC	C3AAG-5036M-ND	11.53	93.89	691.85
	Tin	36	MC	C3AAT-5036M-ND	9.85	80.21	591.05
	Gold	36	GR	C3AAG-5036G-ND	10.26	83.51	615.30
	Tin	36	GR	C3AAT-5036G-ND	8.58	69.83	514.50
60	Gold	6	MC	C3AAG-6006M-ND	9.85	80.19	590.90
	Tin	6	MC	C3AAT-6006M-ND	7.47	60.81	448.10
	Gold	6	GR	C3AAG-6006G-ND	9.60	78.14	575.74
	Tin	6	GR	C3AAT-6006G-ND	7.22	58.76	432.94
	Gold	18	MC	C3AAG-6018M-ND	11.48	93.52	689.07
	Tin	18	MC	C3AAT-6018M-ND	9.10	74.14	546.27
	Gold	18	GR	C3AAG-6018G-ND	10.73	87.35	643.63
	Tin	18	GR	C3AAT-6018G-ND	8.35	67 97	500.83
	Gold	36	MC	C3AAG-6036M-ND	13.94	113.50	836.33
	Tin	36	MC	C3AAT-6036M-ND	11.56	94.12	693.53
	Gold	36	GR	C3AAG-6036G-ND	12.42	101.17	745.46
	Tin	36	GR	C3AAT-6036G-ND	10.04	81.79	602.66

Also available in the following versions:
C3BB☐-☐☐☐☐☐☐-ND — Socket Connector with Strain Relief.
C3CC☐-☐☐☐☐☐☐-ND — Socket Connector with Central Polarizing Key.
C3DD☐-☐☐☐☐☐☐-ND — Socket Connector w. Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

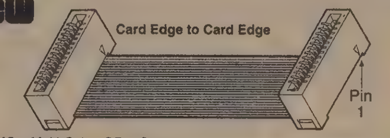
PCB Connector to PCB Connector



* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Tin	6	MC	C3PPT-1006M-ND	2.45	19.92	146.79
	Tin	6	GR	C3PPT-1006G-ND	2.40	19.57	144.23
	Tin	18	MC	C3PPT-1018M-ND	2.72	22.14	163.17
	Tin	18	GR	C3PPT-1018G-ND	2.59	21.10	155.46
	Tin	36	MC	C3PPT-1036M-ND	3 13	25.48	187.74
	Tin	36	GR	C3PPT-1036G-ND	2.87	23.38	172.31
20	Tin	6	MC	C3PPT-2006M-ND	3.00	24.46	180 24
	Tin	6	GR	C3PPT-2006G-ND	2.92	23.77	175.14
	Tin	18	MC	C3PPT-2018M-ND	3.55	28.92	213.11
	Tin	18	GR	C3PPT-2018G-ND	3.30	26.85	197.82
	Tin	36	MC	C3PPT-2036M-ND	4.37	35.61	262.40
	Tin	36	GR	C3PPT-2036G-ND	3.86	31.46	231.84
26	Tin	6	MC	C3PPT-2606M-ND	3.86	31.40	231.34
	Tin	6	GR	C3PPT-2606G-ND	3.75	30.51	224.81
	Tin	18	MC	C3PPT-2618M-ND	4.57	37.19	274.03
	Tin	18	GR	C3PPT-2618G-ND	4.24	34.53	254.42
	Tin	36	MC	C3PPT-2636M-ND	5.63	45.88	338.06
	Tin	36	GR	C3PPT-2636G-ND	4.98	40.56	298.83
34	Tin	6	MC	C3PPT-3406M-ND	4.73	38.55	284.03
	Tin	6	GR	C3PPT-3406G-ND	4.59	37.39	275.52
	Tin	18	MC	C3PPT-3418M-ND	5.66	46.10	339.68
	Tin	18	GR	C3PPT-3418G-ND	5.24	42.64	314.16
	Tin	36	MC	C3PPT-3436M-ND	7.05	57.43	423.15
	Tin	36	GR	C3PPT-3436G-ND	6.20	50.50	372.12
40	Tin	6	MC	C3PPT-4006M-ND	5.45	44.36	326.87
	Tin	6	GR	C3PPT-4006G-ND	5.28	42 98	316.70
	Tin	18	MC	C3PPT-4018M-ND	6.54	53.28	392.60
	Tin	18	GR	C3PPT-4018G-ND	6.04	49.15	362.12
	Tin	36	MC	C3PPT-4036M-ND	8.19	66.66	491.19
	Tin	36	GR	C3PPT-4036G-ND	7.17	58.39	430.25
50	Tin	6	MC	C3PPT-5006M-ND	6.78	55.17	406.52
	Tin	6	GR	C3PPT-5006G-ND	6.56	53.44	393 75
	Tin	18	MC	C3PPT-5018M-ND	8.15	66.33	488.73
	Tin	18	GR	C3PPT-5018G-ND	7.51	61.13	450.45
	Tin	36	MC	C3PPT-5036M-ND	10.20	83.06	612.05
	Tin	36	GR	C3PPT-5036G-ND	8.93	72.68	535.50
60	Tin	6	MC	C3PPT-6006M-ND	7.82	63.66	469.10
	Tin	6	GR	C3PPT-6006G-ND	7.57	61.61	453.94
	Tin	18	MC	C3PPT-6018M-ND	9.45	76.99	567.27
	Tin	18	GR	C3PPT-6018G-ND	8.70	70.82	521.83
	Tin	36	MC	C3PPT-6036M-ND	11.91	96.97	714.53
	Tin	36	GR	C3PPT-6036G-ND	10.39	84.64	623.66

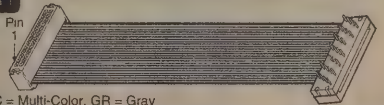
Card Edge to Card Edge



* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Gold	6	MC	C3EEG-1006M-ND	4.13	33.60	247.59
	Tin	6	MC	C3EET-1006M-ND	3.64	29.61	218.19
	Gold	6	GR	C3EEG-1006G-ND	4.08	33.25	245.03
	Tin	6	GR	C3EET-1006G-ND	3.59	29.26	215.63
	Gold	18	MC	C3EEG-1018M-ND	4.40	35.82	263.97
	Tin	18	MC	C3EET-1018M-ND	3.91	31.83	234.57
	Gold	18	GR	C3EEG-1018G-ND	4.27	34.78	256.26
	Tin	18	GR	C3EET-1018G-ND	3.78	30.79	226.86
	Gold	36	MC	C3EEG-1036M-ND	4.81	39.16	288.54
	Tin	36	MC	C3EET-1036M-ND	4.32	35.17	259.14
	Gold	36	GR	C3EEG-1036G-ND	4.55	37.06	273.11
	Tin	36	GR	C3EET-1036G-ND	4.06	33.07	243.71
20	Gold	6	MC	C3EEG-2006M-ND	6.36	51.82	381.84
	Tin	6	MC	C3EET-2006M-ND	5.17	42.13	310.44
	Gold	6	GR	C3EEG-2006G-ND	6.28	51.13	376 74
	Tin	6	GR	C3EET-2006G-ND	5.09	41.44	305.34
	Gold	18	MC	C3EEG-2018M-ND	6.91	56.28	414.71
	Tin	18	MC	C3EET-2018M-ND	5.72	46.59	343.31
	Gold	18	GR	C3EEG-2018G-ND	6.66	54.21	399.42
	Tin	18	GR	C3EET-2018G-ND	5.47	44.52	328.02
	Gold	36	MC	C3EEG-2036M-ND	7.73	62.97	464.00
	Tin	36	MC	C3EET-2036M-ND	6.54	53.28	392.60
	Gold	36	GR	C3EEG-2036G-ND	7.22	58.82	433.44
	Tin	36	GR	C3EET-2036G-ND	6.03	49.13	362.04
26	Gold	6	MC	C3EEG-2606M-ND	7.64	62.18	458.14
	Tin	6	MC	C3EET-2606M-ND	6.17	50.21	369.94
	Gold	6	GR	C3EEG-2606G-ND	7.53	61.29	451.61
	Tin	6	GR	C3EET-2606G-ND	6.06	49.32	363.41
	Gold	18	MC	C3EEG-2618M-ND	8.35	67.97	500.83
	Tin	18	MC	C3EET-2618M-ND	6.88	56.00	412.63
	Gold	18	GR	C3EEG-2618G-ND	8.02	65.31	481.22
	Tin	18	GR	C3EET-2618G-ND	6.55	53.34	393.02
	Gold	36	MC	C3EEG-2636M-ND	9.41	76.66	564.86
	Tin	36	MC	C3EET-2636M-ND	7.94	64.69	476.66
	Gold	36	GR	C3EEG-2636G-ND	8.76	71.34	525 63
	Tin	36	GR	C3EET-2636G-ND	7.29	59.37	437.43
34	Gold	6	MC	C3EEG-3406M-ND	9.49	77.31	569.63
	Tin	6	MC	C3EET-3406M-ND	7.46	60.78	447.83
	Gold	6	GR	C3EEG-3406G-ND	9.35	76.15	561.12
	Tin	6	GR	C3EET-3406G-ND	7.32	59.62	439.32
	Gold	18	MC	C3EEG-3418M-ND	10.42	84.86	625.28
	Tin	18	MC	C3EET-3418M-ND	8.39	68.33	503.48
	Gold	18	GR	C3EEG-3418G-ND	10.00	81.40	599.76
	Tin	18	GR	C3EET-3418G-ND	7.97	64.87	477.96
	Gold	36	MC	C3EEG-3436M-ND	11.81	96.19	708.75
	Tin	36	MC	C3EET-3436M-ND	9.78	79.66	586.95
	Gold	36	GR	C3EEG-3436G-ND	10.96	89.26	657 72
	Tin	36	GR	C3EET-3436G-ND	8.93	72.73	535.92
40	Gold	6	MC	C3EEG-4006M-ND	11.05	89.96	662.87
	Tin	6	MC	C3EET-4006M-ND	9.30	75.71	557.87
	Gold	6	GR	C3EEG-4006G-ND	10.88	88.58	652.70
	Tin	6	GR	C3EET-4006G-ND	9.13	74.33	547.70
	Gold	18	MC	C3EEG-4018M-ND	12.14	98.88	728.60
	Tin	18	MC	C3EET-4018M-ND	10.39	84.63	623.60
	Gold	18	GR	C3EEG-4018G-ND	11.64	94.75	698.12
	Tin	18	GR	C3EET-4018G-ND	9.89	80.50	593.12
	Gold	36	MC	C3EEG-4036M-ND	13.79	112.26	827.19
	Tin	36	MC	C3EET-4036M-ND	12.04	98.01	722.19
	Gold	36	GR	C3EEG-4036G-ND	12.77	103.99	766.25
	Tin	36	GR	C3EET-4036G-ND	11.02	89.74	661.25
50	Gold	6	MC	C3EEG-5006M-ND	13.15	107.04	788.72
	Tin	6	MC	C3EET-5006M-ND	10.28	83.67	616.52
	Gold	6	GR	C3EEG-5006G-ND	12.93	105.31	775.95
	Tin	6	GR	C3EET-5006G-ND	10.06	81.94	603.75
	Gold	18	MC	C3EEG-5018M-ND	14.52	118.20	870.93
	Tin	18	MC	C3EET-5018M-ND	11.65	94.83	698.73
	Gold	18	GR	C3EEG-5018G-ND	13.88	113.00	832.65
	Tin	18	GR	C3EET-5018G-ND	11.01	89.63	660.45
	Gold	36	MC	C3EEG-5036M-ND	16.57	134.93	994.25
	Tin	36	MC	C3EET-5036M-ND	13.70	111.56	822.05
	Gold	36	GR	C3EEG-5036G-ND	15.30	124.55	917.70
	Tin	36	GR	C3EET-5036G-ND	12.43	101.18	745.50

Socket Connector to PCB Connector

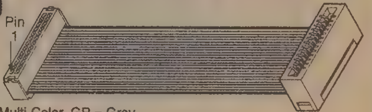


* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Tin	6	MC	C3APT-1006M-ND	2.10	17.07	125.79
	Tin	6	GR	C3APT-1006G-ND	2.05	16.72	123.23
	Tin	18	MC	C3APT-1018M-ND	2.37	19.29	142.17
	Tin	18	GR	C3APT-1018G-ND	2.24	18.25	134.46
	Tin	36	MC	C3APT-1036M-ND	2.78	22.63	166.74
	Tin	36	GR	C3APT-1036G-ND	2.52	20.53	151.31
20	Tin	6	MC	C3APT-2006M-ND	3.28	26.74	197.04
	Tin	6	GR	C3APT-2006G-ND	3.20	26.05	191.94
	Tin	18	MC	C3APT-2018M-ND	3.83	31.20	229.91
	Tin	18	GR	C3APT-2018G-ND	3.58	29.13	214.62
	Tin	36	MC	C3APT-2036M-ND	4.65	37.89	279.20
	Tin	36	GR	C3APT-2036G-ND	4.14	33.74	248 64
26	Tin	6	MC	C3APT-2606M-ND	3.93	31 97	235.54
	Tin	6	GR	C3APT-2606G-ND	3.82	31.08	229.01
	Tin	18	MC	C3APT-2618M-ND	4.64	37.76	278.23
	Tin	18	GR	C3APT-2618G-ND	4.31	35.10	258.62
	Tin	36	MC	C3APT-2636M-ND	5.70	46.45	342.26
	Tin	36	GR	C3APT-2636G-ND	5.05	41.13	303.03
34	Tin	6	MC	C3APT-3406M-ND	4.73	38.55	284.03
	Tin	6	GR	C3APT-3406G-ND	4.59	37.39	275 52
	Tin	18	MC	C3APT-3418M-ND	5.66	46.10	339.68
	Tin	18	GR	C3APT-3418G-ND	5.24	42.64	314.16
	Tin	36	MC	C3APT-3436M-ND	7.05	57.43	423.15
	Tin	36	GR	C3APT-3436G-ND	6.20	50.50	372.12
40	Tin	6	MC	C3APT-4006M-ND	5.45	44.36	326.87
	Tin	6	GR	C3APT-4006G-ND	5.28	42.98	316.70
	Tin	18	MC	C3APT-4018M-ND	6.54	53.28	392.60
	Tin	18	GR	C3APT-4018G-ND	6.04	49.15	362.12
	Tin	36	MC	C3APT-4036M-ND	8.19	66.66	491 19
	Tin	36	GR	C3APT-4036G-ND	7.17	58.39	430 25
50	Tin	6	MC	C3APT-5006M-ND	6.60	53.75	396.02
	Tin	6	GR	C3APT-5006G-ND	6.39	52.01	383 25
	Tin	18	MC	C3APT-5018M-ND	7.97	64.90	478 23
	Tin	18	GR	C3APT-5018G-ND	7.33	59.71	439.95
	Tin	36	MC	C3APT-5036M-ND	10.03	81.64	601.55
	Tin	36	GR	C3APT-5036G-ND	8.75	71.25	525 00
60	Tin	6	MC	C3APT-6006M-ND	7.64	62.24	458.60
	Tin	6	GR	C3APT-6006G-ND	7.39	60.18	443.44
	Tin	18	MC	C3APT-6018M-ND	9.28	75.56	556.77
	Tin	18	GR	C3APT-6018G-ND	8.52	69.39	511.33
	Tin	36	MC	C3APT-6036M-ND	11.73	95.55	704.03
	Tin	36	GR	C3APT-6036G-ND	10.22	83.21	613.16

Also available in the following versions:
C3BP☐-☐☐☐☐☐☐-ND — Socket Connector with Strain Relief.
C3CP☐-☐☐☐☐☐☐-ND — Socket Connector with Central Polarizing Key.
C3DP☐-☐☐☐☐☐☐-ND — Socket Connector w. Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

Socket Connector to Card Edge Connector



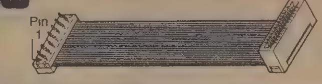
* MC = Multi-Color, GR = Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Gold	6	MC	C3AEG-1006M-ND	3.25	26.48	195.09
	Tin	6	MC	C3AET-1006M-ND	2.87	23.34	171.99
	Gold	6	GR	C3AEG-1006G-ND	3.21	26.13	192.53
	Tin	6	GR	C3AET-1006G-ND	2.82	22.99	169.43
	Gold	18	MC	C3AEG-1018M-ND	3.52	28.70	211.47
	Tin	18	MC	C3AET-1018M-ND	3.14	25.56	188.37
	Gold	18	GR	C3AEG-1018G-ND	3.40	27.65	203.76
	Tin	18	GR	C3AET-1018G-ND	3.01	24.52	180.66
	Gold	36	MC	C3AEG-1036M-ND	3.93	32.03	236.04
	Tin	36	MC	C3AET-1036M-ND	3.55	28.90	212.94
	Gold	36	GR	C3AEG-1036G-ND	3.68	29.94	220.61
	Tin	36	GR	C3AET-1036G-ND	3.29	26.80	197.51
20	Gold	6	MC	C3AEG-2006M-ND	5.24	42.70	314.64
	Tin	6	MC	C3AET-2006M-ND	4.37	35.58	262.14
	Gold	6	GR	C3AEG-2006G-ND	5.16	42.01	309.54
	Tin	6	GR	C3AET-2006G-ND	4.28	34.88	257.04
	Gold	18	MC	C3AEG-2018M-ND	5.79	47.16	347.51
	Tin	18	MC	C3AET-2018M-ND	4.92	40.04	295.01
	Gold	18	GR	C3AEG-2018G-ND	5.54	45.09	332.22
	Tin	18	GR	C3AET-2018G-ND	4.66	37.96	279.72
	Gold	36	MC	C3AEG-2036M-ND	6.61	53.85	396.80
	Tin	36	MC	C3AET-2036M-ND	5.74	46.73	344.30
	Gold	36	GR	C3AEG-2036G-ND	6.10	49.70	366.24
	Tin	36	GR	C3AET-2036G-ND	5.23	42.58	313.74
26	Gold	6	MC	C3AEG-2606M-ND	6.27	51.06	376.24
	Tin	6	MC	C3AET-2606M-ND	5.08	41.37	304.84
	Gold	6	GR	C3AEG-2606G-ND	6.16	50.17	369.71
	Tin	6	GR	C3AET-2606G-ND	4.97	40.48	298.31
	Gold	18	MC	C3AEG-2618M-ND	6.98	56.85	418.93
	Tin	18	MC	C3AET-2618M-ND	5.79	47.16	347.53
	Gold	18	GR	C3AEG-2618G-ND	6.66	54.19	399.32
	Tin	18	GR	C3AET-2618G-ND	5.47	44.50	327.92
	Gold	36	MC	C3AEG-2636M-ND	8.05	65.54	482.96
	Tin	36	MC	C3AET-2636M-ND	6.86	55.85	411.56
	Gold	36	GR	C3AEG-2636G-ND	7.40	60.22	443.73
	Tin	36	GR	C3AET-2636G-ND	6.21	50.53	372.33
34	Gold	6	MC	C3AEG-3406M-ND	7.78	63.34	466.73
	Tin	6	MC	C3AET-3406M-ND	6.10	49.66	365.93
	Gold	6	GR	C3AEG-3406G-ND	7.64	62.19	458.22
	Tin	6	GR	C3AET-3406G-ND	5.96	48.51	357.42
	Gold	18	MC	C3AEG-3418M-ND	8.71	70.89	522.38
	Tin	18	MC	C3AET-3418M-ND	7.03	57.21	421.58
	Gold	18	GR	C3AEG-3418G-ND	8.28	67.43	496.86
	Tin	18	GR	C3AET-3418G-ND	6.60	53.75	396.06
	Gold	36	MC	C3AEG-3436M-ND	10.10	82.22	605 85
	Tin	36	MC	C3AET-3436M-ND	8.42	68.54	505.05
	Gold	36	GR	C3AEG-3436G-ND	9.25	75.30	554.82
	Tin	36	GR	C3AET-3436G-ND	7.57	61.62	454.02
40	Gold	6	MC	C3AEG-4006M-ND	8.88	72.29	532.67
	Tin	6	MC	C3AET-4006M-ND	7.37	60.04	442.37
	Gold	6	GR	C3AEG-4006G-ND	8.71	70.91	522.50
	Tin	6	GR	C3AET-4006G-ND	7.20	58.66	432.20
	Gold	18	MC	C3AEG-4018M-ND	9.97	81.21	598.40
	Tin	18	MC	C3AET-4018M-ND	8.47	68.96	508.10
	Gold	18	GR	C3AEG-4018G-ND	9.47	77.08	567.92
	Tin	18	GR	C3AET-4018G-ND	7.96	64.82	477.62
	Gold	36	MC	C3AEG-4036M-ND	11.62	94.59	696.99
	Tin	36	MC	C3AET-4036M-ND	10.11	82.34	606.69
	Gold	36	GR	C3AEG-4036G-ND	10.60	86.32	636.05
	Tin	36	GR	C3AET-4036G-ND	9.10	74.07	545.75
50	Gold	6	MC	C3AEG-5006M-ND	10.63	86.52	637.52
	Tin	6	MC	C3AET-5006M-ND	8.35	68.00	501.02
	Gold	6	GR	C3AEG-5006G-ND	10.41	84.79	624.75
	Tin	6	GR	C3AET-5006G-ND	8.14	66.26	488.25
	Gold	18	MC	C3AEG-5018M-ND	12.00	97.68	719.73
	Tin	18	MC	C3AET-5018M-ND	9.72	79.15	583.23
	Gold	18	GR	C3AEG-5018G-ND	11.36	92.48	681.45
	Tin	18	GR	C3AET-5018G-ND	9.08	73.96	544.95
	Gold	36	MC	C3AEG-5036M-ND	14.05	114.41	843.05
	Tin	36	MC	C3AET-5036M-ND	11.78	95.89	706.55
	Gold	36	GR	C3AEG-5036G-ND	12.78	104.03	766.50
	Tin	36	GR	C3AET-5036G-ND	10.50	85.50	630.00

Also available in the following versions:
C3BE☐-☐☐☐☐☐☐-ND — Socket Connector with Strain Relief.
C3CE☐-☐☐☐☐☐☐-ND — Socket Connector with Central Polarizing Key.
C3DE☐-☐☐☐☐☐☐-ND — Socket Connector w. Strain Relief & Central Polarizing Key.
Call for complete part number and pricing!

Custom Cable Assemblies Available
Call Toll Free: 1-800-344-4539

CW PCB Connector to Card Edge Connector



* MC = Multi-Color, GR = Gray

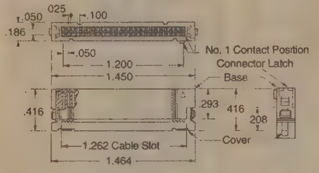
No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Tin	6	MC	C3PET-1006M-ND	3.04	24.77	182 49
	Tin	6	GR	C3PET-1006G-ND	3.00	24.42	179.93
	Tin	18	MC	C3PET-1018M-ND	3.31	26.99	198.87
	Tin	18	GR*	C3PET-1018G-ND	3.19	25.94	191.16
	Tin	36	MC	C3PET-1036M-ND	3.72	30.32	223.44
	Tin	36	GR	C3PET-1036G-ND	3.47	28.23	208.01
20	Tin	6	MC	C3PET-2006M-ND	4.09	33.30	245.34
	Tin	6	GR	C3PET-2006G-ND	4.00	32.60	240.24
	Tin	18	MC	C3PET-2018M-ND	4.64	37.76	278.21
	Tin	18	GR	C3PET-2018G-ND	4.38	35.68	262.92
	Tin	36	MC	C3PET-2036M-ND	5.46	44.45	327 50
	Tin	36	GR	C3PET-2036G-ND	4.95	40.30	296.94
26	Tin	6	MC	C3PET-2606M-ND	5.01	40.80	300.64
	Tin	6	GR	C3PET-2606G-ND	4.90	39.91	294.11
	Tin	18	MC	C3PET-2618M-ND	5.72	46 59	343.33
	Tin	18	GR	C3PET-2618G-ND	5.40	43 93	323.72
	Tin	36	MC	C3PET-2636M-ND	6.79	55.28	407.36
	Tin	36	GR	C3PET-2636G-ND	6.14	49.96	368.13
34	Tin	6	MC	C3PET-3406M-ND	6 10	49.66	365.93
	Tin	6	GR	C3PET-3406G-ND	5.96	48.51	357.42
	Tin	18	MC	C3PET-3418M-ND	7.03	57.21	421 58
	Tin	18	GR	C3PET-3418G-ND	6.60	53.75	396 06
	Tin	36	MC	C3PET-3436M-ND	8.42	68.54	505.05
	Tin	36	GR	C3PET-3436G-ND	7.57	61.62	454 02
40	Tin	6	MC	C3PET-4006M-ND	7.37	60.04	442.37
	Tin	6	GR	C3PET-4006G-ND	7.20	58.66	432.20
	Tin	18	MC	C3PET-4018M-ND	8.47	68.96	508.10
	Tin	18	GR	C3PET-4018G-ND	7.96	64.82	477.62
	Tin	36	MC	C3PET-4036M-ND	10.11	82.34	606.69
	Tin	36	GR	C3PET-4036G-ND	9.10	74.07	545.75
50	Tin	6	MC	C3PET-5006M-ND	8.53	69.42	511 52
	Tin	6	GR	C3PET-5006G-ND	8.31	67.69	498.75
	Tin	18	MC	C3PET-5018M-ND	9.90	80.58	593 73
	Tin	18	GR	C3PET-5018G-ND	9.26	75.38	555 45
	Tin	36	MC	C3PET-5036M-ND	11.95	97.31	717 05
	Tin	36	GR	C3PET-5036G-ND	10.68	86.93	640.50

CW INDUSTRIES

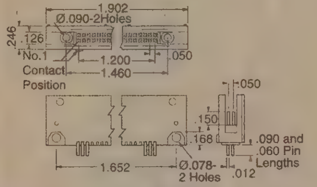
NANO IDC Connector System

- Contacts: Copper Alloy.
- Contact Plating: 30μ in. Gold (in mating area) over 50μ in. Nickel.
- Operating Temperature: -55°C to +125°C.
- Current Rating: .5 Amp per contact.

Socket Connector



Header



Description	Digi-Key Part No.	Pricing 1	10	100
50-Contact NANO Straight Header w/Lock Eject Hooks	R9242-ND	8.47	68.97	508.20
50-Contact NANO Right Angle Header w/Lock Eject Hooks	R9244-ND	7.28	59.28	436.80
50-Contact NANO Wire-Wrap Header w/Lock Eject Hooks	R9246-ND	18.27	148.77	1096.20
50-Contact NANO Right Angle WW Header w/Lock Eject Hooks	R9264-ND	18.69	152.19	1121.40
50-Contact NANO Socket Connector	R9307-ND	10.05	81.80	602.70
50-Contact, Single-Ended Socket Connector Cable Assy., 6 in.	R9317G-6-ND	14.49	117.99	869.40
50-Contact, Single-Ended Socket Connector Cable Assy., 18 in.	R9317G-18-ND	16.91	137.66	1014.30
50-Contact, Single-Ended Socket Connector Cable Assy., 36in.	R9317G-36-ND	20.65	168.15	1239.00
50-Contact, Double-Ended Socket Connector Cable Assy., 6 in.	R9326G-6-ND	27.76	226.01	1665.30
50-Contact, Double Ended Socket Connector Cable Assy., 18 in.	R9326G-18-ND	30.21	245.96	1812.30
50-Contact, Double-Ended Socket Connector Cable Assy., 36 in.	R9326G-36-ND	33.94	276.36	2036.37
50-Conductor NANO (Half-Pitch) Ribbon Cable - Gray				
5 Foot Lengths	R9028-5-ND	15.76	—	—
10 Foot Lengths	R9028-10-ND	28.13	—	—
50 Foot Lengths	R9028-50-ND	126.10	—	—
100 Foot Lengths	R9028-100-ND	232.80	—	—
200 Foot Lengths	R9028-200-ND	426.80	—	—

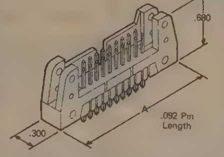
CW INDUSTRIES

Protected Headers

Straight-Lead

Lock Ejector Hooks, two required per connector, sold separately (see below)

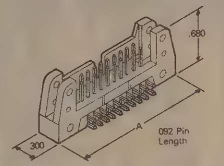
Pins	"A"
10	1.26
14	1.46
16	1.56
20	1.76
26	2.06
34	2.46
40	2.76
50	3.26
60	3.76



Right-Angle

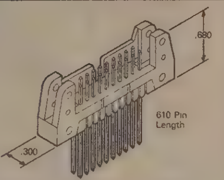
Lock Ejector Hooks, two required per connector, sold separately (see below)

Pins	"A"
10	1.26
14	1.46
16	1.56
20	1.76
26	2.06
34	2.46
40	2.76
50	3.26
60	3.76



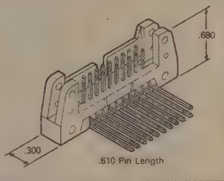
Straight-Lead Wire Wrap

Lock Ejector Hooks, two required per connector, sold separately (see below)



Right-Angle Wire Wrap

Lock Ejector Hooks, two required per connector, sold separately (see below)



Specifications: • Contacts: phosphor bronze, standard. • Contact Plating: 10μ in. gold (in mating area) over 50μ in. nickel, • Insulator Material: UL 94V-0 flame-retardant thermoplastic, • Color: blue. • Operating Temperature: -55°C to +125°C. • Current Rating: 1A (maximum) per contact. • Dielectric Withstand Voltage: greater than 500 Vdc at sea level. • Insulation Resistance: greater than 5 x 10^9 ohms. • U.S. Defense Department Mil-C-83503/20, 21, approved.

No. of Contacts	Description	Digi-Key Part No.	Pricing 1	10	100	1,000
Protected Headers - Gold Finish						
10	Straight-Lead	CHS10G-ND	.95	7.70	56.70	392.85
10	Right-Angle	CHR10G-ND	.95	7.70	56.70	392.85
10	Straight-Lead WW	CHW10G-ND	1.96	15.96	117.60	814.80
10	Right-Angle WW	CHA10G-ND	1.96	15.96	117.60	814.80
14	Straight-Lead	CHS14G-ND	1.23	9.98	73.50	509.25
14	Right-Angle	CHR14G-ND	1.23	9.98	73.50	509.25
14	Straight-Lead WW	CHW14G-ND	2.49	20.24	149.10	1033.05
14	Right-Angle WW	CHA14G-ND	2.49	20.24	149.10	1033.05
16	Straight-Lead	CHS16G-ND	1.37	11.12	81.90	567.45
16	Right-Angle	CHR16G-ND	1.37	11.12	81.90	567.45
16	Straight-Lead WW	CHW16G-ND	2.80	22.80	168.00	1164.00
16	Right-Angle WW	CHA16G-ND	2.80	22.80	168.00	1164.00
20	Straight-Lead	CHS20G-ND	1.44	11.69	86.10	596.55
20	Right-Angle	CHR20G-ND	1.44	11.69	86.10	596.55
20	Straight-Lead WW	CHW20G-ND	2.91	23.66	174.30	1207.65
20	Right-Angle WW	CHA20G-ND	2.91	23.66	174.30	1207.65
26	Straight-Lead	CHS26G-ND	1.75	14.25	105.00	727.50
26	Right-Angle	CHR26G-ND	1.75	14.25	105.00	727.50
26	Straight-Lead WW	CHW26G-ND	3.50	28.50	210.00	1455.00
26	Right-Angle WW	CHA26G-ND	3.50	28.50	210.00	1455.00
34	Straight-Lead	CHS34G-ND	2.10	17.10	126.00	873.00
34	Right-Angle	CHR34G-ND	2.10	17.10	126.00	873.00
34	Straight-Lead WW	CHW34G-ND	4.20	34.20	252.00	1746.00
34	Right-Angle WW	CHA34G-ND	4.20	34.20	252.00	1746.00
40	Straight-Lead	CHS40G-ND	2.56	20.81	153.30	1062.15
40	Right-Angle	CHR40G-ND	2.56	20.81	153.30	1062.15
40	Straight-Lead WW	CHW40G-ND	5.11	41.61	306.60	2124.30
40	Right-Angle WW	CHA40G-ND	5.11	41.61	306.60	2124.30
50	Straight-Lead	CHS50G-ND	2.87	23.37	172.20	1193.10
50	Right-Angle	CHR50G-ND	2.87	23.37	172.20	1193.10
50	Straight-Lead WW	CHW50G-ND	5.74	46.74	344.40	2386.20
50	Right-Angle WW	CHA50G-ND	5.74	46.74	344.40	2386.20
60	Straight-Lead ST* (Shrouded)	CHB60G-ND	6.23	50.73	373.80	2589.90
60	Straight-Lead WW* (Shrouded)	CHC60G-ND	7.63	62.13	457.80	3171.90
60	Right-Angle ST* (Shrouded)	CHD60G-ND	5.56	45.30	333.75	2312.43
60	Right-Angle WW* (Shrouded)	CHE60G-ND	7.63	62.13	457.80	3171.90
CLKS01-ND	Lock Ejector Hooks-Short (2 required per connector)					.22/2
CLKS02-ND	Lock Ejector Hooks: Long - with strain relief; (2 required per connector)					.22/2

* Lock ejector hooks included.

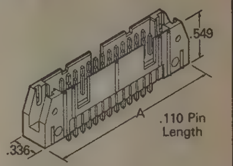
AMP

Protected Headers

Straight-Lead

Lock Ejector Hooks, two required per connector, sold separately (see below)

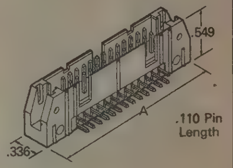
Pins	"A"
10	1.26
14	1.46
16	1.56
20	1.76
26	2.06
34	2.46
40	2.76
50	3.26
60	3.76



Right-Angle

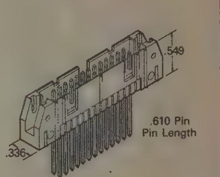
Lock Ejector Hooks, two required per connector, sold separately (see below)

Pins	"A"
10	1.26
14	1.46
16	1.56
20	1.76
26	2.06
34	2.46
40	2.76
50	3.26
60	3.76



Straight-Lead Wire Wrap

Lock Ejector Hooks, two required per connector, sold separately (see below)

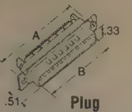


Specifications:

- Connectors recognized under component program of Underwriters Laboratories Inc. File No. E28476.
- Connectors certified by Canadian Standards Association File No. LR16455.
- .025 Sq. Posts, .240 Mating Post Length.
- Material and Finish: Housing and Latches — Black thermoplastic, 94V-0 rated.
- Contact Finish: .000015 gold on post/pin mating end, .000100-.000200 bright tin-lead on termination end, with entire contact underplated .000050 nickel.

No. of Contacts	Description	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
Protected Headers - Gold Finish						
10	Straight-Lead	AHS10G-ND	1.09	8.84	65.10	102153-1
10	Right-Angle	AHR10G-ND	1.19	9.69	71.40	102159-1
10	Straight-Lead WW	AHW10G-ND	3.47	28.22	207.90	102158-1
14	Straight-Lead	AHS14G-ND	1.51	12.26	90.30	102153-2
14	Right-Angle	AHR14G-ND	1.65	13.40	98.70	102159-2
14	Straight-Lead WW	AHW14G-ND	4.27	34.77	256.20	102158-2
16	Straight-Lead	AHS16G-ND	1.68	13.68	100.80	102153-3
16	Right-Angle	AHR16G-ND	1.82	14.82	109.20	102159-3
16	Straight-Lead WW	AHW16G-ND	4.73	38.48	283.50	102158-3
20	Straight-Lead	AHS20G-ND	2.03	16.53	121.80	102153-4
20	Right-Angle	AHR20G-ND	2.21	17.96	132.30	102159-4
20	Straight-Lead WW	AHW20G-ND	5.57	45.32	333.90	102158-4
26	Straight-Lead	AHS26G-ND	2.49	20.24	149.10	102153-6
26	Right-Angle	AHR26G-ND	2.70	21.95	161.70	102159-6
26	Straight-Lead WW	AHW26G-ND	6.48	52.73	388.50	102158-6
34	Straight-Lead	AHS34G-ND	3.05	24.80	182.70	102153-8
34	Right-Angle	AHR34G-ND	3.33	27.08	199.50	102159-8
34	Straight-Lead WW	AHW34G-ND	8.12	66.12	487.20	102158-8
40	Straight-Lead	AHS40G-ND	3.47	28.22	207.90	102153-9
40	Right-Angle	AHR40G-ND	3.82	31.07	228.90	102159-9
40	Straight-Lead WW	AHW40G-ND	8.96	72.96	537.60	102158-9
50	Straight-Lead	AHS50G-ND	4.17	33.92	249.90	1-102153-0
50	Right-Angle	AHR50G-ND	4.62	37.62	277.20	1-102159-0
50	Straight-Lead WW	AHW50G-ND	10.92	88.92	655.20	1-102158-0
60	Straight-Lead	AHS60G-ND	4.83	39.33	289.80	1-102153-1
60	Right-Angle	AHR60G-ND	5.36	43.61	321.30	1-102159-1
60	Straight-Lead WW	AHW60G-ND	12.88	104.88	772.80	1-102158-1
Lock Ejector Hooks (2 Required per Connector)						
—	Short	ALSN01-ND			.51/2	102312-1
—	Long w/o Push Tabs	ALLN01-ND			.51/2	102320-1

3M D-Subminiature Connectors



Plug

Receptacle

Backshell

Wire Accommodation: 26 & 28 AWG solid and stranded.
Order strain reliefs separately.

Physical: • Contact Material: Beryllium Copper Plating • Underplate: 50µ" Nickel — QQ-N-290, Class 2 • Wiping Area: 30µ" Gold — MIL-G-45204, Type II, Grade C • Shell Material: Steel, Plating: Tin • Strain Relief Material: Stainless Steel .016 Thick • Marking: 3M logo & Contact Position Numbers. **Electrical:** • Current Rating: 1 amp. • Insulation Resistance: >1x10⁹ Ω @ 500 VDC. • Withstanding Voltage: 1000VRMS @ sea level. **Environmental:** • Temperature Rating: -55°C to +105°C. UL File No.: E68080, CSA File No.: LR-40971.

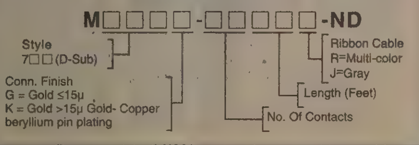
No. of Cont.	Dim.		Digi-Key Part No.	Pricing			3M Part No.
	A	B		1	100	500	
Plugs with flange, thru-hole style, Male							
9	.98	.67	MMR09K-ND	5.01	380.78	1723.15	8209-6000
15	1.31	1.00	MMR15K-ND	5.70	432.92	1959.10	8215-6000
25	1.85	1.54	MMR25K-ND	6.47	491.38	2223.65	8225-6000
37	2.50	2 18	MMR37K-ND	8.36	635.16	2874.30	8237-6000
Plugs with 4-40 threaded insert, Male							
9	.98	.67	MML09K-ND	6.14	466.10	2109.25	8209-6003
15	1.31	1.00	MML15K-ND	6.82	518.24	2345.20	8215-6003
25	1.85	1.54	MML25K-ND	7.36	559.32	2531.10	8225-6003
37	2.50	2.18	MML37K-ND	9.13	693.62	3138.85	8237-6003
50	2.40	2.074	MML50K-ND	18.20	1382.50	6256.25	8250-6005
Receptacles with flange, thru-hole style, Female							
9	.98	.67	MFR09K-ND	5.14	390.26	1766.05	8309-6000
15	1.31	.97	MFR15K-ND	5.91	448.72	2030.60	8315-6000
25	1.85	1.51	MFR25K-ND	6.57	499.28	2259.40	8325-6000
37	2.50	2.16	MFR37K-ND	8.49	644.64	2917.20	8337-6000
Receptacles with 4-40 threaded insert, Female							
9	.98	.67	MFL09K-ND	6.26	475.58	2152.15	8309-6003
15	1.31	.97	MFL15K-ND	7.03	534.04	2416.70	8315-6003
25	1.85	1.51	MFL25K-ND	7.47	567.22	2566.85	8325-6003
37	2.50	2.16	MFL37K-ND	9.13	693.62	3138.85	8337-6003
50	2.40	2.068	MFL50K-ND	18.20	1382.50	6256.25	8350-6005
Backshells							
9	—	—	MDBF09-ND	3.12	237.00	1072.50	3485-2100
15	—	—	MDBF15-ND	3.12	237.00	1072.50	3485-2200
25	—	—	MDBF25-ND	3.12	237.00	1072.50	3485-2300
37	—	—	MDBF37-ND	3.12	237.00	1072.50	3485-2400
Strain Relief							
9	—	—	MDSR09-ND	.25	18.96	85.80	3448-8D09A
15	—	—	MDSR15-ND	.33	25.28	114.40	3448-8D15A
25	—	—	MDSR25-ND	.25	18.96	85.80	3448-8D25A
37	—	—	MDSR37-ND	.40	30.02	135.85	3448-8D37A

Series 89
D-Subminiature Connectors

We've designed these standard-performance D-Sub connectors to reduce costs and save assembly time.

Physical Specifications: • Insulation Material: Glass reinforced polyester (PBT) • Flammability rating: UL94V-0 • Color: Gray • Marking: Molded figures 3M Logo, part identification number and contact position number • Shell Material: Steel • Plating: Tin • Design: Pin Connector with dimples • Fastening: Through Hole and 4-40 Insert • Contact Material: Copper Alloy • Contact Plating: Wipe area 15µ" average gold over nickel • Wire Accommodation: 26 & 28 AWG Solid or Stranded. **Electrical Specifications:** • Current Rating: 1A • Insulation Resistance: >1 x 10Ω @ 500 VDC • Withstanding Voltage: 1000V$_{RMS}$ @ Sea Level. **Environmental Specifications:** • Operating Temperature: -55°C to +105°C

No. of Cont.	Dim.		Digi-Key Part No.	Pricing			3M Part No.
	A	B		1	10	100	
D-Sub Connectors, Male							
9	.98	.67	MMR09G-ND	4.38	35.63	262.50	89809-8000
15	1.31	1.00	MMR15G-ND	5.64	45.89	338.10	89815-8000
25	1.85	1.54	MMR25G-ND	6.09	49.59	365.40	89825-8000
37	2.50	2.18	MMR37G-ND	8.26	67.26	495.60	89837-8000
D-Sub Connectors, Male, Insert							
9	.98	.67	MML09G-ND	5.08	41.33	304.50	89809-8003
15	1.31	1.00	MML15G-ND	6.34	51.59	380.10	89815-8003
25	1.85	1.54	MML25G-ND	6.79	55.29	407.40	89825-8003
37	2.50	2.18	MML37G-ND	8.96	72.96	537.60	89837-8003
D-Sub Connectors, Female							
9	.98	.67	MFR09G-ND	4.03	32.78	241.50	89909-8000
15	1.31	1.00	MFR15G-ND	5.01	40.76	300.30	89915-8000
25	1.85	1.54	MFR25G-ND	5.46	44.46	327.60	89925-8000
37	2.50	2.18	MFR37G-ND	7.64	62.23	458.56	89937-8000
D-Sub Connectors, Female, Insert							
9	.98	.67	MFL09G-ND	4.38	35.63	262.50	89909-8003
15	1.31	1.00	MFL15G-ND	5.71	46.46	342.30	89915-8003
25	1.85	1.54	MFL25G-ND	6.16	50.16	369.60	89925-8003
37	2.50	2.18	MFL37G-ND	8.89	72.39	533.40	89937-8003
Strain Relief							
9	—	—	MDSR09-ND	.25	—	18.96	3448-8D09A
15	—	—	MDSR15-ND	.33	—	25.28	3448-8D15A
25	—	—	MDSR25-ND	.25	—	18.96	3448-8D25A
37	—	—	MDSR37-ND	.40	—	30.02	3448-8D37A



M□□□□-□□□□□-ND

Style
7□□ (D-Sub)

Conn. Finish
G = Gold ≤15µ
K = Gold >15µ Gold- Copper
beryllium pin plating

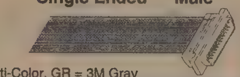
No. Of Contacts

Length (Feet)

Ribbon Cable
R=Multi-color
J=Gray

D-Sub Cable Assemblies

Single Ended — Male

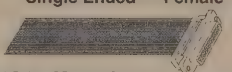


*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Au 30µ"	6	MC	M7PXK-0906R-ND	11.40	100.01	736.89
9	Au 15µ"	6	MC	M7PXG-0906R-ND	7.63	66.95	493.29
9	Au 30µ"	6	GR	M7PXK-0906J-ND	10.42	91.41	673.51
9	Au 15µ"	6	GR	M7PXG-0906J-ND	6.65	58.35	429.91
9	Au 30µ"	10	MC	M7PXK-0910R-ND	13.53	118.61	873.95
9	Au 15µ"	10	MC	M7PXG-0910R-ND	9.76	85.55	630.35
9	Au 30µ"	10	GR	M7PXK-0910J-ND	11.89	104.27	768.32
9	Au 15µ"	10	GR	M7PXG-0910J-ND	8.12	71.21	524.72
15	Au 30µ"	6	MC	M7PXK-1506R-ND	14.52	127.32	938.15
15	Au 15µ"	6	MC	M7PXG-1506R-ND	10.85	95.12	700 85
15	Au 30µ"	6	GR	M7PXK-1506J-ND	12.95	113.53	836.56
15	Au 15µ"	6	GR	M7PXG-1506J-ND	9.27	81.33	599.26
15	Au 30µ"	10	MC	M7PXK-1510R-ND	17.92	157.10	1157.59
15	Au 15µ"	10	MC	M7PXG-1510R-ND	14.24	124.90	920.29
15	Au 30µ"	10	GR	M7PXK-1510J-ND	15.29	134 12	988.26
15	Au 15µ"	10	GR	M7PXG-1510J-ND	11.62	101.92	750.96
25	Au 30µ"	6	MC	M7PXK-2506R-ND	18.77	164.62	1212.96
25	Au 15µ"	6	MC	M7PXG-2506R-ND	14.32	125.57	925.26
25	Au 30µ"	6	GR	M7PXK-2506J-ND	16.22	142.25	1048.15
25	Au 15µ"	6	GR	M7PXG-2506J-ND	11.77	103.20	760.45
25	Au 30µ"	10	MC	M7PXK-2510R-ND	24.29	212.99	1569.40
25	Au 15µ"	10	MC	M7PXG-2510R-ND	19.84	173.94	1281.70
25	Au 30µ"	10	GR	M7PXK-2510J-ND	20.04	175.71	1294.72
25	Au 15µ"	10	GR	M7PXG-2510J-ND	15.58	136.67	1007.02
37	Au 30µ"	6	MC	M7PXK-3706R-ND	25.46	223.24	1644.93
37	Au 15µ"	6	MC	M7PXG-3706R-ND	20.06	175.93	1296.33
37	Au 30µ"	6	GR	M7PXK-3706J-ND	21.83	191.41	1410.40
37	Au 15µ"	6	GR	M7PXG-3706J-ND	16.43	144.10	1061.80
37	Au 30µ"	10	MC	M7PXK-3710R-ND	33.31	292.08	2152.15
37	Au 15µ"	10	MC	M7PXG-3710R-ND	27.91	244.77	1803.55
37	Au 30µ"	10	GR	M7PXK-3710J-ND	27.26	239.03	1761.27
37	Au 15µ"	10	GR	M7PXG-3710J-ND	21.86	191.72	1412.67

Also available in the following configurations:
M7NX□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert.
M7VX□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert & Strain Relief.
Call for complete part number and pricing!

Single Ended — Female

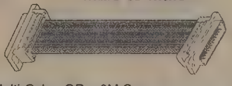


*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Au 30µ"	6	MC	M7SXK-0906R-ND	11.60	101.72	749.49
9	Au 15µ"	6	MC	M7SXG-0906R-ND	7.31	64.10	472.29
9	Au 30µ"	6	GR	M7SXK-0906J-ND	10.62	93.12	686.11
9	Au 15µ"	6	GR	M7SXG-0906J-ND	6.33	55.50	408.91
9	Au 30µ"	10	MC	M7SXK-0910R-ND	13.72	120.32	886.55
9	Au 15µ"	10	MC	M7SXG-0910R-ND	9.43	82.70	609 35
9	Au 30µ"	10	GR	M7SXK-0910J-ND	12.09	105.98	780.92
9	Au 15µ"	10	GR	M7SXG-0910J-ND	7.80	68.36	503.72
15	Au 30µ"	6	MC	M7SXK-1506R-ND	14.84	130.17	959.15
15	Au 15µ"	6	MC	M7SXG-1506R-ND	10.26	89.99	663.05
15	Au 30µ"	6	GR	M7SXK-1506J-ND	13.27	116.38	857 56
15	Au 15µ"	6	GR	M7SXG-1506J-ND	8.69	76.20	561.46
15	Au 30µ"	10	MC	M7SXK-1510R-ND	18.24	159.95	1178 59
15	Au 15µ"	10	MC	M7SXG-1510R-ND	13.66	119.77	882.49
15	Au 30µ"	10	GR	M7SXK-1510J-ND	15.62	136.97	1009.26
15	Au 15µ"	10	GR	M7SXG-1510J-ND	11.04	96.79	713 16
25	Au 30µ"	6	MC	M7SXK-2506R-ND	18.93	166.04	1223.46
25	Au 15µ"	6	MC	M7SXG-2506R-ND	13.73	120.44	887.46
25	Au 30µ"	6	GR	M7SXK-2506J-ND	16.38	143.67	1058.65
25	Au 15µ"	6	GR	M7SXG-2506J-ND	11.18	98.07	722.65
25	Au 30µ"	10	MC	M7SXK-2510R-ND	24.45	214.41	1579.90
25	Au 15µ"	10	MC	M7SXG-2510R-ND	19.25	168.81	1243.90
25	Au 30µ"	10	GR	M7SXK-2510J-ND	20.20	177.14	1305.22
25	Au 15µ"	10	GR	M7SXG-2510J-ND	15.00	131.54	969.22
37	Au 30µ"	6	MC	M7SXK-3706R-ND	25.65	224.95	1657.53
37	Au 15µ"	6	MC	M7SXG-3706R-ND	19.49	170.90	1259.29
37	Au 30µ"	6	GR	M7SXK-3706J-ND	22.02	193.12	1423.00
37	Au 15µ"	6	GR	M7SXG-3706J-ND	15.86	139.07	1024.76
37	Au 30µ"	10	MC	M7SXK-3710R-ND	33.50	293.79	2164.75
37	Au 15µ"	10	MC	M7SXG-3710R-ND	27.34	239.74	1766.51
37	Au 30µ"	10	GR	M7SXK-3710J-ND	27.45	240.74	1773.87
37	Au 15µ"	10	GR	M7SXG-3710J-ND	21.29	186.69	1375.63

Also available in the following configurations:
M7OX□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert.
M7WX□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert & Strain Relief.
Call for complete part number and pricing!

Male to Male

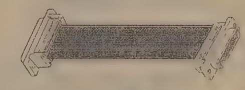


*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Au 30µ"	6	MC	M7PPK-0906R-ND	19.63	172.11	1268.19
9	Au 15µ"	6	MC	M7PPG-0906R-ND	12.09	105.99	780.99
9	Au 30µ"	6	GR	M7PPK-0906J-ND	18.65	163.51	1204.81
9	Au 15µ"	6	GR	M7PPG-0906J-ND	11.11	97.39	717.61
9	Au 30µ"	10	MC	M7PPK-0910R-ND	21.75	190.71	1405.25
9	Au 15µ"	10	MC	M7PPG-0910R-ND	14.21	124.59	918.05
9	Au 30µ"	10	GR	M7PPK-0910J-ND	20.11	176.38	1299.62
9	Au 15µ"	10	GR	M7PPG-0910J-ND	12.57	110.26	812.42
15	Au 30µ"	6	MC	M7PPK-1506R-ND	23.94	209.97	1547.15
15	Au 15µ"	6	MC	M7PPG-1506R-ND	16.60	145.56	1072.55
15	Au 30µ"	6	GR	M7PPK-1506J-ND	22.37	196.18	1445.56
15	Au 15µ"	6	GR	M7PPG-1506J-ND	15.03	131.77	970.96
15	Au 30µ"	10	MC	M7PPK-1510R-ND	27.34	239.75	1766.59
15	Au 15µ"	10	MC	M7PPG-1510R-ND	20.00	175.34	1291.99
15	Au 30µ"	10	GR	M7PPK-1510J-ND	24.72	216.77	1597.26
15	Au 15µ"	10	GR	M7PPG-1510J-ND	17.37	152.36	1122.66
25	Au 30µ"	6	MC	M7PPK-2506R-ND	29.27	256.67	1891.26
25	Au 15µ"	6	MC	M7PPG-2506R-ND	20.36	178.58	1315.86
25	Au 30µ"	6	GR	M7PPK-2506J-ND	26.72	234.30	1726.45
25	Au 15µ"	6	GR	M7PPG-2506J-ND	17.81	156.21	1151.05
25	Au 30µ"	10	MC	M7PPK-2510R-ND	34.79	305.04	2247.70
25	Au 15µ"	10	MC	M7PPG-2510R-ND	25.88	226.95	1672.30
25	Au 30µ"	10	GR	M7PPK-2510J-ND	30.53	267.77	1973.02
25	Au 15µ"	10	GR	M7PPG-2510J-ND	21.63	189.68	1397.62
37	Au 30µ"	6	MC	M7PPK-3706R-ND	39.14	343.23	2529.03
37	Au 15µ"	6	MC	M7PPG-3706R-ND	28.35	248.61	1831.83
37	Au 30µ"	6	GR	M7PPK-3706J-ND	35.51	311.40	2294.50
37	Au 15µ"	6	GR	M7PPG-3706J-ND	24.72	216.78	1597.30
37	Au 30µ"	10	MC	M7PPK-3710R-ND	46.99	412.06	3036.25
37	Au 15µ"	10	MC	M7PPG-3710R-ND	36.20	317.44	2339.05
37	Au 30µ"	10	GR	M7PPK-3710J-ND	40.94	359.01	2645.37
37	Au 15µ"	10	GR	M7PPG-3710J-ND	30.15	264.39	1948.17

Also available in the following configurations:
M7NN□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert.
M7VV□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert & Strain Relief.
Call for complete part number and pricing!

Female to Female

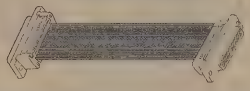


*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Au 30µ"	6	MC	M7SSK-0906R-ND	20.02	175.53	1293.39
9	Au 15µ"	6	MC	M7SSG-0906R-ND	11.44	100.29	738.99
9	Au 30µ"	6	GR	M7SSK-0906J-ND	19.04	166.93	1230.01
9	Au 15µ"	6	GR	M7SSG-0906J-ND	10.46	91.69	675.61
9	Au 30µ"	10	MC	M7SSK-0910R-ND	22.14	194.13	1430.45
9	Au 15µ"	10	MC	M7SSG-0910R-ND	13.56	118.89	876.05
9	Au 30µ"	10	GR	M7SSK-0910J-ND	20.50	179.80	1324.82
9	Au 15µ"	10	GR	M7SSG-0910J-ND	11.92	104.56	770.42
15	Au 30µ"	6	MC	M7SSK-1506R-ND	24.59	215.67	1589.15
15	Au 15µ"	6	MC	M7SSG-1506R-ND	15.43	135.30	996.95
15	Au 30µ"	6	GR	M7SSK-1506J-ND	23.02	201.88	1487.56
15	Au 15µ"	6	GR	M7SSG-1506J-ND	13.86	121.51	895.36
15	Au 30µ"	10	MC	M7SSK-1510R-ND	27.99	245.45	1808.59
15	Au 15µ"	10	MC	M7SSG-1510R-ND	18.83	165.08	1216.39
15	Au 30µ"	10	GR	M7SSK-1510J-ND	25 37	222.47	1639.26
15	Au 15µ"	10	GR	M7SSG-1510J-ND	16.20	142.10	1047.06
25	Au 30µ"	6	MC	M7SSK-2506R-ND	29.59	259.52	1912.26
25	Au 15µ"	6	MC	M7SSG-2506R-ND	19.19	168.32	1240.26
25	Au 30µ"	6	GR	M7SSK-2506J-ND	27.04	237.15	1747.45
25	Au 15µ"	6	GR	M7SSG-2506J-ND	16.64	145.95	1075.45
25	Au 30µ"	10	MC	M7SSK-2510R-ND	35.11	307.89	2268.70
25	Au 15µ"	10	MC	M7SSG-2510R-ND	24.71	216.69	1596.70
25	Au 30µ"	10	GR	M7SSK-2510J-ND	30.86	270.62	1994.02
25	Au 15µ"	10	GR	M7SSG-2510J-ND	20.46	179.42	1322.02
37	Au 30µ"	6	MC	M7SSK-3706R-ND	39.53	346.65	2554.23
37	Au 15µ"	6	MC	M7SSG-3706R-ND	27.20	238.55	1757.74
37	Au 30µ"	6	GR	M7SSK-3706J-ND	35.90	314.82	2319.70
37	Au 15µ"	6	GR	M7SSG-3706J-ND	23.57	206.72	1523.21
37	Au 30µ"	10	MC	M7SSK-3710R-ND	47 38	415.48	3061.45
37	Au 15µ"	10	MC	M7SSG-3710R-ND	35.05	307.39	2264.96
37	Au 30µ"	10	GR	M7SSK-3710J-ND	41.33	362.43	2670.57
37	Au 15µ"	10	GR	M7SSG-3710J-ND	29.00	254.34	1874.08

Also available in the following configurations:
M700□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert.
M7WW□-□□□□□-ND – Metal Shell Connector w/ Threaded Insert & Strain Relief.
Call for complete part number and pricing!

Male to Female



*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
9	Au 30µ"	6	MC	M7PSK-0906R-ND	19.82	173.82	1280.79
9	Au 15µ"	6	MC	M7PSG-0906R-ND	11.76	103.14	759.99
9	Au 30µ"	6	GR	M7PSK-0906J-ND	18.84	165.22	1217.41
9	Au 15µ"	6	GR	M7PSG-0906J-ND	10.78	94.54	696.61
9	Au 30µ"	10	MC	M7PSK-0910R-ND	21.94	192.42	1417.85
9	Au 15µ"	10	MC	M7PSG-0910R-ND	13.88	121.74	897.05
9	Au 30µ"	10	GR	M7PSK-0910J-ND	20.31	178.09	1312.22
9	Au 15µ"	10	GR	M7PSG-0910J-ND	12.25	107.41	791.42
15	Au 30µ"	6	MC	M7PSK-1506R-ND	24.27	212.82	1568.15
15	Au 15µ"	6	MC	M7PSG-1506R-ND	16.01	140.43	1034.75
15	Au 30µ"	6	GR	M7PSK-1506J-ND	22.70	199.03	1466.56
15	Au 15µ"	6	GR	M7PSG-1506J-ND	14.44	126.64	933.16
15	Au 30µ"	10	MC	M7PSK-1510R-ND	27.67	242.60	1787.59
15	Au 15µ"	10	MC	M7PSG-1510R-ND	19.41	170.21	1254.19
15	Au 30µ"	10	GR	M7PSK-1510J-ND	25.04	219.62	1618.26
15	Au 15µ"	10	GR	M7PSG-1510J-ND	16.79	147.23	1084.86

No. of Con- tacts	Conn. Finish	Length (Feet)	Rib- bon* Cable	Digi-Key Part No.	Pricing 1	10	100
25	Au 30µ"	6	MC	M7PSK-2506R-ND	29.43	258.10	1901.76
25	Au 15µ"	6	MC	M7PSG-2506R-ND	19.78	173.45	1278.06
25	Au 30µ"	6	GR	M7PSK-2506J-ND	26.88	235.73	1736.95
25	Au 15µ"	6	GR	M7PSG-2506J-ND	17.23	151.08	1113.25
25	Au 30µ"	10	MC	M7PSK-2510R-ND	34.95	306.47	2258.20
25	Au 15µ"	10	MC	M7PSG-2510R-ND	25.30	221.82	1634.50
25	Au 30µ"	10	GR	M7PSK-2510J-ND	30.70	269.19	1983.52
25	Au 15µ"	10	GR	M7PSG-2510J-ND	21.04	184.55	1359.82
37	Au 30µ"	6	MC	M7PSK-3706R-ND	39.33	344.94	2541.63
37	Au 15µ"	6	MC	M7PSG-3706R-ND	27.78	243.58	1794.79
37	Au 30µ"	6	GR	M7PSK-3706J-ND	35.71	313.11	2307.10
37	Au 15µ"	6	GR	M7PSG-3706J-ND	24.15	211.75	1560.26
37	Au 30µ"	10	MC	M7PSK-3710R-ND	47.18	413.77	3048.85
37	Au 15µ"	10	MC	M7PSG-3710R-ND	35.63	312.42	2302.01
37	Au 30µ"	10	GR	M7PSK-3710J-ND	41.14	360.72	2657.97
37	Au 15µ"	10	GR	M7PSG-3710J-ND	29.58	259.37	1911.13

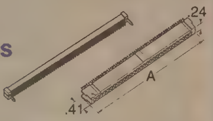
Also available in the following configurations:

M7NO☐-☐☐☐☐☐-ND – Metal Shell Connector w/ Threaded Insert.

M7VW☐-☐☐☐☐☐-ND – Metal Shell Connector w/ Threaded Insert & Strain Relief.

Call for complete part number and pricing!

3M .100" x .100" Socket Connectors



Wire Accommodation:
26, 28 ,30 AWG solid or stranded.

Physical: • Insulation Material: Glass reinforced polyester. Flammability rating: UL 94V-0. • Color: Gray. • Contact Material: Beryllium Copper, • Plating: 30µ" Gold. • Wire Accommodation: 26 & 28 AWG Solid or Stranded, 30 AWG Solid • Marking: 3M logo, Part Identification Number & Orientation Triangle. **Electrical:** • Current Rating: 1 amp. • Insulation Resistance: >1x10⁹ Ω @ 500 VDC. • Withstanding Voltage: 1000VRMS @ sea level. **Environmental:** • Temperature Rating: -55°C to +105°C. UL File No.: E68080, CSA File No.: LR-40971.

No. of Contacts	Dim. A	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Polarizing Slots (Open End)						
10	.68	MSC10K-ND	1.93	146.94	664.95	3473-6000
14	.88	MSC14K-ND	2.35	178.54	807.95	3385-6000
16	.98	MSC16K-ND	2.56	194.34	879.45	3452-6000
20	1.18	MSC20K-ND	2.83	214.88	972.40	3421-6000
24	1.38	MSC24K-ND	3.39	257.54	1165.45	3626-6000
26	1.48	MSC26K-ND	3.66	278.08	1258.40	3399-6000
30	1.68	MSC30K-ND	4.20	319.16	1444.30	3419-6000
34	1.88	MSC34K-ND	4.76	361.82	1637.35	3414-6000
40	2.18	MSC40K-ND	5.60	425.02	1923.35	3417-6000
50	2.68	MSC50K-ND	6.99	530.88	2402.40	3425-6000
60	3.18	MSC60K-ND	8.65	657.28	2974.40	3334-6000
Center-Bumped Polarizing (Open End)						
10	68	MKC10K-ND	1.93	146.94	664.95	3473-6600
14	.88	MKC14K-ND	2.35	178.54	807.95	3385-6600
16	.98	MKC16K-ND	2.56	194.34	879.45	3452-6600
20	1 18	MKC20K-ND	2.83	214.88	972.40	3421-6600
24	1.38	MKC24K-ND	3.39	257.54	1165.45	3626-6600
26	1.48	MKC26K-ND	3.66	278.08	1258.40	3399-6600
30	1.68	MKC30K-ND	4.20	319.16	1444.30	3419-6600
34	1.88	MKC34K-ND	4.76	361.82	1637.35	3414-6600
40	2.18	MKC40K-ND	5.60	425.02	1923.35	3417-6600
50	2.68	MKC50K-ND	6.99	530.88	2402.40	3425-6600
60	3 18	MKC60K-ND	8.65	657.28	2974.40	3334-6600
Center-Bumped Polarizing (Closed End)						
10	.68	MSD10K-ND	2.00	151.68	686.40	3473-7600
14	88	MSD14K-ND	2.41	183.28	829.40	3385-7600
16	.98	MSD16K-ND	2.62	199.08	900.90	3452-7600
20	1.18	MSD20K-ND	2.89	219.62	993.85	3421-7600
24	1.38	MSD24K-ND	3.45	262.28	1186.90	3626-7600
26	1.48	MSD26K-ND	3.72	282.82	1279.85	3399-7600
30	1.68	MSD30K-ND	4.28	325.48	1472.90	3419-7600
34	1.88	MSD34K-ND	4.83	366.56	1658.80	3414-7600
40	2.18	MSD40K-ND	5.66	429.76	1944.80	3417-7600
50	2.68	MSD50K-ND	7.05	535.62	2423.85	3425-7600
60	3.18	MSD60K-ND	8.72	662.02	2995.85	3334-7600
Cable Strain Relief/Stabilizer						
10	—	MSSR10-ND	.25	18.96	85.80	3448-3010
14	—	MSSR14-ND	.25	18.96	85.80	3448-3014
16	—	MSSR16-ND	.25	18.96	85.80	3448-3016
20	—	MSSR20-ND	.25	18.96	85.80	3448-3020
24	—	MSSR24-ND	.25	18.96	85.80	3448-3024
26	—	MSSR26-ND	.25	18.96	85.80	3448-3026
30	—	MSSR30-ND	.33	25.28	114.40	3448-3030
34	—	MSSR34-ND	.29	22.12	100.10	3448-3034
40	—	MSSR40-ND	.29	22.12	100.10	3448-3040
50	—	MSSR50-ND	.29	22.12	100.10	3448-3050
60	—	MSSR60-ND	.40	30.02	135.85	3448-3060

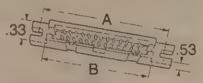
3M Series 89
.100" x .100" Socket Connectors

These high-quality, standard-performance IDC sockets minimize applied assembly costs without sacrificing reliability. The Series 89 IDC socket is part of a new line of standard-performance interconnects specifically designed to help electronic equipment manufacturers hold down applied assembly costs. These interconnects also offer the quality and reliability you'd expect from 3M. They have been engineered with a "systems" approach that has a positive impact on your process and product costs. **Physical Specifications:** • Insulation Material: Glass filled polyester (PBT), flammability rating: UL94V-0 • Color: Gray • Marking: Molded figures: 3M Logo and Orientation Triangle • Pins are Phosphor Bronze • Contact Plating: Wipe Area: 30µ" Gold: - MIL-G-45204. Type 11, Grade C. Under Plate: 100µ" Nickel-QQ-N-290, Class 2 • Wire Accommodation: 28 AWG Stranded. **Electrical Specifications:** • Current Rating: 1A • Insulation Resistance: >1x10⁹Ω @ 500 VDC • Withstanding Voltage: 1000V$_{RMS}$ @ Sea Level. **Environmental Specifications:** • Operating Temperature: -55°C to +105°C. **UL File No.:** E68080 **CSA File No.:** LR40971

No. of Contacts	Dim. A	Digi-Key Part No.	Pricing 1	10	100	3M Part No.
IDC Socket Gold						
10	.68	MSC10A-ND	.53	4.28	31.50	89110-0001
14	.88	MSC14A-ND	.74	5.99	44.10	89114-0001
16	.98	MSC16A-ND	.84	6.84	50.40	89116-0001
20	1.18	MSC20A-ND	1.05	8.55	63.00	89120-0001
24	1.38	MSC24A-ND	1.26	10.26	75.60	89124-0001
26	1.48	MSC26A-ND	1.37	11.12	81.90	89126-0001
30	1.68	MSC30A-ND	1.58	12.83	94.50	89130-0001
34	1.88	MSC34A-ND	1.79	14.54	107.10	89134-0001
40	2.18	MSC40A-ND	2.10	17.10	126.00	89140-0001
50	2.68	MSC50A-ND	2.63	21.38	157.50	89150-0001
60	3.18	MSC60A-ND	3.15	25.65	189.00	89160-0001
IDC Socket Gold, Polarizing						
10	.68	MKC10A-ND	.53	4.28	31.50	89110-0101
14	.88	MKC14A-ND	.74	5.99	44.10	89114-0101
16	.98	MKC16A-ND	.84	6.84	50.40	89116-0101
20	1.18	MKC20A-ND	1.05	8.55	63.00	89120-0101
24	1.38	MKC24A-ND	1.26	10.26	75.60	89124-0101
26	1.48	MKC26A-ND	1.37	11.12	81.90	89126-0101
30	1.68	MKC30A-ND	1.58	12.83	94.50	89130-0101
34	1.88	MKC34A-ND	1.79	14.54	107.10	89134-0101
40	2.18	MKC40A-ND	2.10	17.10	126.00	89140-0101
50	2.68	MKC50A-ND	2.63	21.38	157.50	89150-0101
60	3.18	MKC60A-ND	3.15	25.65	189.00	89160-0101
Strain Relief						
10	—	MKSR10-ND	.21	1.71	12.60	3448-89110
14	—	MKSR14-ND	.21	1.71	12.60	3448-89114
16	—	MKSR16-ND	.21	1.71	12.60	3448-89116
20	—	MKSR20-ND	.21	1.71	12.60	3448-89120
24	—	MKSR24-ND	.21	1.71	12.60	3448-89124
26	—	MKSR26-ND	.21	1.71	12.60	3448-89126
30	—	MKSR30-ND	.21	1.71	12.60	3448-89130
34	—	MKSR34-ND	.21	1.71	12.60	3448-89134
40	—	MKSR40-ND	.21	1.71	12.60	3448-89140
50	—	MKSR50-ND	.21	1.71	12.60	3448-89150
60	—	MKSR60-ND	.21	1.71	12.60	3448-89160

3M .100"x.100" Plug Connectors

Wire Accommodation: 26 & 28 AWG solid or stranded, 30 AWG solid.



Physical: • Insulation Material: Glass reinforced polyester. Flammability rating: UL 94V-0. • Color: Gray. • Contact Material: Flat Cable Connectors are Beryllium Copper • Plating: 30µ" Gold. Latch Eject Headers are Copper Alloy.

Electrical: • Current Rating: 1 amp. • Insulation Resistance: >1x10⁹ Ω @ 500 VDC. • Withstanding Voltage: 1000VRMS @ sea level.

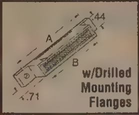
Environmental: • Temperature Rating: -67°F to +221°F. UL File No.: E68080, CSA File No.: LR-40971.

No. of Contacts	Dim. A	B	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
With Slotted Mounting Flanges							
10	1.20	0.90	MPL10K-ND	2.81	213.30	965.25	4610-6050
14	1.40	1.10	MPL14K-ND	3.89	295.46	1337.05	4614-6000
16	1.50	1.20	MPL16K-ND	4.41	334.96	1515.80	4616-6000
20	1.70	1.40	MPL20K-ND	5.14	390.26	1766.05	4620-6000
24	1.90	1.60	MPL24K-ND	5.66	429.76	1944.80	4624-6000
26	2.00	1.70	MPL26K-ND	5.84	443.98	2009.15	4626-6000
30	2.20	1.90	MPL30K-ND	6.43	488.22	2209.35	4630-6000
34	2.40	2.10	MPL34K-ND	7.26	551.42	2495.35	4634-6000
36	2.50	2.20	MPL36K-ND	7.68	583.02	2638.35	4636-6000
40	2.70	2.40	MPL40K-ND	8.05	611.46	2767.05	4640-6000
50	3.20	2.90	MPL50K-ND	8.72	662.02	2995.85	4650-6000
60	3.70	3.40	MPL60K-ND	10.28	780.52	3532.10	4660-6000
64	3.90	3.60	MPL64K-ND	10.96	832.66	3768.05	4664-6000
Without Mounting Flanges							
10	1.20	0.90	MPK10K-ND	2.81	213.30	965.25	4610-6051
14	1.40	1.10	MPK14K-ND	3.89	295.46	1337.05	4614-6001
16	1.50	1.20	MPK16K-ND	4.41	334.96	1515.80	4616-6001
20	1.70	1.40	MPK20K-ND	5.14	390.26	1766.05	4620-6001
24	1.90	1.60	MPK24K-ND	5.66	429.76	1944.80	4624-6001
26	2.00	1.70	MPK26K-ND	5.84	443.98	2009.15	4626-6001
30	2.20	1.90	MPK30K-ND	6.43	488.22	2209.35	4630-6001
34	2.40	2.10	MPK34K-ND	7.26	551.42	2495.35	4634-6001
36	2.50	2.20	MPK36K-ND	7.68	583.02	2638.35	4636-6001
40	2.70	2.40	MPK40K-ND	8.05	611.46	2767.05	4640-6001
50	3.20	2.90	MPK50K-ND	8.72	662.02	2995.85	4650-6001
60	3.70	3.40	MPK60K-ND	10.28	780.52	3532.10	4660-6001
64	3.90	3.60	MPK64K-ND	10.96	832.66	3768.05	4664-6001
Strain Reliefs							
10	—	—	MPSR10-ND	.46	34.76	157.30	3448-4610
14	—	—	MPSR14-ND	.46	34.76	157.30	3448-4614
16	—	—	MPSR16-ND	1.04	79.00	357.50	3448-4616
20	—	—	MPSR20-ND	.73	55.30	250.25	3448-4620
24	—	—	MPSR24-ND	.37	28.44	128.70	3448-4624
26	—	—	MPSR26-ND	.42	31.60	143.00	3448-4626
30	—	—	MPSR30-ND	.42	31.60	143.00	3448-4630
34	—	—	MPSR34-ND	.42	31.60	143.00	3448-4634
36	—	—	MPSR36-ND	.42	31.60	143.00	3448-4636
40	—	—	MPSR40-ND	.42	31.60	143.00	3448-4640
50	—	—	MPSR50-ND	.46	34.76	157.30	3448-4650
60	—	—	MPSR60-ND	.46	34.76	157.30	3448-4660
64	—	—	MPSR64-ND	.46	34.76	157.30	3448-4664
Lock Eject.Hooks(Short)			MDLKS1-ND	.29/2	11.06	—	3505-16
Lock Eject.Hooks(Long)			MDLKS2-ND	.33/2	12.64	—	3505-17

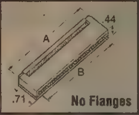
3M .100" Card Edge Connectors

Physical: • Insulation Material: Glass reinforced polyester. Flammability rating: UL 94V-0. • Color: Gray. • Contact Material: Beryllium Copper. • Plating: 30µ" Gold. • Marking: 3M Logo, Part Identification Number. **Electrical:** • Current Rating: 1 amp. • Insulation Resistance: >1x10⁹ Ω @ 500 VDC. • Withstanding Voltage: 1000VRMS @ sea level. **Environmental:** • Temperature Rating: -67°F to +221°F. UL File No.: E68080, CSA File No.: LR-40971.

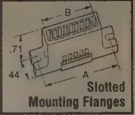
Wire Accommodation: 26AWG solid or stranded, 28AWG solid or stranded, 30 AWG solid. *Order strain reliefs separately.*



w/Drilled Mounting Flanges



No Flanges



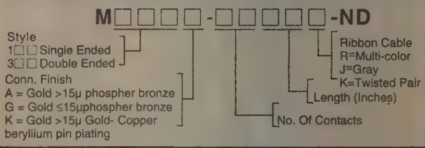
Slotted Mounting Flanges

No. of Contacts	Dim. A	B	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
With Drilled Mounting Flanges							
10	1.40	0.612	MCF10K-ND	3.83	290.72	1315.60	3358-0000
16	1.70	0.912	MCF16K-ND	3.72	282.82	1279.85	3368-0000
20	1.90	1.112	MCF20K-ND	4.62	350.76	1587.30	3461-0000
26	2.20	1.412	MCF26K-ND	5.47	415.54	1880.45	3462-0000
34	2.60	1.812	MCF34K-ND	6.36	483.48	2187.90	3463-0000
40	2.90	2.112	MCF40K-ND	7.80	592.50	2681.25	3464-0000
50	3.40	2.612	MCF50K-ND	8.03	609.88	2759.90	3415-0000
60	3.90	3.112	MCF60K-ND	10.11	767.88	3474.90	3666-0000
64	4.10	3.312	MCF64K-ND	10.28	780.52	3532.10	3403-0000
Without Flanges							
10	0.96	0.612	MCE10K-ND	2.70	205.40	929.50	3358-0001
16	1.26	0.912	MCE16K-ND	3.72	282.82	1279.85	3368-0001
20	1.46	1.112	MCE20K-ND	4.62	350.76	1587.30	3461-0001
26	1.76	1.412	MCE26K-ND	5.47	415.54	1880.45	3462-0001
34	2.16	1.812	MCE34K-ND	6.36	483.48	2187.90	3463-0001
40	2.46	2.112	MCE40K-ND	7.80	592.50	2681.25	3464-0001
50	2.96	2.612	MCE50K-ND	8.03	609.88	2759.90	3415-0001
60	3.46	3.112	MCE60K-ND	10.11	767.88	3474.90	3666-0001
64	3.66	3.312	MCE64K-ND	10.28	780.52	3532.10	3403-0001
With Slotted Mounting Flanges							
10	1.30	0.612	MCS10K-ND	2 70	205.40	929.50	3358-0002
16	1.60	0.912	MCS16K-ND	3.72	282.82	1279.85	3368-0002
20	1.80	1.112	MCS20K-ND	4.62	350.76	1587.30	3461-0002
26	2.10	1.412	MCS26K-ND	5.47	415.54	1880.45	3462-0002
34	2.50	1.812	MCS34K-ND	6.36	483.48	2187.90	3463-0002
40	2.80	2.112	MCS40K-ND	7.80	592.50	2681.25	3464-0002
50	3.30	2.612	MCS50K-ND	8.03	609.88	2759.90	3415-0002
60	3.80	3.112	MCS60K-ND	10.11	767.88	3474.90	3666-0002
64	4.00	3.312	MCS64K-ND	10.28	780.52	3532.10	3403-0002
Strain Reliefs							
10	—	—	MCSR10-ND	1.02	77.42	350.35	3448-52
16	—	—	MCSR16-ND	1.02	77.42	350 35	3448-53
20	—	—	MCSR20-ND	1.02	77.42	350 35	3448-54
26	—	—	MCSR26-ND	1.02	77.42	350.35	3448-55
34	—	—	MCSR34-ND	1.02	77.42	350.35	3448-56
40	—	—	MCSR40-ND	1.02	77.42	350.35	3448-57
50	—	—	MCSR50-ND	1.02	77.42	350.35	3448-58
60	—	—	MCSR60-ND	2.60	197.50	893.75	3448-31
64	—	—	MCSR64-ND	1.02	77.42	350.35	3448-59

3M Series 89
.100" Card Edge Connectors

A high-volume connector designed to reduce both material and labor costs at the same time. **Physical Specifications:** • Insulation Material: Glass reinforced thermoplastic • Flammability rating: UL94V-0 • Plating: Gold flash • Color: Gray • Marking: 3M Logo • Contact Material: Phosphor Bronze • Wire Accommodation: 28 AWG Solid or Stranded. **Electrical Specifications:** • Current Rating: 1A • Insulation Resistance: 1000 M ohm @ 500 VDC • Withstanding Voltage: 500V. **Environmental Specifications:** • Operating Temperature: -55°C to +105°C. **UL File No.:** E68080, Guide RTRT2. **CSA File No.:** LR-76260, Guide 365-E-1, Class 6233

No. of Contacts	Dim. A	B	Digi-Key Part No.	Pricing 1	10	100	3M Part No.
Card Edge Connectors							
20	1.38	1.02	MCE20G-ND	1.26	10.26	75.60	89520-0041
26	1.68	1.32	MCE26G-ND	1.44	11.69	86.10	89526-0041
34	2.08	1.72	MCE34G-ND	2.14	17.39	128.10	89534-0041
40	2.38	2.02	MCE40G-ND	2.52	20.52	151.20	89540-0041
50	2.88	2.52	MCE50G-ND	3.15	25.65	189.00	89550-0041
Card Edge Strain Relief							
20	1.38	1.02	MCSF20-ND	.18	1.43	10.50	3448-89520
26	1.68	1.32	MCSF26-ND	.18	1.43	10.50	3448-89526
34	2.08	1.72	MCSF34-ND	.18	1.43	10.50	3448-89534
40	2.38	2.02	MCSF40-ND	.18	1.43	10.50	3448-89540
50	2.88	2.52	MCSF50-ND	.18	1.43	10.50	3448-89550



M☐☐☐☐-☐☐☐☐☐-ND

Style
1☐☐ Single Ended
3☐☐ Double Ended

Conn. Finish
A = Gold >15µ phospher bronze
G = Gold ≤15µphospher bronze
K = Gold >15µ Gold- Copper beryllium pin plating

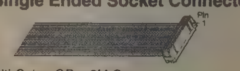
No. Of Contacts

Length (Inches)

Ribbon Cable
R=Multi-color
J=Gray
K=Twisted Pair

3M Termination Jumpers

Single Ended Socket Connector



*MC = 3M Multi-Color, GR = 3M Gray

No. of Con- tacts	Conn. Finish	Length (In.)	Rib- bon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Au 30µ"	36	MC	M1AXK-1036R-ND	4.61	40.46	298.10
10	Au 15µ"	36	MC	M1AXA-1036R-ND	2.08	18.23	134.30
10	Au 30µ"	36	GR	M1AXK-1036J-ND	4.12	36.16	266.41
10	Au 15µ"	36	GR	M1AXA-1036J-ND	1.59	13.93	102.61
14	Au 30µ"	36	MC	M1AXK-1436R-ND	5.90	51.74	381.26
14	Au 15µ"	36	MC	M1AXA-1436R-ND	2.91	25.52	188.06
14	Au 30µ"	36	GR	M1AXK-1436J-ND	5.21	45.72	336.86
14	Au 15µ"	36	GR	M1AXA-1436J-ND	2.22	19.50	143.66
16	Au 30µ"	36	MC	M1AXK-1636R-ND	6.54	57.39	422.88
16	Au 15µ"	36	MC	M1AXA-1636R-ND	3.33	29.18	214.98
16	Au 30µ"	36	GR	M1AXK-1636J-ND	5.76	50.50	372.08
16	Au 15µ"	36	GR	M1AXA-1636J-ND	2.54	22.28	164.18

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
20	Au 30µ"	36	MC	M1AXK-2036R-ND	7.60	66.66	491.21
20	Au 15µ"	36	MC	M1AXA-2036R-ND	4.16	36.45	268.61
20	Au 30µ"	36	GR	M1AXK-2036J-ND	6.62	58.07	427.85
20	Au 15µ"	36	GR	M1AXA-2036J-ND	3.18	27.86	205.25
24	Au 30µ"	36	MC	M1AXK-2436R-ND	9.12	79.94	589.05
24	Au 15µ"	36	MC	M1AXA-2436R-ND	4.99	43.75	322.35
24	Au 30µ"	36	GR	M1AXK-2436J-ND	7.94	69.62	512.99
24	Au 15µ"	36	GR	M1AXA-2436J-ND	3.81	33.42	246.29
26	Au 30µ"	36	MC	M1AXK-2636R-ND	9.86	86.44	636.93
26	Au 15µ"	36	MC	M1AXA-2636R-ND	5.40	47.40	349.23
26	Au 30µ"	36	GR	M1AXK-2636J-ND	8.58	75.26	554.53
26	Au 15µ"	36	GR	M1AXA-2636J-ND	4.13	36.21	266.83
30	Au 30µ"	36	MC	M1AXK-3036R-ND	11.97	105.00	773.68
30	Au 15µ"	36	MC	M1AXA-3036R-ND	6.87	60.25	443.98
30	Au 30µ"	36	GR	M1AXK-3036J-ND	10.31	90.39	666.02
30	Au 15µ"	36	GR	M1AXA-3036J-ND	5.20	45.64	336.32
34	Au 30µ"	36	MC	M1AXK-3436R-ND	12.85	112.69	830.38
34	Au 15µ"	36	MC	M1AXA-3436R-ND	7.07	61.96	456.58
34	Au 30µ"	36	GR	M1AXK-3436J-ND	11.18	98.08	722.72
34	Au 15µ"	36	GR	M1AXA-3436J-ND	5.40	47.35	348.92
40	Au 30µ"	36	MC	M1AXK-4036R-ND	15.11	132.47	976.10
40	Au 15µ"	36	MC	M1AXA-4036R-ND	8.31	72.91	537.20
40	Au 30µ"	36	GR	M1AXK-4036J-ND	13.15	115.27	849.39
40	Au 15µ"	36	GR	M1AXA-4036J-ND	6.35	55.71	410.49
50	Au 30µ"	36	MC	M1AXK-5036R-ND	18.87	165.52	1219.60
50	Au 15µ"	36	MC	M1AXA-5036R-ND	10.39	91.13	671.50
50	Au 30µ"	36	GR	M1AXK-5036J-ND	16.42	144.02	1061.19
50	Au 15µ"	36	GR	M1AXA-5036J-ND	7.94	69.63	513.09
60	Au 30µ"	36	MC	M1AXK-6036R-ND	23.07	202.27	1490.41
60	Au 15µ"	36	MC	M1AXA-6036R-ND	12.47	109.36	805.81
60	Au 30µ"	36	GR	M1AXK-6036J-ND	20.12	176.47	1300.32
60	Au 15µ"	36	GR	M1AXA-6036J-ND	9.53	83.56	615.72

Also available in the following configurations:
M1BX☐-☐☐36☐-ND – Standard Open End w/ Strain Relief.
M1CX☐-☐☐36☐-ND – Standard Open End w/ Polarizing Key.
M1DX☐-☐☐36☐-ND – Standard Open End w/ Polarizing Key & Strain Relief.
M1TXK-☐☐36☐-ND – Standard Closed End w/ Polarizing Key.
M1UXK-☐☐36☐-ND – Standard Closed End w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

Single Ended Socket Connector

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	40	TW	M1AXK-1040K-ND	4.99	43.80	322.70
10	Au 15µ"	40	TW	M1AXA-1040K-ND	2.46	21.57	158.90
14	Au 30µ"	40	TW	M1AXK-1440K-ND	6.43	56.41	415.66
14	Au 15µ"	40	TW	M1AXA-1440K-ND	3.44	30.19	222.46
16	Au 30µ"	40	TW	M1AXK-1640K-ND	7.15	62.72	462.14
16	Au 15µ"	40	TW	M1AXA-1640K-ND	3.93	34.50	254.24
20	Au 30µ"	40	TW	M1AXK-2040K-ND	8.36	73.34	540.40
20	Au 15µ"	40	TW	M1AXA-2040K-ND	4.92	43.13	317.80
26	Au 30µ"	40	TW	M1AXK-2640K-ND	10.85	95.11	700.84
26	Au 15µ"	40	TW	M1AXA-2640K-ND	6.39	56.07	413.14
34	Au 30µ"	40	TW	M1AXK-3440K-ND	14.15	124.05	914.06
34	Au 15µ"	40	TW	M1AXA-3440K-ND	8.36	73.32	540.26
40	Au 30µ"	40	TW	M1AXK-4040K-ND	16.63	145.83	1074.50
40	Au 15µ"	40	TW	M1AXA-4040K-ND	9.84	86.26	635.60
50	Au 30µ"	40	TW	M1AXK-5040K-ND	20.78	182.21	1342.60
50	Au 15µ"	40	TW	M1AXA-5040K-ND	12.30	107.82	794.50
60	Au 30µ"	40	TW	M1AXK-6040K-ND	25.35	222.30	1638.00
60	Au 15µ"	40	TW	M1AXA-6040K-ND	14.76	129.39	953.40

Also available in the following configurations:
M1BX☐-☐☐40K-ND – Standard Open End w/ Strain Relief.
M1CX☐-☐☐40K-ND – Standard Open End w/ Polarizing Key.
M1DX☐-☐☐40K-ND – Standard Open End w/ Polarizing Key & Strain Relief.
M1TXK-☐☐40K-ND – Standard Closed End w/ Polarizing Key.
M1UXK-☐☐40K-ND – Standard Closed End w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

Plug Connector — Single Ended

*MC = 3M Multi-Color, GR = 3M Gray

3M

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	36	MC	M1KXK-1036R-ND	5.98	52.43	386.30
10	Au 30µ"	36	GR	M1KXK-1036J-ND	5.49	48.13	354.61
14	Au 30µ"	36	MC	M1KXK-1436R-ND	8.31	72.83	536.66
14	Au 30µ"	36	GR	M1KXK-1436J-ND	7.62	66.81	492.26
16	Au 30µ"	36	MC	M1KXK-1636R-ND	9.44	82.76	609.78
16	Au 30µ"	36	GR	M1KXK-1636J-ND	8.65	75.86	558.98
20	Au 30µ"	36	MC	M1KXK-2036R-ND	11.21	98.30	724.31
20	Au 30µ"	36	GR	M1KXK-2036J-ND	10.23	89.70	660.95
24	Au 30µ"	36	MC	M1KXK-2436R-ND	12.66	111.01	817.95
24	Au 30µ"	36	GR	M1KXK-2436J-ND	11.48	100.68	741.89
26	Au 30µ"	36	MC	M1KXK-2636R-ND	13.27	116.37	857.43
26	Au 30µ"	36	GR	M1KXK-2636J-ND	11.99	105.18	775.03
30	Au 30µ"	36	MC	M1KXK-3036R-ND	15.45	135.49	998.38
30	Au 30µ"	36	GR	M1KXK-3036J-ND	13.78	120.88	890.72
34	Au 30µ"	36	MC	M1KXK-3436R-ND	16.75	146.89	1082.38
34	Au 30µ"	36	GR	M1KXK-3436J-ND	15.08	132.28	974.72
36	Au 30µ"	36	MC	M1KXK-3636R-ND	17.88	156.79	1155.32
36	Au 30µ"	36	GR	M1KXK-3636J-ND	16.07	140.88	1038.05
40	Au 30µ"	36	MC	M1KXK-4036R-ND	18.94	166.10	1223.90
40	Au 30µ"	36	GR	M1KXK-4036J-ND	16.98	148.90	1097.19
50	Au 30µ"	36	MC	M1KXK-5036R-ND	21.57	189.17	1393.90
50	Au 30µ"	36	GR	M1KXK-5036J-ND	19.12	167.67	1235.49
60	Au 30µ"	36	MC	M1KXK-6036R-ND	25.60	224.50	1654.21
60	Au 30µ"	36	GR	M1KXK-6036J-ND	22.66	198.70	1464.12
64	Au 30µ"	36	MC	M1KXK-6436R-ND	27.31	239.48	1764.59
64	Au 30µ"	36	GR	M1KXK-6436J-ND	24.17	211.97	1561.88

Also available in the following configurations:
M1RXK-☐☐36☐-ND – Pin Connector w/o Flange w/ PK & Strain Relief.
M1WXK-☐☐36☐-ND – Pin Connector with Flange w/ Polarizing Key.
M1YXK-☐☐36☐-ND – Pin Connector w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

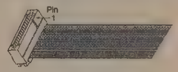
Plug Connector — Single Ended

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	40	TW	M1KXK-1040K-ND	6.36	55.77	410.90
14	Au 30µ"	40	TW	M1KXK-1440K-ND	8.84	77.50	571.06
16	Au 30µ"	40	TW	M1KXK-1640K-ND	10.04	88.08	649.04
20	Au 30µ"	40	TW	M1KXK-2040K-ND	11.97	104.97	773.50
26	Au 30µ"	40	TW	M1KXK-2640K-ND	14.26	125.04	921.34
34	Au 30µ"	40	TW	M1KXK-3440K-ND	18.05	158.25	1166.06
40	Au 30µ"	40	TW	M1KXK-4040K-ND	20.46	179.46	1322.30
50	Au 30µ"	40	TW	M1KXK-5040K-ND	23.48	205.86	1516.90
60	Au 30µ"	40	TW	M1KXK-6040K-ND	27.89	244.53	1801.80
64	Au 30µ"	40	TW	M1KXK-6440K-ND	29.75	260.85	1922.06

Also available in the following configurations:
M1RXK-☐☐40K-ND – Standard Open End w/o Flange, w/ Polarizing Key & Strain Relief.
M1WXK-☐☐40K-ND – Standard Open End w/ Flange, w/ Polarizing Key.
M1YXK-☐☐40K-ND – Standard Open End w/ Flange, w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

Single Ended Card Edge Connector



*MC = 3M Multi-Color, GR = 3M Gray

3M

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	36	MC	M1EXK-1036R-ND	5.82	51.00	375.80
10	Au 30µ"	36	GR	M1EXK-1036J-ND	5.33	46.70	344.11
16	Au 30µ"	36	MC	M1EXK-1636R-ND	8.36	73.35	540.48
16	Au 30µ"	36	GR	M1EXK-1636J-ND	7.58	66.46	489.68
20	Au 30µ"	36	MC	M1EXK-2036R-ND	10.40	91.17	671.81
20	Au 15µ"	36	MC	M1EXG-2036R-ND	4.35	38.16	281.21
20	Au 30µ"	36	GR	M1EXK-2036J-ND	9.42	82.58	608.45
20	Au 15µ"	36	GR	M1EXG-2036J-ND	3.37	29.57	217.85
26	Au 30µ"	36	MC	M1EXK-2636R-ND	12.68	111.24	819.63
26	Au 15µ"	36	MC	M1EXG-2636R-ND	5.47	47.97	353.43
26	Au 30µ"	36	GR	M1EXK-2636J-ND	11.41	100.05	737.23
26	Au 15µ"	36	GR	M1EXG-2636J-ND	4.19	36.78	271.03
34	Au 30µ"	36	MC	M1EXK-3436R-ND	15.35	134.64	992.08
34	Au 15µ"	36	MC	M1EXG-3436R-ND	7.39	64.81	477.58
34	Au 30µ"	36	GR	M1EXK-3436J-ND	13.69	120.03	884.42
34	Au 15µ"	36	GR	M1EXG-3436J-ND	5.72	50.20	369.92
40	Au 30µ"	36	MC	M1EXK-4036R-ND	18.55	162.68	1198.70
40	Au 15µ"	36	MC	M1EXG-4036R-ND	8.70	76.33	562.40
40	Au 30µ"	36	GR	M1EXK-4036J-ND	16.59	145.48	1071.99
40	Au 15µ"	36	GR	M1EXG-4036J-ND	6.74	59.13	435.69
50	Au 30µ"	36	MC	M1EXK-5036R-ND	20.50	179.77	1324.60
50	Au 15µ"	36	MC	M1EXG-5036R-ND	10.88	95.41	703.00
50	Au 30µ"	36	GR	M1EXK-5036J-ND	18.05	158.27	1166.19
50	Au 15µ"	36	GR	M1EXG-5036J-ND	8.43	73.91	544.59
60	Au 30µ"	36	MC	M1EXK-6036R-ND	25.34	222.22	1637.41
60	Au 30µ"	36	GR	M1EXK-6036J-ND	22.40	196.42	1447.32
64	Au 30µ"	36	MC	M1EXK-6436R-ND	26.24	230.07	1695.29
64	Au 30µ"	36	GR	M1EXK-6436J-ND	23.10	202.56	1492.58

Also available in the following configurations:
M1FXK-☐☐36☐-ND – Card Edge Connector w/ Flange.
M1GXK-☐☐36☐-ND – Card Edge Connector w/ Slotted Flange.
M1MX☐-☐☐36☐-ND – Card Edge Connector w/ Strain Relief.
M1PXK-☐☐36☐-ND – Card Edge Connector w/ Slotted Flange & Strain Relief.
M1SXK-☐☐36☐-ND – Card Edge Connector w/ Flange & Strain Relief.
Call for complete part number and pricing!

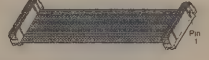
Single Ended Card Edge Connector

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	40	TW	M1EXK-1040K-ND	6.20	54.34	400.40
16	Au 30µ"	40	TW	M1EXK-1640K-ND	8.97	78.68	579.74
20	Au 30µ"	40	TW	M1EXK-2040K-ND	11.16	97.85	721.00
20	Au 15µ"	40	TW	M1EXG-2040K-ND	5.11	44.84	330.40
26	Au 30µ"	40	TW	M1EXK-2640K-ND	13.67	119.91	883.54
26	Au 15µ"	40	TW	M1EXG-2640K-ND	6.46	56.64	417.34
34	Au 30µ"	40	TW	M1EXK-3440K-ND	16.65	146.00	1075.76
34	Au 15µ"	40	TW	M1EXG-3440K-ND	8.69	76.17	561.26
40	Au 30µ"	40	TW	M1EXK-4040K-ND	20.07	176.04	1297.10
40	Au 15µ"	40	TW	M1EXG-4040K-ND	10.23	89.68	660.80
50	Au 30µ"	40	TW	M1EXK-5040K-ND	22.40	196.46	1447.60
50	Au 15µ"	40	TW	M1EXG-5040K-ND	12.78	112.10	826.00
60	Au 30µ"	40	TW	M1EXK-6040K-ND	27.63	242.25	1785.00
64	Au 30µ"	40	TW	M1EXK-6440K-ND	28.67	251.45	1852.76

Also available in the following configurations:
M1FXK-☐☐40K-ND – Card Edge Connector w/ Flange.
M1GXK-☐☐40K-ND – Card Edge Connector w/ Slotted Flange.
M1MXK-☐☐40K-ND – Card Edge Connector w/ Strain Relief.
Call for complete part number and pricing!

Socket to Socket Connector



*MC = 3M Multi-Color, GR = 3M Gray

3M

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	6	MC	M3AAK-1006R-ND	6.31	55.34	407.73
10	Au 15µ"	6	MC	M3AAA-1006R-ND	1.24	10.88	80.13
10	Au 30µ"	6	GR	M3AAK-1006J-ND	6.23	54.62	402.45
10	Au 15µ"	6	GR	M3AAA-1006J-ND	1.16	10.16	74.85
10	Au 30µ"	18	MC	M3AAK-1018R-ND	6.84	59.99	442.00
10	Au 15µ"	18	MC	M3AAA-1018R-ND	1.77	15.53	114.40
10	Au 30µ"	18	GR	M3AAK-1018J-ND	6.60	57.84	426.15
10	Au 15µ"	18	GR	M3AAA-1018J-ND	1.53	13.38	98.55
10	Au 30µ"	36	MC	M3AAK-1036R-ND	7.64	66.96	493.40
10	Au 15µ"	36	MC	M3AAA-1036R-ND	2.57	22.50	165.80
10	Au 30µ"	36	GR	M3AAK-1036J-ND	7.15	62 66	461.71
10	Au 15µ"	36	GR	M3AAA-1036J-ND	2.08	18.20	134.11
14	Au 30µ"	6	MC	M3AAK-1406R-ND	7.72	67.67	498.59
14	Au 15µ"	6	MC	M3AAA-1406R-ND	1.74	15.23	112.19
14	Au 30µ"	6	GR	M3AAK-1406J-ND	7.60	66.66	491.19
14	Au 15µ"	6	GR	M3AAA-1406J-ND	1.62	14.22	104.79
14	Au 30µ"	18	MC	M3AAK-1418R-ND	8.46	74.18	546.58
14	Au 15µ"	18	MC	M3AAA-1418R-ND	2.48	21.74	160.18
14	Au 30µ"	18	GR	M3AAK-1418J-ND	8.12	71.17	524.38
14	Au 15µ"	18	GR	M3AAA-1418J-ND	2.14	18.73	137.98
14	Au 30µ"	36	MC	M3AAK-1436R-ND	9.57	83.95	618.56
14	Au 15µ"	36	MC	M3AAA-1436R-ND	3.59	31.51	232.16
14	Au 30µ"	36	GR	M3AAK-1436J-ND	8.89	77.92	574.16
14	Au 15µ"	36	GR	M3AAA-1436J-ND	2.91	25.48	187.76
16	Au 30µ"	6	MC	M3AAK-1606R-ND	8.42	73.83	544.03
16	Au 15µ"	6	MC	M3AAA-1606R-ND	1.98	17.40	128.23
16	Au 30µ"	6	GR	M3AAK-1606J-ND	8.29	72.68	535.56
16	Au 15µ"	6	GR	M3AAA-1606J-ND	1.85	16.25	119.76
16	Au 30µ"	18	MC	M3AAK-1618R-ND	9.27	81.28	598.89
16	Au 15µ"	18	MC	M3AAA-1618R-ND	2.83	24.85	183.09
16	Au 30µ"	18	GR	M3AAK-1618J-ND	8.88	77.83	573.49
16	Au 15µ"	18	GR	M3AAA-1618J-ND	2.44	21.40	157.69
16	Au 30µ"	36	MC	M3AAK-1636R-ND	10.54	92.45	681.18
16	Au 15µ"	36	MC	M3AAA-1636R-ND	4.11	36.02	265.38
16	Au 30µ"	36	GR	M3AAK-1636J-ND	9.76	85.55	630.38
16	Au 15µ"	36	GR	M3AAA-1636J-ND	3.32	29.12	214.58
20	Au 30µ"	6	MC	M3AAK-2006R-ND	9.37	82.17	605.47
20	Au 15µ"	6	MC	M3AAA-2006R-ND	2.48	21.75	160.27
20	Au 30µ"	6	GR	M3AAK-2006J-ND	9.21	80.74	594.91
20	Au 15µ"	6	GR	M3AAA-2006J-ND	2.32	20.32	149.71
20	Au 30µ"	18	MC	M3AAK-2018R-ND	10.43	91.47	674.01
20	Au 15µ"	18	MC	M3AAA-2018R-ND	3.54	31.05	228.81
20	Au 30µ"	18	GR	M3AAK-2018J-ND	9.94	87.17	642.33
20	Au 15µ"	18	GR	M3AAA-2018J-ND	3.05	26.75	197.13
20	Au 30µ"	36	MC	M3AAK-2036R-ND	12.02	105.42	776.81
20	Au 15µ"	36	MC	M3AAA-2036R-ND	5.13	45.00	331.61
20	Au 30µ"	36	GR	M3AAK-2036J-ND	11.04	96.83	713.45
20	Au 15µ"	36	GR	M3AAA-2036J-ND	4.15	36.41	268.25
24	Au 30µ"	6	MC	M3AAK-2406R-ND	11.23	98.49	725.72
24	Au 15µ"	6	MC	M3AAA-2406R-ND	2.98	26.10	192.32
24	Au 30µ"	6	GR	M3AAK-2406J-ND	11.04	96.77	713.05
24	Au 15µ"	6	GR	M3AAA-2406J-ND	2.78	24.38	179.65
24	Au 30µ"	18	MC	M3AAK-2418R-ND	12.50	109.65	807.98
24	Au 15µ"	18	MC	M3AAA-2418R-ND	4.25	37.26	274.58
24	Au 30µ"	18	GR	M3AAK-2418J-ND	11.92	104.49	769.94
24	Au 15µ"	18	GR	M3AAA-2418J-ND	3.66	32.10	236.54
24	Au 30µ"	36	MC	M3AAK-2436R-ND	14.41	126.40	931.35
24	Au 15µ"	36	MC	M3AAA-2436R-ND	6.16	54.01	397.95
24	Au 30µ"	36	GR	M3AAK-2436J-ND	13.24	116.07	855.29
24	Au 15µ"	36	GR	M3AAA-2436J-ND	4.98	43.68	321.89
26	Au 30µ"	6	MC	M3AAK-2606R-ND	12.13	106.37	783.76
26	Au 15µ"	6	MC	M3AAA-2606R-ND	3.22	28.28	208.36
26	Au 30µ"	6	GR	M3AAK-2606J-ND	11.92	104.50	770.02
26	Au 15µ"	6	GR	M3AAA-2606J-ND	3.01	26.41	194.62
26	Au 30µ"	18	MC	M3AAK-2618R-ND	13.51	118.46	872.87
26	Au 15µ"	18	MC	M3AAA-2618R-ND	4.60	40.37	297.47
26	Au 30µ"	18	GR	M3AAK-2618J-ND	12.87	112.87	831.66
26	Au 15µ"	18	GR	M3AAA-2618J-ND	3.97	34.78	256.26
26	Au 30µ"	36	MC	M3AAK-2636R-ND	15.58	136.60	1006.53
26	Au 15µ"	36	MC	M3AAA-2636R-ND	6.67	58.51	431.13
26	Au 30µ"	36	GR	M3AAK-2636J-ND	14.30	125.42	924.13
26	Au 15µ"	36	GR	M3AAA-2636J-ND	5.40	47.33	348.73
30	Au 30µ"	6	MC	M3AAK-3006R-ND	14.03	123.05	906.65
30	Au 15µ"	6	MC	M3AAA-3006R-ND	3.83	33.56	247.25
30	Au 30µ"	6	GR	M3AAK-3006J-ND	13.75	120.61	888.70
30	Au 15µ"	6	GR	M3AAA-3006J-ND	3.55	31.12	229.30
30	Au 30µ"	18	MC	M3AAK-3018R-ND	15.83	138.85	1023.14
30	Au 15µ"	18	MC	M3AAA-3018R-ND	5.63	49.36	363.74
30	Au 30µ"	18	GR	M3AAK-3018J-ND	15.00	131.55	969.31
30	Au 15µ"	18	GR	M3AAA-3018J-ND	4.80	42.06	309.91
30	Au 30µ"	36	MC	M3AAK-3036R-ND	18.54	162.57	1197.88
30	Au 15µ"	36	MC	M3AAA-3036R-ND	8.33	73.08	538.48
30	Au 30µ"	36	GR	M3AAK-3036J-ND	16.87	147.96	1090.22
30	Au 15µ"	36	GR	M3AAA-3036J-ND	6.67	58.47	430.82
34	Au 30µ"	6	MC	M3AAK-3406R-ND	15.79	138.44	1020.05
34	Au 15µ"	6	MC	M3AAA-3406R-ND	4.22	36.98	272.45
34	Au 30µ"	6	GR	M3AAK-3406J-ND	15.51	136.00	1002.10
34	Au 15µ"	6	GR	M3AAA-3406J-ND	3.94	34.54	254.50
34	Au 30µ"	18	MC	M3AAK-3418R-ND	17.59	154.24	1136.54
34	Au 15µ"	18	MC	M3AAA-3418R-ND	6.02	52.78	388.94
34	Au 30µ"	18	GR	M3AAK-3418J-ND	16.76	146.94	1082.71
34	Au 15µ"	18	GR	M3AAA-3418J-ND	5.19	45.48	335.11
34	Au 30µ"	36	MC	M3AAK-3436R-ND	20.29	177.96	1311.28
34	Au 15µ"	36	MC	M3AAA-3436R-ND	8.72	76.50	563.68
34	Au 30µ"	36	GR	M3AAK-3436J-ND	18.63	163.35	1203.62
34	Au 15µ"	36	GR	M3AAA-3436J-ND	7.06	61.89	456.02
40	Au 30µ"	6	MC	M3AAK-4006R-ND	18.55	162.63	1198.33
40	Au 15µ"	6	MC	M3AAA-4006R-ND	4.96	43.50	320.53
40	Au 30µ"	6	GR	M3AAK-4006J-ND	18.22	159.76	1177.21
40	Au 15µ"	6	GR	M3AAA-4006J-ND	4.63	40.63	299.41
40	Au 30µ"	18	MC	M3AAK-4018R-ND	20.67	181.23	1335.40
40	Au 15µ"	18	MC	M3AAA-4018R-ND	7.08	62.10	457.60
40	Au 30µ"	18	GR	M3AAK-4018J-ND	19.69	172.63	1272.04
40	Au 15µ"	18	GR	M3AAA-4018J-ND	6.10	53.50	394.24

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
40	Au 30µ"	36	MC	M3AAK-4036R-ND	23.85	209.14	1541.00
40	Au 15µ"	36	MC	M3AAA-4036R-ND	10.26	90.01	663.20
40	Au 30µ"	36	GR	M3AAK-4036J-ND	21.89	191.94	1414.29
40	Au 15µ"	36	GR	M3AAA-4036J-ND	8.30	72.81	536.49
50	Au 30µ"	6	MC	M3AAK-5006R-ND	23.17	203.15	1496.87
50	Au 15µ"	6	MC	M3AAA-5006R-ND	6.20	54.38	400.67
50	Au 30µ"	6	GR	M3AAK-5006J-ND	22.76	199.56	1470.47
50	Au 15µ"	6	GR	M3AAA-5006J-ND	5.79	50.79	374.27
50	Au 30µ"	18	MC	M3AAK-5018R-ND	25.82	226.40	1668.20
50	Au 15µ"	18	MC	M3AAA-5018R-ND	8.85	77.63	572.00
50	Au 30µ"	18	GR	M3AAK-5018J-ND	24.59	215.65	1589.00
50	Au 15µ"	18	GR	M3AAA-5018J-ND	7.63	66.88	492.80
50	Au 30µ"	36	MC	M3AAK-5036R-ND	29.79	261.28	1925.20
50	Au 15µ"	36	MC	M3AAA-5036R-ND	12.83	112.51	829.00
50	Au 30µ"	36	GR	M3AAK-5036J-ND	27.34	239.78	1766.79
50	Au 15µ"	36	GR	M3AAA-5036J-ND	10.38	91.01	670.59
60	Au 30µ"	6	MC	M3AAK-6006R-ND	28.63	251.07	1850.00
60	Au 15µ"	6	MC	M3AAA-6006R-ND	7.44	65.25	480.80
60	Au 30µ"	6	GR	M3AAK-6006J-ND	28.14	246.77	1818.32
60	Au 15µ"	6	GR	M3AAA-6006J-ND	6.95	60.95	449.12
60	Au 30µ"	18	MC	M3AAK-6018R-ND	31.81	278.98	2055.61
60	Au 15µ"	18	MC	M3AAA-6018R-ND	10.62	93.16	686.41
60	Au 30µ"	18	GR	M3AAK-6018J-ND	30.34	266.08	1960.56
60	Au 15µ"	18	GR	M3AAA-6018J-ND	9.15	80.26	591.36
60	Au 30µ"	36	MC	M3AAK-6036R-ND	36.59	320.83	2364.01
60	Au 15µ"	36	MC	M3AAA-6036R-ND	15.40	135.01	994.81
60	Au 30µ"	36	GR	M3AAK-6036J-ND	33.64	295.03	2173.92
60	Au 15µ"	36	GR	M3AAA-6036J-ND	12.45	109.21	804.72

Also available in the following configurations:
M3BB☐-☐☐☐☐☐-ND – Standard Open End w/ Strain Relief.
M3CC☐-☐☐☐☐☐-ND – Standard Open End w/ Polarizing Key.
M3DD☐-☐☐☐☐☐-ND – Standard Open End w/ Polarizing Key & Strain Relief.
M3TTK-☐☐☐☐☐-ND – Standard Closed End w/ Polarizing Key.
M3UUK-☐☐☐☐☐-ND – Standard Closed End w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

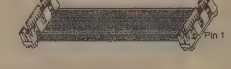
Socket to Socket Connector

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	20	TW	M3AAK-1020K-ND	7.03	61.65	454.30
10	Au 15µ"	20	TW	M3AAA-1020K-ND	1.96	17.19	126.70
10	Au 30µ"	40	TW	M3AAK-1040K-ND	8.02	70.30	518.00
10	Au 15µ"	40	TW	M3AAA-1040K-ND	2.95	25.84	190.40
10	Au 30µ"	60	TW	M3AAK-1060K-ND	9.00	78.95	581.70
10	Au 15µ"	60	TW	M3AAA-1060K-ND	3.93	34.49	254.10
14	Au 30µ"	20	TW	M3AAK-1420K-ND	8.73	76.51	563.78
14	Au 15µ"	20	TW	M3AAA-1420K-ND	2.75	24.07	177.38
14	Au 30µ"	40	TW	M3AAK-1440K-ND	10.11	88.62	652.96
14	Au 15µ"	40	TW	M3AAA-1440K-ND	4.13	36.18	266.56
14	Au 30µ"	60	TW	M3AAK-1460K-ND	11.49	100.72	742.14
14	Au 15µ"	60	TW	M3AAA-1460K-ND	5.51	48.28	355.74
16	Au 30µ"	20	TW	M3AAK-1620K-ND	9.57	83.94	618.52
16	Au 15µ"	20	TW	M3AAA-1620K-ND	3.14	27.51	202.72
16	Au 30µ"	40	TW	M3AAK-1640K-ND	11.15	97.77	720.44
16	Au 15µ"	40	TW	M3AAA-1640K-ND	4.71	41.34	304.64
16	Au 30µ"	60	TW	M3AAK-1660K-ND	12.73	111.61	822.36
16	Au 15µ"	60	TW	M3AAA-1660K-ND	6.29	55.18	406.56
20	Au 30µ"	20	TW	M3AAK-2020K-ND	10.81	94.81	698.60
20	Au 15µ"	20	TW	M3AAA-2020K-ND	3.92	34.39	253.40
20	Au 30µ"	40	TW	M3AAK-2040K-ND	12.78	112.10	826.00
20	Au 15µ"	40	TW	M3AAA-2040K-ND	5.89	51.68	380.80
20	Au 30µ"	60	TW	M3AAK-2060K-ND	14.76	129.39	953.40
20	Au 15µ"	60	TW	M3AAA-2060K-ND	7.87	68.97	508.20
26	Au 30µ"	20	TW	M3AAK-2620K-ND	14.00	122.80	904.82
26	Au 15µ"	20	TW	M3AAA-2620K-ND	5.10	44.71	329.42
26	Au 30µ"	40	TW	M3AAK-2640K-ND	16.57	145.27	1070.44
26	Au 15µ"	40	TW	M3AAA-2640K-ND	7.66	67.18	495.04
26	Au 30µ"	60	TW	M3AAK-2660K-ND	19.13	167.75	1236.06
26	Au 15µ"	60	TW	M3AAA-2660K-ND	10.22	89.66	660.66
34	Au 30µ"	20	TW	M3AAK-3420K-ND	18.24	159.92	1178.38
34	Au 15µ"	20	TW	M3AAA-3420K-ND	6.67	58.46	430.78
34	Au 30µ"	40	TW	M3AAK-3440K-ND	21.59	189.32	1394.96
34	Au 15µ"	40	TW	M3AAA-3440K-ND	10.02	87.86	647.36
34	Au 30µ"	60	TW	M3AAK-3460K-ND	24.94	218.71	1611.54
34	Au 15µ"	60	TW	M3AAA-3460K-ND	13.37	117.25	863.94
40	Au 30µ"	20	TW	M3AAK-4020K-ND	21.43	187.91	1384.60
40	Au 15µ"	20	TW	M3AAA-4020K-ND	7.84	68.78	506.80
40	Au 30µ"	40	TW	M3AAK-4040K-ND	25.37	222.49	1639.40
40	Au 15µ"	40	TW	M3AAA-4040K-ND	11.79	103.36	761.60
40	Au 30µ"	60	TW	M3AAK-4060K-ND	29.32	257.07	1894.20
40	Au 15µ"	60	TW	M3AAA-4060K-ND	15.73	137.94	1016.40
50	Au 30µ"	20	TW	M3AAK-5020K-ND	26.77	234.75	1729.70
50	Au 15µ"	20	TW	M3AAA-5020K-ND	9.80	85.98	633.50
50	Au 30µ"	40	TW	M3AAK-5040K-ND	31.70	277.97	2048.20
50	Au 15µ"	40	TW	M3AAA-5040K-ND	14.73	129.20	952.00
50	Au 30µ"	60	TW	M3AAK-5060K-ND	36.63	321.20	2366.70
50	Au 15µ"	60	TW	M3AAA-5060K-ND	19.66	172.43	1270.50
60	Au 30µ"	20	TW	M3AAK-6020K-ND	32.96	288.99	2129.40
60	Au 15µ"	20	TW	M3AAA-6020K-ND	11.77	103.17	760.20
60	Au 30µ"	40	TW	M3AAK-6040K-ND	38.87	340.86	2511.60
60	Au 15µ"	40	TW	M3AAA-6040K-ND	17.68	155.04	1142.40
60	Au 30µ"	60	TW	M3AAK-6060K-ND	44.79	392.73	2893.80
60	Au 15µ"	60	TW	M3AAA-6060K-ND	23.60	206.91	1524.60

Also available in the following configurations:
M3BB☐-☐☐☐☐K-ND – Standard Open End w/ Strain Relief.
M3CC☐-☐☐☐☐K-ND – Standard Open End w/ Polarizing Key.
M3DD☐-☐☐☐☐K-ND – Standard Open End w/ Polarizing Key & Strain Relief.
M3TTK-☐☐☐☐K-ND – Standard Closed End w/ Polarizing Key.
M3UUK-☐☐☐☐K-ND – Standard Closed End w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

Plug Connector to Plug Connector



*MC = 3M Multi-Color, GR = 3M Gray

3M

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	6	MC	M3KKK-1006R-ND	9.04	79.28	584.13
10	Au 30µ"	6	GR	M3KKK-1006J-ND	8.96	78.56	578.85
10	Au 30µ"	18	MC	M3KKK-1018R-ND	9.57	83.93	618.40
10	Au 30µ"	18	GR	M3KKK-1018J-ND	9.33	81.78	602.55
10	Au 30µ"	36	MC	M3KKK-1036R-ND	10.37	90.90	669.80
10	Au 30µ"	36	GR	M3KKK-1036J-ND	9.88	86.60	638.11
14	Au 30µ"	6	MC	M3KKK-1406R-ND	12.53	109.85	809.39
14	Au 30µ"	6	GR	M3KKK-1406J-ND	12.41	108.84	801.99
14	Au 30µ"	18	MC	M3KKK-1418R-ND	13.27	116.36	857.38
14	Au 30µ"	18	GR	M3KKK-1418J-ND	12.93	113.35	835.18
14	Au 30µ"	36	MC	M3KKK-1436R-ND	14.38	126.13	929.36
14	Au 30µ"	36	GR	M3KKK-1436J-ND	13.70	120.10	884.96
16	Au 30µ"	6	MC	M3KKK-1606R-ND	14.20	124.56	917.83
16	Au 30µ"	6	GR	M3KKK-1606J-ND	14.07	123.41	909.36
16	Au 30µ"	18	MC	M3KKK-1618R-ND	15.05	132.01	972.69
16	Au 30µ"	18	GR	M3KKK-1618J-ND	14.66	128.56	947.29
16	Au 30µ"	36	MC	M3KKK-1636R-ND	16.33	143.18	1054.98
16	Au 30µ"	36	GR	M3KKK-1636J-ND	15.54	136.28	1004.18
20	Au 30µ"	6	MC	M3KKK-2006R-ND	16.59	145.44	1071.67
20	Au 30µ"	6	GR	M3KKK-2006J-ND	16.42	144.01	1061.11
20	Au 30µ"	18	MC	M3KKK-2018R-ND	17.65	154.74	1140.21
20	Au 30µ"	18	GR	M3KKK-2018J-ND	17.16	150.44	1108.53
20	Au 30µ"	36	MC	M3KKK-2036R-ND	19.24	168.69	1243.01
20	Au 30µ"	36	GR	M3KKK-2036J-ND	18.26	160.10	1179.65
24	Au 30µ"	6	MC	M3KKK-2406R-ND	18.32	160.62	1183.52
24	Au 30µ"	6	GR	M3KKK-2406J-ND	18.12	158.90	1170.85
24	Au 30µ"	18	MC	M3KKK-2418R-ND	19.59	171.78	1265.78
24	Au 30µ"	18	GR	M3KKK-2418J-ND	19.00	166.62	1227.74
24	Au 30µ"	36	MC	M3KKK-2436R-ND	21.50	188.53	1389.15
24	Au 30µ"	36	GR	M3KKK-2436J-ND	20.32	178.20	1313.09
26	Au 30µ"	6	MC	M3KKK-2606R-ND	18.95	166.22	1224.76
26	Au 30µ"	6	GR	M3KKK-2606J-ND	18.74	164.35	1211.02
26	Au 30µ"	18	MC	M3KKK-2618R-ND	20.33	178.31	1313.87
26	Au 30µ"	18	GR	M3KKK-2618J-ND	19.70	172.72	1272.66
26	Au 30µ"	36	MC	M3KKK-2636R-ND	22.40	196.45	1447.53
26	Au 30µ"	36	GR	M3KKK-2636J-ND	21.13	185.27	1365.13
30	Au 30µ"	6	MC	M3KKK-3006R-ND	20.99	184.04	1356.05
30	Au 30µ"	6	GR	M3KKK-3006J-ND	20.71	181.60	1338.10
30	Au 30µ"	18	MC	M3KKK-3018R-ND	22.79	199.84	1472.54
30	Au 30µ"	18	GR	M3KKK-3018J-ND	21.96	192.54	1418.71
30	Au 30µ"	36	MC	M3KKK-3036R-ND	25.49	223.56	1647.28
30	Au 30µ"	36	GR	M3KKK-3036J-ND	23.83	208.95	1539.62
34	Au 30µ"	6	MC	M3KKK-3406R-ND	23.59	206.84	1524.05
34	Au 30µ"	6	GR	M3KKK-3406J-ND	23.31	204.40	1506.10
34	Au 30µ"	18	MC	M3KKK-3418R-ND	25.39	222.64	1640.54
34	Au 30µ"	18	GR	M3KKK-3418J-ND	24.56	215.34	1586.71
34	Au 30µ"	36	MC	M3KKK-3436R-ND	28.09	246.36	1815.28
34	Au 30µ"	36	GR	M3KKK-3436J-ND	26.43	231.75	1707.62
36	Au 30µ"	6	MC	M3KKK-3606R-ND	24.97	218.93	1613.20
36	Au 30µ"	6	GR	M3KKK-3606J-ND	24.66	216.28	1593.66
36	Au 30µ"	18	MC	M3KKK-3618R-ND	26.93	236.14	1740.01
36	Au 30µ"	18	GR	M3KKK-3618J-ND	26.02	228.19	1681.38
36	Au 30µ"	36	MC	M3KKK-3636R-ND	29.87	261.96	1930.22
36	Au 30µ"	36	GR	M3KKK-3636J-ND	28.06	246.04	1812.95
40	Au 30µ"	6	MC	M3KKK-4006R-ND	26.22	229.89	1693.93
40	Au 30µ"	6	GR	M3KKK-4006J-ND	25.89	227.02	1672.81
40	Au 30µ"	18	MC	M3KKK-4018R-ND	28.34	248.49	1831.00
40	Au 30µ"	18	GR	M3KKK-4018J-ND	27.36	239.89	1767.64
40	Au 30µ"	36	MC	M3KKK-4036R-ND	31.52	276.40	2036.60
40	Au 30µ"	36	GR	M3KKK-4036J-ND	29.56	259.20	1909.89
50	Au 30µ"	6	MC	M3KKK-5006R-ND	28.56	250.46	1845.47
50	Au 30µ"	6	GR	M3KKK-5006J-ND	28.15	246.87	1819.07
50	Au 30µ"	18	MC	M3KKK-5018R-ND	31.21	273.71	2016.80
50	Au 30µ"	18	GR	M3KKK-5018J-ND	29.99	262.96	1937.60
50	Au 30µ"	36	MC	M3KKK-5036R-ND	35.19	308.59	2273.80
50	Au 30µ"	36	GR	M3KKK-5036J-ND	32.74	287.09	2115.39
60	Au 30µ"	6	MC	M3KKK-6006R-ND	33.70	295.53	2177.60
60	Au 30µ"	6	GR	M3KKK-6006J-ND	33.21	291.23	2145.92
60	Au 30µ"	18	MC	M3KKK-6018R-ND	36.88	323.44	2383.21
60	Au 30µ"	18	GR	M3KKK-6018J-ND	35.41	310.54	2288.16
60	Au 30µ"	36	MC	M3KKK-6036R-ND	41.66	365.29	2691.61
60	Au 30µ"	36	GR	M3KKK-6036J-ND	38.71	339.49	2501.52
64	Au 30µ"	6	MC	M3KKK-6406R-ND	35.95	315.27	2323.05
64	Au 30µ"	6	GR	M3KKK-6406J-ND	35.43	310.69	2289.26
64	Au 30µ"	18	MC	M3KKK-6418R-ND	39.35	345.03	2542.34
64	Au 30µ"	18	GR	M3KKK-6418J-ND	37.78	331.28	2440.99
64	Au 30µ"	36	MC	M3KKK-6436R-ND	44.44	389.67	2871.29
64	Au 30µ"	36	GR	M3KKK-6436J-ND	41.30	362.16	2668.58

Also available in the following configurations:
M3RRK-☐☐☐☐☐-ND – Pin Connector w/o Flange, w/ Polarizing Key & Strain Relief.
M3WWK-☐☐☐☐☐-ND – Pin Connector with Flange, w/ Polarizing Key.
M3YYK-☐☐☐☐☐-ND – Pin Connector with Flange, w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

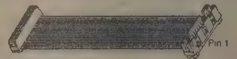
Plug Connector to Plug Connector

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	20	TW	M3KKK-1020K-ND	9.76	85.59	630.70
10	Au 30µ"	40	TW	M3KKK-1040K-ND	10.75	94.24	694.40
14	Au 30µ"	20	TW	M3KKK-1420K-ND	13.54	118.69	874.58
14	Au 30µ"	40	TW	M3KKK-1440K-ND	14.92	130.80	963.76
16	Au 30µ"	20	TW	M3KKK-1620K-ND	15.36	134.67	992.32
16	Au 30µ"	40	TW	M3KKK-1640K-ND	16.93	148.50	1094.24
20	Au 30µ"	20	TW	M3KKK-2020K-ND	18.03	158.08	1164.80
20	Au 30µ"	40	TW	M3KKK-2040K-ND	20.00	175.37	1292.20
26	Au 30µ"	20	TW	M3KKK-2620K-ND	20.83	182.65	1345.82
26	Au 30µ"	40	TW	M3KKK-2640K-ND	23.39	205.12	1511.44
34	Au 30µ"	20	TW	M3KKK-3420K-ND	26.04	228.32	1682.38
34	Au 30µ"	40	TW	M3KKK-3440K-ND	29.39	257.72	1898.96
40	Au 30µ"	20	TW	M3KKK-4020K-ND	29.10	255.17	1880.20
40	Au 30µ"	40	TW	M3KKK-4040K-ND	33.04	289.75	2135.00
50	Au 30µ"	20	TW	M3KKK-5020K-ND	32.16	282.06	2078.30
50	Au 30µ"	40	TW	M3KKK-5040K-ND	37.09	325.28	2396.80
60	Au 30µ"	20	TW	M3KKK-6020K-ND	38.03	333.45	2457.00
60	Au 30µ"	40	TW	M3KKK-6040K-ND	43.94	385.32	2839.20
64	Au 30µ"	20	TW	M3KKK-6420K-ND	40.56	355.72	2621.08
64	Au 30µ"	40	TW	M3KKK-6440K-ND	46.87	411.05	3028.76

Also available in the following configurations:
M3RRK-☐☐☐☐K-ND – Pin Conn. w/o Flange, w/ Polarizing Key & Strain Relief.
M3WWK-☐☐☐☐K-ND – Pin Connector with Flange, w/ Polarizing Key.
M3YYK-☐☐☐☐K-ND – Pin Conn. w/ Flange, w/ Polarizing Key & Strain Relief.
Call for complete part number and pricing!

Socket Connector to Plug Connector



*MC = 3M Multi-Color, GR = 3M Gray

3M

No. of Contacts	Conn. Finish	Length (in.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30µ"	6	MC	M3AKK-1006R-ND	7.68	67.31	495.93
10	Au 30µ"	6	GR	M3AKK-1006J-ND	7.59	66.59	490.65
10	Au 30µ"	18	MC	M3AKK-1018R-ND	8.21	71.96	530.20
10	Au 30µ"	18	GR	M3AKK-1018J-ND	7.96	69.81	514.35
10	Au 30µ"	36	MC	M3AKK-1036R-ND	9.00	78.93	581.60
10	Au 30µ"	36	GR	M3AKK-1036J-ND	8.51	74.63	549.91
16	Au 30µ"	6	MC	M3AKK-1606R-ND	11.31	99.20	730.93
16	Au 30µ"	6	GR	M3AKK-1606J-ND	11.18	98.05	722.46
16	Au 30µ"	18	MC	M3AKK-1618R-ND	12.16	106.64	785.79
16	Au 30µ"	18	GR	M3AKK-1618J-ND	11.77	103.20	760.39
16	Au 30µ"	36	MC	M3AKK-1636R-ND	13.43	117.81	868.08
16	Au 30µ"	36	GR	M3AKK-1636J-ND	12.65	110.92	817.28
20	Au 30µ"	6	MC	M3AKK-2006R-ND	12.98	113.81	838.57
20	Au 30µ"	6	GR	M3AKK-2006J-ND	12.81	112.37	828.01
20	Au 30µ"	18	MC	M3AKK-2018R-ND	14.04	123.11	907.11
20	Au 30µ"	18	GR	M3AKK-2018J-ND	13.55	118.81	875.43
20	Au 30µ"	36	MC	M3AKK-2036R-ND	15.63	137.06	1009.91
20	Au 30µ"	36	GR	M3AKK-2036J-ND	14.65	128.46	946.55
24	Au 30µ"	6	MC	M3AKK-2406R-ND	14.77	129.56	954.62
24	Au 30µ"	6	GR	M3AKK-2406J-ND	14.58	127.84	941.95
24	Au 30µ"	18	MC	M3AKK-2418R-ND	16.05	140.72	1036.88
24	Au 30µ"	18	GR	M3AKK-2418J-ND	15.46	135.56	998.84
24	Au 30µ"	36	MC	M3AKK-2436R-ND	17.96	157.46	1160.25
24	Au 30µ"	36	GR	M3AKK-2436J-ND	16.78	147.14	1084.19
26	Au 30µ"	6	MC	M3AKK-2606R-ND	15.54	136.29	1004.26
26	Au 30µ"	6	GR	M3AKK-2606J-ND	15.33	134.43	990.52
26	Au 30µ"	18	MC	M3AKK-2618R-ND	16.92	148.39	1093.37
26	Au 30µ"	18	GR	M3AKK-2618J-ND	16.28	142.79	1052.16
26	Au 30µ"	36	MC	M3AKK-2636R-ND	18.99	166.53	1227.03
26	Au 30µ"	36	GR	M3AKK-2636J-ND	17.71	155.34	1144.63
30	Au 30µ"	6	MC	M3AKK-3006R-ND	17.51	153.54	1131.35
30	Au 30µ"	6	GR	M3AKK-3006J-ND	17.23	151.10	1113.40
30	Au 30µ"	18	MC	M3AKK-3018R-ND	19.31	169.35	1247.84
30	Au 30µ"	18	GR	M3AKK-3018J-ND	18.48	162.04	1194.01
30	Au 30µ"	36	MC	M3AKK-3036R-ND	22.02	193.06	1422.58
30	Au 30µ"	36	GR	M3AKK-3036J-ND	20.35	178.45	1314.92
34	Au 30µ"	6	MC	M3AKK-3406R-ND	19.69	172.64	1272.05
34	Au 30µ"	6	GR	M3AKK-3406J-ND	19.41	170.20	1254.10
34	Au 30µ"	18	MC	M3AKK-3418R-ND	21.49	188.44	1388.54
34	Au 30µ"	18	GR	M3AKK-3418J-ND	20.66	181.14	1334.71
34	Au 30µ"	36	MC	M3AKK-3436R-ND	24.19	212.16	1563.28
34	Au 30µ"	36	GR	M3AKK-3436J-ND	22.53	197.55	1455.62
40	Au 30µ"	6	MC	M3AKK-4006R-ND	22.38	196.26	1446.13
40	Au 30µ"	6	GR	M3AKK-4006J-ND	22.05	193.39	1425.01
40	Au 30µ"	18	MC	M3AKK-4018R-ND	24.50	214.86	1583.20
40	Au 30µ"	18	GR	M3AKK-4018J-ND	23.52	206.26	1519.84
40	Au 30µ"	36	MC	M3AKK-4036R-ND	27.68	242.77	1788.80
40	Au 30µ"	36	GR	M3AKK-4036J-ND	25.72	225.57	1662.09
50	Au 30µ"	6	MC	M3AKK-5006R-ND	25.86	226.80	1671.17
50	Au 30µ"	6	GR	M3AKK-5006J-ND	25.45	223.22	1644.77
50	Au 30µ"	18	MC	M3AKK-5018R-ND	28.51	250.05	1842.50
50	Au 30µ"	18	GR	M3AKK-5018J-ND	27.29	239.30	1763.30
50	Au 30µ"	36	MC	M3AKK-5036R-ND	32.49	284.93	2099.50
50	Au 30µ"	36	GR	M3AKK-5036J-ND	30.04	263.43	1941.09
60	Au 30µ"	6	MC	M3AKK-6006R-ND	31.17	273.30	2013.80
60	Au 30µ"	6	GR	M3AKK-6006J-ND	30.68	269.00	1982.12
60	Au 30µ"	18	MC	M3AKK-6018R-ND	34.35	301.21	2219.41
60	Au 30µ"	18	GR	M3AKK-6018J-ND	32.88	288.31	2124.36
60	Au 30µ"	36	MC	M3AKK-6036R-ND	39.12	343.06	2527.81
60	Au 30µ"	36	GR	M3AKK-6036J-ND	36.18	317.26	2337.72

Also available in the following configurations:
M3AW☐-☐☐☐☐☐-ND – Socket Connector w/ Polarizing Key & Strain Relief.
M3BR☐-☐☐☐☐☐-ND – Socket Conn. w/ SR, Pin Conn. w/o Flange w/ PK & SR.
M3BY☐-☐☐☐☐☐-ND – Socket Conn. w/ SR, Pin Conn. w/ Flange w/ PK & SR.
M3CK☐-☐☐☐☐☐-ND – Socket Connector Open w/ Polarizing Key.
M3CW☐-☐☐☐☐☐-ND – Socket Conn. w/ PK, Pin Conn. w/ Flange w/ PK.
M3DR☐-☐☐☐☐☐-ND – Socket Conn. w/ PK & SR, Pin Conn. w/o Flange w/ PK & SR.

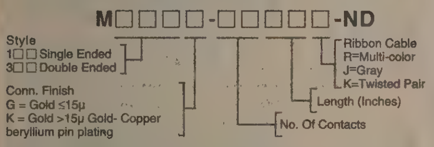
M3DY□-□□□□□-ND – Socket Conn. w/ PK & SR, Pin Conn. w/ Flange w/ PK & SR.
M3TK□-□□□□□-ND – Socket Connector Closed w/ Polarizing Key.
M3UR□-□□□□□-ND – Socket Conn. Closed End w/ PK & SR, Pin Conn. w/o Flange w/ PK & SR.
M3UY□-□□□□□-ND – Socket Conn. Closed End w/ PK & SR, Pin Conn. w/ Flange w/ PK & SR.
Call for complete part number and pricing!

Socket Connector to Plug Connector

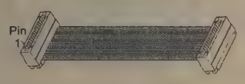
***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30μ"	20	TW	M3AKK-1020K-ND	8.40	73.62	542.50
10	Au 30μ"	40	TW	M3AKK-1040K-ND	9.38	82.27	606.20
10	Au 30μ"	60	TW	M3AKK-1060K-ND	10.37	90.92	669.90
16	Au 30μ"	20	TW	M3AKK-1620K-ND	12.46	109.31	805.42
16	Au 30μ"	40	TW	M3AKK-1640K-ND	14.04	123.14	907.34
16	Au 30μ"	60	TW	M3AKK-1660K-ND	15.62	136.97	1009.26
20	Au 30μ"	20	TW	M3AKK-2020K-ND	14.42	126.45	931.70
20	Au 30μ"	40	TW	M3AKK-2040K-ND	16.39	143.73	1059.10
20	Au 30μ"	60	TW	M3AKK-2060K-ND	18.36	161.03	1186.50
26	Au 30μ"	20	TW	M3AKK-2620K-ND	17.42	152.72	1125.32
26	Au 30μ"	40	TW	M3AKK-2640K-ND	19.98	175.20	1290.94
26	Au 30μ"	60	TW	M3AKK-2660K-ND	22.54	197.68	1456.56
34	Au 30μ"	20	TW	M3AKK-3420K-ND	22.14	194.12	1430.38
34	Au 30μ"	40	TW	M3AKK-3440K-ND	25.49	223.52	1646.96
34	Au 30μ"	60	TW	M3AKK-3460K-ND	28.84	252.91	1863.54
40	Au 30μ"	20	TW	M3AKK-4020K-ND	25.26	221.54	1632.40
40	Au 30μ"	40	TW	M3AKK-4040K-ND	29.21	256.12	1887.20
40	Au 30μ"	60	TW	M3AKK-4060K-ND	33.15	290.70	2142.00
50	Au 30μ"	20	TW	M3AKK-5020K-ND	29.47	258.40	1904.00
50	Au 30μ"	40	TW	M3AKK-5040K-ND	34.40	301.62	2222.50
50	Au 30μ"	60	TW	M3AKK-5060K-ND	39.33	344.85	2541.00
60	Au 30μ"	20	TW	M3AKK-6020K-ND	35.49	311.22	2293.20
60	Au 30μ"	40	TW	M3AKK-6040K-ND	41.41	363.09	2675.40
60	Au 30μ"	60	TW	M3AKK-6060K-ND	47.32	414.96	3057.60

Also available in the following configurations:
M3AW□-□□□□K-ND – Socket Conn/Pin Conn. w/ Flange w/ PK.
M3BR□-□□□□K-ND – Socket Conn w/ SR, Pin Conn. w/o Flange w/ PK & SR.
M3BY□-□□□□K-ND – Socket Conn w/ SR, Pin Conn. w/ Flange w/ PK & SR.
M3CK□-□□□□K-ND – Socket Conn w/ PK, Pin Conn. w/o Flange w/ PK.
M3CW□-□□□□K-ND – Socket Conn w/ PK, Pin Conn. w/ Flange w/ PK.
M3DR□-□□□□K-ND – Socket Conn w/ PK & SR, Pin Conn. w/o Flange w/ PK & SR.
M3DY□-□□□□K-ND – Socket Conn w/ PK & SR, Pin Conn. w/ Flange w/ PK & SR.
M3TK□-□□□□K-ND – Closed End Socket Conn w/ PK, Pin Conn. w/o Flange w/ PK.
M3UR□-□□□□K-ND – Closed End Socket Conn w/ PK & SR, Pin Conn. w/o Flange w/ PK & SR.
M3UY□-□□□□K-ND – Closed End Socket Conn w/ PK & SR, Pin Conn. w/ Flange w/ PK & SR.
Call for complete part number and pricing!



Card Edge to Card Edge



*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30μ"	6	MC	M3EEK-1006R-ND	8.72	76.43	563.13
10	Au 30μ"	6	GR	M3EEK-1006J-ND	8.63	75.71	557.85
10	Au 30μ"	18	MC	M3EEK-1018R-ND	9.25	81.08	597.40
10	Au 30μ"	18	GR	M3EEK-1018J-ND	9.00	78.93	581.55
10	Au 30μ"	36	MC	M3EEK-1036R-ND	10.04	88.05	648.80
10	Au 30μ"	36	GR	M3EEK-1036J-ND	9.55	83.75	617.11
16	Au 30μ"	6	MC	M3EEK-1606R-ND	12.06	105.75	779.23
16	Au 30μ"	6	GR	M3EEK-1606J-ND	11.93	104.60	770.76
16	Au 30μ"	18	MC	M3EEK-1618R-ND	12.91	113.20	834.09
16	Au 30μ"	18	GR	M3EEK-1618J-ND	12.52	109.75	808.69
16	Au 30μ"	36	MC	M3EEK-1636R-ND	14.18	124.37	916.38
16	Au 30μ"	36	GR	M3EEK-1636J-ND	13.40	117.47	865.58
20	Au 30μ"	6	MC	M3EEK-2006R-ND	14.96	131.19	966.67
20	Au 15μ"	6	MC	M3EEG-2006R-ND	2.87	25.17	185.47
20	Au 30μ"	6	GR	M3EEK-2006J-ND	14.80	129.76	956.11
20	Au 15μ"	6	GR	M3EEG-2006J-ND	2.71	23.74	174.91
20	Au 30μ"	18	MC	M3EEK-2018R-ND	16.02	140.49	1035.21
20	Au 15μ"	18	MC	M3EEG-2018R-ND	3.93	34.47	254.01
20	Au 30μ"	18	GR	M3EEK-2018J-ND	15.53	136.19	1003.53
20	Au 15μ"	18	GR	M3EEG-2018J-ND	3.44	30.17	222.33
20	Au 30μ"	36	MC	M3EEK-2036R-ND	17.61	154.44	1138.01
20	Au 15μ"	36	MC	M3EEG-2036R-ND	5.52	48.42	356.81
20	Au 30μ"	36	MC	M3EEK-2036J-ND	16.63	145.85	1074.65
20	Au 15μ"	36	MC	M3EEG-2036J-ND	4.54	39.83	293.45
26	Au 30μ"	6	MC	M3EEK-2606R-ND	17.78	155.96	1149.16
26	Au 15μ"	6	MC	M3EEG-2606R-ND	3.35	29.42	216.76
26	Au 30μ"	6	GR	M3EEK-2606J-ND	17.57	154.09	1135.42
26	Au 15μ"	6	GR	M3EEG-2606J-ND	3.14	27.55	203.01
26	Au 30μ"	18	MC	M3EEK-2618R-ND	19.16	168.05	1238.27
26	Au 15μ"	18	MC	M3EEG-2618R-ND	4.73	41.51	305.87
26	Au 30μ"	18	GR	M3EEK-2618J-ND	18.53	162.46	1197.06
26	Au 15μ"	18	GR	M3EEG-2618J-ND	4.10	35.92	264.66
26	Au 30μ"	36	MC	M3EEK-2636R-ND	21.23	186.19	1371.93
26	Au 15μ"	36	MC	M3EEG-2636R-ND	6.80	59.65	439.53
26	Au 30μ"	36	GR	M3EEK-2636J-ND	19.96	175.01	1289.53
26	Au 15μ"	36	GR	M3EEG-2636J-ND	5.53	48.47	357.13
34	Au 30μ"	6	MC	M3EEK-3406R-ND	20.79	182.33	1343.45
34	Au 15μ"	6	MC	M3EEG-3406R-ND	4.87	42.68	314.45
34	Au 30μ"	6	GR	M3EEK-3406J-ND	20.51	179.89	1325.50
34	Au 15μ"	6	GR	M3EEG-3406J-ND	4.59	40.24	296.50
34	Au 30μ"	18	MC	M3EEK-3418R-ND	22.59	198.13	1459.94
34	Au 15μ"	18	MC	M3EEG-3418R-ND	6.67	58.48	430.94
34	Au 30μ"	18	GR	M3EEK-3418J-ND	21.76	190.83	1406.11
34	Au 15μ"	18	GR	M3EEG-3418J-ND	5.84	51.18	377.11
34	Au 30μ"	36	MC	M3EEK-3436R-ND	25.30	221.85	1634.68
34	Au 15μ"	36	MC	M3EEG-3436R-ND	9.37	82.20	605.68
34	Au 30μ"	36	GR	M3EEK-3436J-ND	23.63	207.24	1527.02
34	Au 15μ"	36	GR	M3EEG-3436J-ND	7.71	67.59	498.02
40	Au 30μ"	6	MC	M3EEK-4006R-ND	25.44	223.05	1643.53
40	Au 15μ"	6	MC	M3EEG-4006R-ND	5.74	50.34	370.93
40	Au 30μ"	6	GR	M3EEK-4006J-ND	25.11	220.18	1622.41
40	Au 15μ"	6	GR	M3EEG-4006J-ND	5.41	47.47	349.81
40	Au 30μ"	18	MC	M3EEK-4018R-ND	27.56	241.65	1780.60
40	Au 15μ"	18	MC	M3EEG-4018R-ND	7.86	68.94	508.00
40	Au 30μ"	18	GR	M3EEK-4018J-ND	26.58	233.05	1717.24
40	Au 15μ"	18	GR	M3EEG-4018J-ND	6.88	60.34	444.64
40	Au 30μ"	36	MC	M3EEK-4036R-ND	31.18	273.46	2014.99
40	Au 15μ"	36	MC	M3EEG-4036R-ND	11.04	96.85	713.60
40	Au 30μ"	36	GR	M3EEK-4036J-ND	28.78	252.36	1859.49
40	Au 15μ"	36	GR	M3EEG-4036J-ND	9.08	79.65	586.89
50	Au 30μ"	6	MC	M3EEK-5006R-ND	26.42	231.65	1706.87
50	Au 15μ"	6	MC	M3EEG-5006R-ND	7.18	62.93	463.67
50	Au 30μ"	6	GR	M3EEK-5006J-ND	26.01	228.06	1680.47
50	Au 15μ"	6	GR	M3EEG-5006J-ND	6.77	59.34	437.27
50	Au 30μ"	18	MC	M3EEK-5018R-ND	29.07	254.90	1878.20
50	Au 15μ"	18	MC	M3EEG-5018R-ND	9.83	86.18	635.00
50	Au 30μ"	18	GR	M3EEK-5018J-ND	27.84	244.15	1799.00
50	Au 15μ"	18	GR	M3EEG-5018J-ND	8.60	75.43	555.80
50	Au 30μ"	36	MC	M3EEK-5036R-ND	33.04	289.78	2135.20
50	Au 15μ"	36	MC	M3EEG-5036R-ND	13.80	121.06	892.00
50	Au 30μ"	36	GR	M3EEK-5036J-ND	30.59	268.28	1976.79
50	Au 15μ"	36	GR	M3EEG-5036J-ND	11.35	99.56	733.59
60	Au 30μ"	6	MC	M3EEK-6006R-ND	33.18	290.97	2144.00
60	Au 30μ"	6	GR	M3EEK-6006J-ND	32.69	286.67	2112.32
60	Au 30μ"	18	MC	M3EEK-6018R-ND	36.36	318.88	2349.61
60	Au 30μ"	18	GR	M3EEK-6018J-ND	34.89	305.98	2254.56
60	Au 30μ"	36	MC	M3EEK-6036R-ND	41.14	360.73	2658.01
60	Au 30μ"	36	GR	M3EEK-6036J-ND	38.19	334.93	2467.92
64	Au 30μ"	6	MC	M3EEK-6406R-ND	33.81	296.46	2184.45
64	Au 30μ"	6	GR	M3EEK-6406J-ND	33.28	291.88	2150.66
64	Au 30μ"	18	MC	M3EEK-6418R-ND	37.20	326.22	2403.74
64	Au 30μ"	18	GR	M3EEK-6418J-ND	35.63	312.47	2302.39
64	Au 30μ"	36	MC	M3EEK-6436R-ND	42.29	370.86	2732.69
64	Au 30μ"	36	GR	M3EEK-6436J-ND	39.15	343.35	2529.98

Also available in the following configurations:
M3FFK-□□□□□-ND – Card Edge Connector w/ Flange.
M3GGK-□□□□□-ND – Card Edge Connector w/ Slotted Flange.
M3MM□-□□□□□-ND – Card Edge Connector w/ Strain Relief.
M3SSK-□□□□□-ND – Card Edge Connector w/Slotted Flange & Strain Relief.
M3PPK-□□□□□-ND – Card Edge Connector w/ Flange & Strain Relief.
Call for complete part number and pricing!

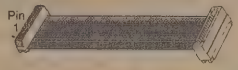
Card Edge to Card Edge

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30μ"	20	TW	M3EEK-1020K-ND	9.44	82.74	609.70
10	Au 30μ"	40	TW	M3EEK-1040K-ND	10.42	91.39	673.40
10	Au 30μ"	60	TW	M3EEK-1060K-ND	11.41	100.04	737.10
16	Au 30μ"	20	TW	M3EEK-1620K-ND	13.21	115.86	853.72
16	Au 30μ"	40	TW	M3EEK-1640K-ND	14.79	129.69	955.64
16	Au 30μ"	60	TW	M3EEK-1660K-ND	16.37	143.53	1057.56
20	Au 30μ"	20	TW	M3EEK-2020K-ND	16.40	143.83	1059.80
20	Au 15μ"	20	TW	M3EEG-2020K-ND	4.31	37.81	278.60
20	Au 30μ"	40	TW	M3EEK-2040K-ND	18.37	161.12	1187.20
20	Au 15μ"	40	TW	M3EEG-2040K-ND	6.28	55.10	406.00
20	Au 30μ"	60	TW	M3EEK-2060K-ND	20.35	178.41	1314.60
20	Au 15μ"	60	TW	M3EEG-2060K-ND	8.26	72.39	533.40
26	Au 30μ"	20	TW	M3EEK-2620K-ND	19.66	172.39	1270.22
26	Au 15μ"	20	TW	M3EEG-2620K-ND	5.23	45.85	337.82
26	Au 30μ"	40	TW	M3EEK-2640K-ND	22.22	194.86	1435.84
26	Au 15μ"	40	TW	M3EEG-2640K-ND	7.79	68.32	503.44
26	Au 30μ"	60	TW	M3EEK-2660K-ND	24.78	217.34	1601.46
26	Au 15μ"	60	TW	M3EEG-2660K-ND	10.35	90.80	669.06
34	Au 30μ"	20	TW	M3EEK-3420K-ND	23.24	203.81	1501.78
34	Au 15μ"	20	TW	M3EEG-3420K-ND	7.32	64.16	472.78
34	Au 30μ"	40	TW	M3EEK-3440K-ND	26.59	233.21	1718.36
34	Au 15μ"	40	TW	M3EEG-3440K-ND	10.67	93.56	689.36
34	Au 30μ"	60	TW	M3EEK-3460K-ND	29.95	262.60	1934.94
34	Au 15μ"	60	TW	M3EEG-3460K-ND	14.02	122.95	905.94
40	Au 30μ"	20	TW	M3EEK-4020K-ND	28.32	248.33	1829.80
40	Au 15μ"	20	TW	M3EEG-4020K-ND	8.62	75.62	557.20
40	Au 30μ"	40	TW	M3EEK-4040K-ND	32.26	282.91	2084.60
40	Au 15μ"	40	TW	M3EEG-4040K-ND	12.57	110.20	812.00
40	Au 30μ"	60	TW	M3EEK-4060K-ND	36.21	317.49	2339.40
40	Au 15μ"	60	TW	M3EEG-4060K-ND	16.51	144.78	1066.80
50	Au 30μ"	20	TW	M3EEK-5020K-ND	30.02	263.25	1939.70
50	Au 15μ"	20	TW	M3EEG-5020K-ND	10.78	94.53	696.50
50	Au 30μ"	40	TW	M3EEK-5040K-ND	34.95	306.47	2258.20
50	Au 15μ"	40	TW	M3EEG-5040K-ND	15.71	137.75	1015.00
50	Au 30μ"	60	TW	M3EEK-5060K-ND	39.88	349.70	2576.70
50	Au 15μ"	60	TW	M3EEG-5060K-ND	20.64	180.98	1333.50
60	Au 30μ"	20	TW	M3EEK-6020K-ND	37.51	328.89	2423.40
60	Au 30μ"	40	TW	M3EEK-6040K-ND	43.42	380.76	2805.60
60	Au 30μ"	60	TW	M3EEK-6060K-ND	49.34	432.63	3187.80
64	Au 30μ"	20	TW	M3EEK-6420K-ND	38.42	336.91	2482.48
64	Au 30μ"	40	TW	M3EEK-6440K-ND	44.73	392.24	2890.16
64	Au 30μ"	60	TW	M3EEK-6460K-ND	51.04	447.56	3297.84

Also available in the following configurations:
M3FFK-□□□□K-ND – w/ Flange.
M3GGK-□□□□K-ND – w/ Slotted Flange.
Call for complete part number and pricing!

Socket Connector to Card Edge Connector



*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing		
					1	10	100
10	Au 30μ"	6	MC	M3AEK-1006R-ND	7.51	65.88	485.43
10	Au 30μ"	6	GR	M3AEK-1006J-ND	7.43	65.16	480.15
10	Au 30μ"	18	MC	M3AEK-1018R-ND	8.04	70.53	519.70
10	Au 30μ"	18	GR	M3AEK-1018J-ND	7.80	68.38	503.85
10	Au 30μ"	36	MC	M3AEK-1036R-ND	8.84	77.51	571.10
10	Au 30μ"	36	GR	M3AEK-1036J-ND	8.35	73.21	539.41
16	Au 30μ"	6	MC	M3AEK-1606R-ND	10.24	89.79	661.63
16	Au 30μ"	6	GR	M3AEK-1606J-ND	10.11	88.64	653.16
16	Au 30μ"	18	MC	M3AEK-1618R-ND	11.09	97.24	716.49
16	Au 30μ"	18	GR	M3AEK-1618J-ND	10.70	93.79	691.09
16	Au 30μ"	36	MC	M3AEK-1636R-ND	12.36	108.41	798.78
16	Au 30μ"	36	GR	M3AEK-1636J-ND	11.58	101.51	747.98
20	Au 30μ"	6	MC	M3AEK-2006R-ND	12.17	106.68	786.07
20	Au 30μ"	6	MC	M3AEG-2006R-ND	2.68	23.46	172.87
20	Au 30μ"	6	GR	M3AEK-2006J-ND	12.00	105.25	775.51
20	Au 30μ"	6	GR	M3AEG-2006J-ND	2.51	22.03	162.31
20	Au 30μ"	18	MC	M3AEK-2018R-ND	13.23	115.98	854.61
20	Au 30μ"	18	MC	M3AEG-2018R-ND	3.74	32.76	241.41
20	Au 30μ"	18	GR	M3AEK-2018J-ND	12.74	111.68	822.93
20	Au 30μ"	18	GR	M3AEG-2018J-ND	3.25	28.46	209.73
20	Au 30μ"	36	MC	M3AEK-2036R-ND	14.82	129.93	957.41
20	Au 30μ"	36	MC	M3AEG-2036R-ND	5.33	46.71	344.21
20	Au 30μ"	36	GR	M3AEK-2036J-ND	13.84	121.34	894.05
20	Au 30μ"	36	GR	M3AEG-2036J-ND	4.35	38.12	280.85
26	Au 30μ"	6	MC	M3AEK-2606R-ND	14.96	131.16	966.46
26	Au 30μ"	6	MC	M3AEG-2606R-ND	3.29	28.85	212.56
26	Au 30μ"	6	GR	M3AEK-2606J-ND	14.74	129.30	952.72
26	Au 30μ"	6	GR	M3AEG-2606J-ND	3.08	26.98	198.82
26	Au 30μ"	18	MC	M3AEK-2618R-ND	16.34	143.26	1055.57
26	Au 30μ"	18	MC	M3AEG-2618R-ND	4.67	40.94	301.67
26	Au 30μ"	18	GR	M3AEK-2618J-ND	15.70	137.66	1014.36
26	Au 30μ"	18	GR	M3AEG-2618J-ND	4.03	35.35	260.46
26	Au 30μ"	36	MC	M3AEK-2636R-ND	18.40	161.40	1189.23
26	Au 30μ"	36	MC	M3AEG-2636R-ND	6.74	59.08	435.33
26	Au 30μ"	36	GR	M3AEK-2636J-ND	17.13	150.21	1106.83
26	Au 30μ"	36	GR	M3AEG-2636J-ND	5.46	47.90	352.93
34	Au 30μ"	6	MC	M3AEK-3406R-ND	18.29	160.38	1181.75
34	Au 30μ"	6	MC	M3AEG-3406R-ND	4.54	39.83	293.45
34	Au 30μ"	6	GR	M3AEK-3406J-ND	18.01	157.94	1163.80
34	Au 30μ"	6	GR	M3AEG-3406J-ND	4.26	37.39	275.50
34	Au 30μ"	18	MC	M3AEK-3418R-ND	20.09	176.19	1298.24
34	Au 30μ"	18	MC	M3AEG-3418R-ND	6.34	55.63	409.94
34	Au 30μ"	18	GR	M3AEK-3418J-ND	19.26	168.88	1244.41
34	Au 30μ"	18	GR	M3AEG-3418J-ND	5.51	48.33	356.11
34	Au 30μ"	36	MC	M3AEK-3436R-ND	22.80	199.90	1472.98
34	Au 30μ"	36	MC	M3AEG-3436R-ND	9.05	79.35	584.68
34	Au 30μ"	36	GR	M3AEK-3436J-ND	21.13	185.29	1365.32
34	Au 30μ"	36	GR	M3AEG-3436J-ND	7.38	64.74	477.02
40	Au 30μ"	6	MC	M3AEK-4006R-ND	21.99	192.84	1420.93
40	Au 30μ"	6	MC	M3AEG-4006R-ND	5.35	46.92	345.73
40	Au 30μ"	6	GR	M3AEK-4006J-ND	21.66	189.97	1399.81
40	Au 30μ"	6	GR	M3AEG-4006J-ND	5.02	44.05	324.61
40	Au 30μ"	18	MC	M3AEK-4018R-ND	24.11	211.44	1558.00
40	Au 30μ"	18	MC	M3AEG-4018R-ND	7.47	65.52	482.80
40	Au 30μ"	18	GR	M3AEK-4018J-ND	23.13	202.84	1494.64
40	Au 30μ"	18	GR	M3AEG-4018J-ND	6.49	56.92	419.44
40	Au 30μ"	36	MC	M3AEK-4036R-ND	27.29	239.35	1763.60
40	Au 30μ"	36	MC	M3AEG-4036R-ND	10.65	93.43	688.40
40	Au 30μ"	36	GR	M3AEK-4036J-ND	25.33	222.15	1636.89
40	Au 30μ"	36	GR	M3AEG-4036J-ND	8.69	76.23	561.69
50	Au 30μ"	6	MC	M3AEK-5006R-ND	24.79	217.40	1601.87
50	Au 30μ"	6	MC	M3AEG-5006R-ND	6.69	58.65	432.17
50	Au 30μ"	6	GR	M3AEK-5006J-ND	24.38	213.81	1575.47
50	Au 30μ"	6	GR	M3AEG-5006J-ND	6.28	55.07	405.77
50	Au 30μ"	18	MC	M3AEK-5018R-ND	27.44	240.65	1773.20
50	Au 30μ"	18	MC	M3AEG-5018R-ND	9.34	81.90	603.50
50	Au 30μ"	18	GR	M3AEK-5018J-ND	26.22	229.90	1694.00
50	Au 30μ"	18	GR	M3AEG-5018J-ND	8.11	71.15	524.30
50	Au 30μ"	36	MC	M3AEK-5036R-ND	31.42	275.53	2030.20
50	Au 30μ"	36	MC	M3AEG-5036R-ND	13.32	116.78	860.50
50	Au 30μ"	36	GR	M3AEK-5036J-ND	28.97	254.03	1871.79
50	Au 30μ"	36	GR	M3AEG-5036J-ND	10.87	95.28	702.09
60	Au 30μ"	6	MC	M3AEK-6006R-ND	30.91	271.02	1997.00
60	Au 30μ"	6	GR	M3AEK-6006J-ND	30.42	266.72	1965.32
60	Au 30μ"	18	MC	M3AEK-6018R-ND	34.09	298.93	2202.61
60	Au 30μ"	18	GR	M3AEK-6018J-ND	32.62	286.03	2107.56
60	Au 30μ"	36	MC	M3AEK-6036R-ND	38.86	340.78	2511.01
60	Au 30μ"	36	GR	M3AEK-6036J-ND	35.92	314.98	2320.92

Also available in the following configurations:
M3AFK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3AGK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3AM□-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Strain Relief.
M3APK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3ASK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Flange & Strain Relief.
M3BE□-□□□□□-ND – Socket Conn./Card Edge Conn.
M3BFK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3BGK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3BM□-□□□□□-ND – Socket Conn. w/Strain Relief/Card Edge Conn. w/ Strain Relief.
M3BPK-□□□□□-ND – Socket Conn. w/ Strain Relief./Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3BSK-□□□□□-ND – Socket Conn. w/ Strain Relief./Card Edge Conn. w/ Flange & Strain Relief.
M3CE□-□□□□□-ND – Socket Conn./Card Edge Conn.
M3CFK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3CGK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3CM□-□□□□□-ND – Socket Conn. Open End w/ Strain Relief/Card Edge Conn. w/ Strain Relief.
M3CPK-□□□□□-ND – Socket Conn. Open End w/ Strain Relief/Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3CSK-□□□□□-ND – Socket Conn. Open End w/ PK/Card Edge Conn. w/ Flange & Strain Relief.
M3DE□-□□□□□-ND – Socket Conn./Card Edge Conn.
M3DFK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3DGK-□□□□□-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.

M3DM□-□□□□□-ND – Socket Conn. Open End w/ PK & Strain Relief/ Card Edge Conn. w/ Strain Relief.
M3DPK-□□□□□-ND – Socket Conn. Open End w/ PK & Strain Relief/ Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3DSK-□□□□□-ND – Socket Conn. Open End w/ PK & Strain Relief/ Card Edge Conn. w/ Flange & Strain Relief.
M3TEK-□□□□□-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. Standard.
M3TFK-□□□□□-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Flange.
M3TGK-□□□□□-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Slotted Flange.
M3TMK-□□□□□-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Strain Relief.
M3TPK-□□□□□-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3TSK-□□□□□-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Flange & Strain Relief.
M3UEK-□□□□□-ND – Socket Conn. Closed End w/ PK & SR/Card Edge Conn. Standard.
M3UFK-□□□□□-ND – Socket Conn. Closed End w/ PK & SR/Card Edge Conn. w/ Flange.
M3UGK-□□□□□-ND – Socket Conn. Closed End w/ PK & SR/Card Edge Conn. w/ Slotted Flange.
M3UMK-□□□□□-ND – Socket Conn. Closed End w/ PK & Strain Relief/ Card Edge Conn. w/ Strain Relief.
M3UPK-□□□□□-ND – Socket Conn. Closed End w/ PK & Strain Relief/ Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3USK-□□□□□-ND – Socket Conn. Closed End w/ PK & Strain Relief/ Card Edge Conn. w/ Flange & Strain Relief.
Call for complete part number and pricing!

Socket Connector to Card Edge

***Twisted Pair Cable Finished Length is Approximate**

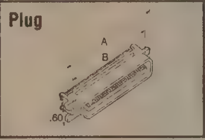
No. of Contacts	Conn. Finish	Length (In.)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
10	Au 30µ"	20	TW	M3AEK-1020K-ND	8.23	72.20	532.00
10	Au 30µ"	40	TW	M3AEK-1040K-ND	9.22	80.85	595.70
10	Au 30µ"	60	TW	M3AEK-1060K-ND	10.21	89.49	659.40
16	Au 30µ"	20	TW	M3AEK-1620K-ND	11.39	99.90	736.12
16	Au 30µ"	40	TW	M3AEK-1640K-ND	12.97	113.73	838.04
16	Au 30µ"	60	TW	M3AEK-1660K-ND	14.55	127.57	939.96
20	Au 30µ"	20	TW	M3AEK-2020K-ND	13.61	119.32	879.20
20	Au 30µ"	20	TW	M3AEG-2020K-ND	4.12	36.10	266.00
20	Au 30µ"	40	TW	M3AEK-2040K-ND	15.58	136.61	1006.60
20	Au 30µ"	40	TW	M3AEG-2040K-ND	6.09	53.39	393.40
20	Au 30µ"	60	TW	M3AEK-2060K-ND	17.55	153.90	1134.00
20	Au 30µ"	60	TW	M3AEG-2060K-ND	8.06	70.68	520.80
26	Au 30µ"	20	TW	M3AEK-2620K-ND	16.83	147.59	1087.52
26	Au 30µ"	20	TW	M3AEG-2620K-ND	5.16	45.28	333.62
26	Au 30µ"	40	TW	M3AEK-2640K-ND	19.39	170.07	1253.14
26	Au 30µ"	40	TW	M3AEG-2640K-ND	7.73	67.75	499.24
26	Au 30µ"	60	TW	M3AEK-2660K-ND	21.96	192.55	1418.76
26	Au 30µ"	60	TW	M3AEG-2660K-ND	10.29	90.23	664.86
34	Au 30µ"	20	TW	M3AEK-3420K-ND	20.74	181.87	1340.08
34	Au 30µ"	20	TW	M3AEG-3420K-ND	6.99	61.31	451.78
34	Au 30µ"	40	TW	M3AEK-3440K-ND	24.09	211.26	1556.66
34	Au 30µ"	40	TW	M3AEG-3440K-ND	10.34	90.71	668.36
34	Au 30µ"	60	TW	M3AEK-3460K-ND	27.44	240.65	1773.24
34	Au 30µ"	60	TW	M3AEG-3460K-ND	13.70	120.10	884.94
40	Au 30µ"	20	TW	M3AEK-4020K-ND	24.87	218.12	1607.20
40	Au 30µ"	20	TW	M3AEG-4020K-ND	8.23	72.20	532.00
40	Au 30µ"	40	TW	M3AEK-4040K-ND	28.82	252.70	1862.00
40	Au 30µ"	40	TW	M3AEG-4040K-ND	12.18	106.78	786.80
40	Au 30µ"	60	TW	M3AEK-4060K-ND	32.76	287.28	2116.80
40	Au 30µ"	60	TW	M3AEG-4060K-ND	16.12	141.36	1041.60
50	Au 30µ"	20	TW	M3AEK-5020K-ND	28.39	249.00	1834.70
50	Au 30µ"	20	TW	M3AEG-5020K-ND	10.29	90.25	665.00
50	Au 30µ"	40	TW	M3AEK-5040K-ND	33.32	292.22	2153.20
50	Au 30µ"	40	TW	M3AEG-5040K-ND	15.22	133.47	983.50
50	Au 30µ"	60	TW	M3AEK-5060K-ND	38.25	335.45	2471.70
50	Au 30µ"	60	TW	M3AEG-5060K-ND	20.15	176.70	1302.00
60	Au 30µ"	20	TW	M3AEK-6020K-ND	35.23	308.94	2276.40
60	Au 30µ"	40	TW	M3AEK-6040K-ND	41.15	360.81	2658.60
60	Au 30µ"	60	TW	M3AEK-6060K-ND	47.06	412.68	3040.80

Also available in the following configurations:
M3AFK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3AGK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3AM□-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Strain Relief.
M3APK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Flange & Strain Relief.
M3ASK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3BE□-□□□□K-ND – Socket Conn./Card Edge Conn.
M3BFK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3BGK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3BM□-□□□□K-ND – Socket Conn. w/ Strain Relief/Card Edge Conn. w/ Strain Relief.
M3BPK-□□□□K-ND – Socket Conn. w/ Strain Relief/Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3BSK-□□□□K-ND – Socket Conn. w/ Strain Relief/Card Edge Conn. w/ Flange & Strain Relief.
M3CE□-□□□□K-ND – Socket Conn./Card Edge Conn.
M3CFK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3CGK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3CM□-□□□□K-ND – Socket Conn. Open End w/ PK/Card Edge Conn. w/ Strain Relief.
M3CPK-□□□□K-ND – Socket Conn. Open End w/ PK/Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3CSK-□□□□K-ND – Socket Conn. Open End w/ PK/Card Edge Conn. w/ Flange & Strain Relief.
M3DE□-□□□□K-ND – Socket Conn./Card Edge Conn.
M3DFK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Flange.
M3DGK-□□□□K-ND – Socket Conn./Card Edge Conn. w/ Slotted Flange.
M3DM□-□□□□K-ND – Socket Conn. Open End w/ PK & Strain Relief/Card Edge Conn. w/ Strain Relief.
M3DPK-□□□□K-ND – Socket Conn. Open End w/ PK & Strain Relief/Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3DSK-□□□□K-ND – Socket Conn. Open End w/ PK & Strain Relief/Card Edge Conn. w/ Flange & Strain Relief.
M3TEK-□□□□K-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. Stand.
M3TFK-□□□□K-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Flange.
M3TGK-□□□□K-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Slotted Flange.
M3TMK-□□□□K-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Strain Relief.
M3TPK-□□□□K-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3TSK-□□□□K-ND – Socket Conn. Closed End w/ PK/Card Edge Conn. w/ Flange & Strain Relief.
M3UEK-□□□□K-ND – Socket Conn. Closed End w/ PK & SR/Card Edge Conn. Standard.
M3UFK-□□□□K-ND – Socket. Conn. Closed End w/ PK & SR/Card Edge Conn. w/ Flange.
M3UGK-□□□□K-ND – Socket Conn. Closed End w/ PK & SR/Card Edge Conn. w/ Slotted Flange.
M3UMK-□□□□K-ND – Socket Conn. Closed End w/ PK & Strain Relief/ Card Edge Conn. w/Strain Relief.
M3UPK-□□□□K-ND – Socket Conn. Closed End w/ PK & Strain Relief/ Card Edge Conn. w/ Slotted Flange & Strain Relief.
M3USK-□□□□K-ND – Socket Conn. Closed End w/ PK & SR/Card Edge Conn. w/ Flange & Strain Relief.
Call for complete part number and pricing!

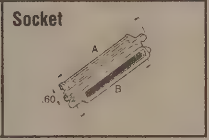
3M Delta Flat Ribbon Cable Connectors

Physical: • Insulation Material: Glass reinforced polyester. Flammability rating: UL 94V-0. • Color: Gray. • Contact Material: Flat Cable Connectors are Beryllium Copper, Latch Eject Headers are Copper Alloy. • Plating: 30µ" Gold. **Electrical:** • Current Rating: 1 amp. • Insulation Resistance: >1x10⁹ Ω @ 500 VDC. • Withstanding Voltage: 1000VRMS @ sea level. **Environmental:** • Temperature Rating: -67°F to +221°F. UL File No.: E68080, CSA File No.: LR-40971.

Plug

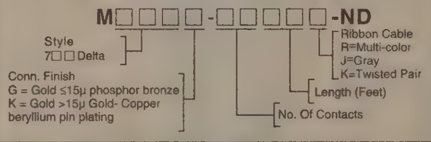


Socket



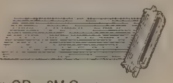
3 mounting designs available. Those with **Suffix 1000** on 3M part number: combination mount, which is a universal mount type that accepts both bail and screw mount hardware. **Suffix 1001:** bail mount, which can be used as a standard I/O connector for various electronic applications. Positive latching and easy disconnect. **Suffix 1002:** screw mount, which have #4-40 threaded insert that simplifies mounting when a more permanent connection is desired. • Wire Accommodation: 26-30 AWG stranded.

No. of Contacts	Dim. A	B	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Plugs							
14	1.75	1.42	MDA14K-ND	4.41	334.96	1515.80	3572-1000
14	1.58	1.20	MDC14K-ND	4.60	349.18	1580.15	3572-1001
14	1.75	1.42	MDB14K-ND	4.70	357.08	1615.90	3572-1002
24	2.17	1.84	MDA24K-ND	5.22	396.58	1794.65	3548-1000
24	2.01	1.63	MDC24K-ND	5.45	413.96	1873.30	3548-1001
24	2.17	1.84	MDB24K-ND	5.55	421.86	1909.05	3548-1002
36	2.68	2.35	MDA36K-ND	6.43	488.22	2209.35	3366-1000
36	2.52	2.14	MDC36K-ND	6.74	511.92	2316.60	3366-1001
36	2.68	2.35	MDB36K-ND	6.88	522.98	2366.65	3366-1002
50	3.27	2.95	MDA50K-ND	7.65	581.44	2631.20	3564-1000
50	3.11	2.73	MDC50K-ND	8.26	627.26	2838.55	3564-1001
50	3.27	2.95	MDB50K-ND	8.47	643.06	2910.05	3564-1002
Sockets							
14	1.75	1.42	MDD14K-ND	4.41	334.96	1515.80	3573-1000
14	1.58	1.20	MDF14K-ND	4.60	349.18	1580.15	3573-1001
14	1.75	1.42	MDE14K-ND	4.70	357.08	1615.90	3573-1002
24	2.17	1.84	MDD24K-ND	5.22	396.58	1794.65	3549-1000
24	2.00	1.63	MDF24K-ND	5.45	413.96	1873.30	3549-1001
24	2.17	1.84	MDE24K-ND	5.55	421.86	1909.05	3549-1002
36	2.68	2.35	MDD36K-ND	6.43	488.22	2209.35	3367-1000
36	2.52	2.14	MDF36K-ND	6.74	511.92	2316.60	3367-1001
36	2.68	2.35	MDE36K-ND	6.88	522.98	2366.65	3367-1002
50	3.27	2.95	MDD50K-ND	7.65	581.44	2631.20	3565-1000
50	3.11	2.73	MDF50K-ND	8.26	627.26	2838.55	3565-1001
50	3.27	2.95	MDE50K-ND	8.47	643.06	2910.05	3565-1002
Backshells							
50	—	—	MDBF50-ND	3.12	237.00	1072.50	3485-2500
Strain Reliefs							
50	—	—	MDSR50-ND	.77	58.46	264.55	3448-8D50A
Metal Strain Reliefs							
14	—	—	MDSF14-ND	.42	31.60	143.00	3448-60
24	—	—	MDSF24-ND	.44	33.18	150.15	3448-61
36	—	—	MDSF36-ND	.46	34.76	157.30	3448-62
50	—	—	MDSF50-ND	.48	36.34	164.45	3448-63



Delta Cable Assemblies

Single Ended Male



*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	6	MC	M7KXK-1406R-ND	12.00	105.19	775.11
14	Au 30µ"	6	GR	M7KXK-1406J-ND	10.62	93.14	686.32
14	Au 30µ"	10	MC	M7KXK-1410R-ND	14.97	131.24	967.05
14	Au 30µ"	10	GR	M7KXK-1410J-ND	12.68	111.16	819.07
24	Au 30µ"	6	MC	M7KXK-2406R-ND	16.48	144.50	1064.70
24	Au 30µ"	6	GR	M7KXK-2406J-ND	14.12	123.85	912.58
24	Au 30µ"	10	MC	M7KXK-2410R-ND	21.57	189.15	1393.70
24	Au 30µ"	10	GR	M7KXK-2410J-ND	17.65	154.74	1140.16
36	Au 30µ"	6	MC	M7KXK-3606R-ND	22.53	197.59	1455.93
36	Au 30µ"	6	GR	M7KXK-3606J-ND	18.90	165.76	1221.40
36	Au 30µ"	10	MC	M7KXK-3610R-ND	30 38	266.43	1963.15
36	Au 30µ"	10	GR	M7KXK-3610J-ND	24.33	213.38	1572.27
50	Au 30µ"	6	MC	M7KXK-5006R-ND	28.62	250.95	1849.09
50	Au 30µ"	6	GR	M7KXK-5006J-ND	23 71	207.95	1532.29
50	Au 30µ"	10	MC	M7KXK-5010R-ND	39.22	343.96	2534.42
50	Au 30µ"	10	GR	M7KXK-5010J-ND	31.05	272.30	2006.41

Also available in the following configuration:
M7LX□-□□□□□-ND – Male Delta w/ Insert.
M7QX□-□□□□□-ND – Male Delta w/ Bail Lock.
Call for complete part number and pricing!

Single Ended — Male

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	5	TW	M7KXK-1405K-ND	11.68	102.43	754.74
14	Au 30µ"	10	TW	M7KXK-1410K-ND	15.82	138.74	1022.28
24	Au 30µ"	5	TW	M7KXK-2405K-ND	14.76	129.39	953.40
24	Au 30µ"	10	TW	M7KXK-2410K-ND	20.67	181.26	1335.60
36	Au 30µ"	5	TW	M7KXK-3605K-ND	21.40	187.70	1383.06
36	Au 30µ"	10	TW	M7KXK-3610K-ND	32.05	281.07	2071.02
50	Au 30µ"	5	TW	M7KXK-5005K-ND	27.50	241.11	1776.60
50	Au 30µ"	10	TW	M7KXK-5010K-ND	42.28	370.79	2732.10

Also available in the following configuration:
M7LX□-□□□□K-ND – Male Delta w/ Insert.
M7QX□-□□□□K-ND – Male Delta w/ Bail Lock.
Call for complete part number and pricing!

Single Ended Female

*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	6	MC	M7RXK-1406R-ND	12.00	105.19	775.11
14	Au 30µ"	6	GR	M7RXK-1406J-ND	10.62	93.14	686.32
14	Au 30µ"	10	MC	M7RXK-1410R-ND	14.97	131.24	967.05
14	Au 30µ"	10	GR	M7RXK-1410J-ND	12.68	111.16	819.07
24	Au 30µ"	6	MC	M7RXK-2406R-ND	16.48	144.50	1064.70
24	Au 30µ"	6	GR	M7RXK-2406J-ND	14.12	123.85	912.58
24	Au 30µ"	10	MC	M7RXK-2410R-ND	21 57	189.15	1393.70
24	Au 30µ"	10	GR	M7RXK-2410J-ND	17 65	154.74	1140.16
36	Au 30µ"	6	MC	M7RXK-3606R-ND	22.53	197.59	1455.93
36	Au 30µ"	6	GR	M7RXK-3606J-ND	18.90	165.76	1221.40
36	Au 30µ"	10	MC	M7RXK-3610R-ND	30.38	266.43	1963.15
36	Au 30µ"	10	GR	M7RXK-3610J-ND	24.33	213.38	1572.27
50	Au 30µ"	6	MC	M7RXK-5006R-ND	28.62	250.95	1849.09
50	Au 30µ"	6	GR	M7RXK-5006J-ND	23.71	207.95	1532.29
50	Au 30µ"	10	MC	M7RXK-5010R-ND	39.22	343.96	2534.42
50	Au 30µ"	10	GR	M7RXK-5010J-ND	31.05	272.30	2006.41

Also available in the following configuration:
M7TX□-□□□□□-ND – Female Delta w/ Insert.
M7UX□-□□□□□-ND – Female Delta w/ Bail Lock.
Call for complete part number and pricing!

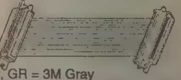
Single Ended — Female

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	5	TW	M7RXK-1405K-ND	11.68	102.43	754.74
14	Au 30µ"	10	TW	M7RXK-1410K-ND	15.82	138.74	1022.28
24	Au 30µ"	5	TW	M7RXK-2405K-ND	14.76	129.39	953.40
24	Au 30µ"	10	TW	M7RXK-2410K-ND	20.67	181.26	1335.60
36	Au 30µ"	5	TW	M7RXK-3605K-ND	21.40	187.70	1383.06
36	Au 30µ"	10	TW	M7RXK-3610K-ND	32.05	281.07	2071.02
50	Au 30µ"	5	TW	M7RXK-5005K-ND	27.50	241.11	1776.60
50	Au 30µ"	10	TW	M7RXK-5010K-ND	42.28	370.79	2732.10

Also available in the following configuration:
M7TX□-□□□□K-ND – Female Delta w/ Insert.
M7UX□-□□□□K-ND – Female Delta w/ Bail Lock.
Call for complete part number and pricing!

Male to Male



*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	6	MC	M7KKK-1406R-ND	19.54	171.31	1262.31
14	Au 30µ"	6	GR	M7KKK-1406J-ND	18.16	159.26	1173.52
14	Au 30µ"	10	MC	M7KKK-1410R-ND	22.51	197.36	1454.25
14	Au 30µ"	10	GR	M7KKK-1410J-ND	20.22	177.28	1306.27
24	Au 30µ"	6	MC	M7KKK-2406R-ND	25.32	222.02	1635.90
24	Au 30µ"	6	GR	M7KKK-2406J-ND	22.96	201.37	1483.78
24	Au 30µ"	10	MC	M7KKK-2410R-ND	30.41	266.67	1964.90
24	Au 30µ"	10	GR	M7KKK-2410J-ND	26.49	232.26	1711.36
36	Au 30µ"	6	MC	M7KKK-3606R-ND	33.29	291.93	2151.03
36	Au 30µ"	6	GR	M7KKK-3606J-ND	29.66	260.10	1916.50
36	Au 30µ"	10	MC	M7KKK-3610R-ND	41.14	360.76	2658.25
36	Au 30µ"	10	GR	M7KKK-3610J-ND	35.09	307.71	2267.37
50	Au 30µ"	6	MC	M7KKK-5006R-ND	41.32	362.38	2670.19
50	Au 30µ"	6	GR	M7KKK-5006J-ND	36.42	319.39	2353.39
50	Au 30µ"	10	MC	M7KKK-5010R-ND	51.93	455.39	3355.52
50	Au 30µ"	10	GR	M7KKK-5010J-ND	43.76	383.73	2827.51

Also available in the following configuration:
M7LL□-□□□□□-ND – Double Ended Male Delta w/ Insert.
M7QQ□-□□□□□-ND – Double Ended Male Delta w/ Bail Lock.
Call for complete part number and pricing!

Male to Male

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	5	TW	M7KKK-1405K-ND	19.22	168.55	1241.94
14	Au 30µ"	10	TW	M7KKK-1410K-ND	23.36	204.86	1509.48
36	Au 30µ"	5	TW	M7KKK-3605K-ND	32.16	282.04	2078.16
36	Au 30µ"	10	TW	M7KKK-3610K-ND	42.81	375.40	2766.12
50	Au 30µ"	5	TW	M7KKK-5005K-ND	40.20	352.55	2597.70
50	Au 30µ"	10	TW	M7KKK-5010K-ND	54.99	482.22	3553.20

Also available in the following configuration:
M7LL☐-☐☐☐☐K-ND – Double Ended Male Delta w/ Insert.
M7QQ☐-☐☐☐☐K-ND – Double Ended Male Delta w/ Bail Lock.
Call for complete part number and pricing!

Female to Female

*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	6	MC	M7RRK-1406R-ND	19.54	171.31	1262.31
14	Au 30µ"	6	GR	M7RRK-1406J-ND	18.16	159.26	1173.52
14	Au 30µ"	10	MC	M7RRK-1410R-ND	22.51	197.36	1454.25
14	Au 30µ"	10	GR	M7RRK-1410J-ND	20.22	177.28	1306.27
24	Au 30µ"	6	MC	M7RRK-2406R-ND	25.32	222.02	1635.90
24	Au 30µ"	6	GR	M7RRK-2406J-ND	22.96	201.37	1483.78
24	Au 30µ"	10	MC	M7RRK-2410R-ND	30.41	266.67	1964.90
24	Au 30µ"	10	GR	M7RRK-2410J-ND	26.49	232.26	1711.36
36	Au 30µ"	6	MC	M7RRK-3606R-ND	33.29	291.93	2151.03
36	Au 30µ"	6	GR	M7RRK-3606J-ND	29.66	260.10	1916.50
36	Au 30µ"	10	MC	M7RRK-3610R-ND	41.14	360.76	2658.25
36	Au 30µ"	10	GR	M7RRK-3610J-ND	35.09	307.71	2267.37
50	Au 30µ"	6	MC	M7RRK-5006R-ND	41.32	362.38	2670.19
50	Au 30µ"	6	GR	M7RRK-5006J-ND	36.42	319.39	2353.39
50	Au 30µ"	10	MC	M7RRK-5010R-ND	51.93	455.39	3355.52
50	Au 30µ"	10	GR	M7RRK-5010J-ND	43.76	383.73	2827.51

Also available in the following configuration:
M7TT☐-☐☐☐☐☐-ND – Double Ended Female Delta w/ Insert.
M7UU☐-☐☐☐☐☐-ND – Double Ended Female Delta w/ Bail Lock.
Call for complete part number and pricing!

Female to Female

***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	5	TW	M7RRK-1405K-ND	19.22	168.55	1241.94
14	Au 30µ"	10	TW	M7RRK-1410K-ND	23.36	204.86	1509.48
36	Au 30µ"	5	TW	M7RRK-3605K-ND	32.16	282.04	2078.16
36	Au 30µ"	10	TW	M7RRK-3610K-ND	42.81	375.40	2766.12
50	Au 30µ"	5	TW	M7RRK-5005K-ND	40.20	352.55	2597.70
50	Au 30µ"	10	TW	M7RRK-5010K-ND	54.99	482.22	3553.20

Also available in the following configuration:
M7TT☐-☐☐☐☐K-ND – Double Ended Female Delta w/ Insert.
M7UU☐-☐☐☐☐K-ND – Double Ended Female Delta w/ Bail Lock.
Call for complete part number and pricing!

Male to Female

*MC = 3M Multi-Color, GR = 3M Gray

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	6	MC	M7KRK-1406R-ND	19.54	171.31	1262.31
14	Au 30µ"	6	GR	M7KRK-1406J-ND	18.16	159.26	1173.52
14	Au 30µ"	10	MC	M7KRK-1410R-ND	22.51	197.36	1454.25
14	Au 30µ"	10	GR	M7KRK-1410J-ND	20.22	177.28	1306.27
24	Au 30µ"	6	MC	M7KRK-2406R-ND	25.32	222.02	1635.90
24	Au 30µ"	6	GR	M7KRK-2406J-ND	22.96	201.37	1483.78
24	Au 30µ"	10	MC	M7KRK-2410R-ND	30.41	266.67	1964.90
24	Au 30µ"	10	GR	M7KRK-2410J-ND	26.49	232.26	1711.36
36	Au 30µ"	6	MC	M7KRK-3606R-ND	33.29	291.93	2151.03
36	Au 30µ"	6	GR	M7KRK-3606J-ND	29.66	260.09	1916.46
36	Au 30µ"	10	MC	M7KRK-3610R-ND	41.14	360.76	2658.25
36	Au 30µ"	10	GR	M7KRK-3610J-ND	35.09	307.71	2267.37
50	Au 30µ"	6	MC	M7KRK-5006R-ND	41.32	362.38	2670.19
50	Au 30µ"	6	GR	M7KRK-5006J-ND	36.42	319.39	2353.39
50	Au 30µ"	10	MC	M7KRK-5010R-ND	51.93	455.39	3355.52
50	Au 30µ"	10	GR	M7KRK-5010J-ND	43.76	383.73	2827.51

Also available in the following configuration:
M7LT☐-☐☐☐☐☐-ND – Male Delta/Female Delta w/ Insert.
M7QU☐-☐☐☐☐☐-ND – Male Delta/Female Delta w/ Ball Lock.
Call for complete part number and pricing!

Male to Female

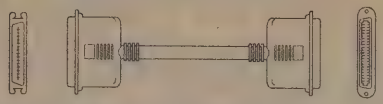
***Twisted Pair Cable Finished Length is Approximate**

No. of Contacts	Conn. Finish	Length (Feet)	Ribbon* Cable	Digi-Key Part No.	Pricing 1	10	100
14	Au 30µ"	5	TW	M7KRK-1405K-ND	19.22	168.55	1241.94
14	Au 30µ"	10	TW	M7KRK-1410K-ND	23.36	204.86	1509.48
36	Au 30µ"	5	TW	M7KRK-3605K-ND	32.16	282.04	2078.16
36	Au 30µ"	10	TW	M7KRK-3610K-ND	42.81	375.40	2766.12
50	Au 30µ"	5	TW	M7KRK-5005K-ND	40.20	352.55	2597.70
50	Au 30µ"	10	TW	M7KRK-5010K-ND	54.99	482.22	3553.20

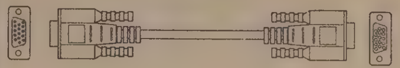
Also available in the following configuration:
M7LT☐-☐☐☐☐K-ND – Male Delta/Female Delta w/ Insert.
M7QU☐-☐☐☐☐K-ND – Male Delta/Female Delta w/ Bail Lock.
Call for complete part number and pricing!

ASSMANN Computer Cable Assemblies

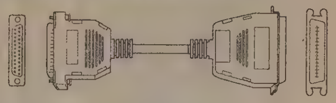
1 — Parallel Extension



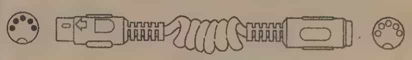
6 — VGA Monitor Extension



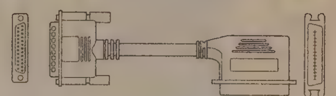
2 — Parallel Printer (Snap Hood)



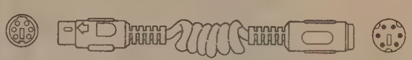
7 — PC/XT/AT Keyboard Extension



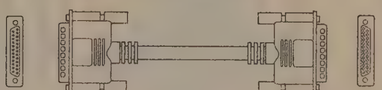
3 — Right Angle Parallel Printer



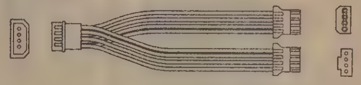
8 — PS/2 Keyboard Extension



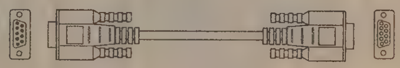
4 — 25 Pin Interface Extension



9 — Disk Drive Power Splitters



5 — 9 Pin Interface Extension



10 — IBM Modem/Adapter

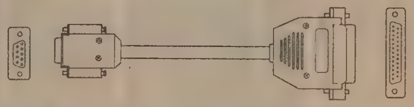


Fig. No.	Length	Lines	Description	Digi-Key Part No.	Pricing					Assmann Part No.
					1	10	25	50	100	
Molded Extension for 36 Pin Centronics Interfaces										
1	2m	36	2x Centronics 36 pin F-F	AE1000-ND	12.38	108.75	243.75	440.63	750.00	AK155-2
1	3m			AE1001-ND	16.50	145.00	325.00	587.50	1000.00	AK434-3
1	2m	36	2x Centronics 36 pin M-M	AE1002-ND	10.73	94.25	211.25	381.88	650.00	AK138-2
1	3m			AE1003-ND	15.02	131.95	295.75	534.63	910.00	AK426-3
1	2m	36	2x Centronics 36 pin M-F	AE1004-ND	11.55	101.50	227.50	411.25	700.00	AK140-2
1	3m			AE1005-ND	15.68	137.75	308.75	558.13	950.00	AK430-3
Parallel Printer Cable, IBM PC & Compatibles										
2	2m	25	DB25M - Centronics 36 Pin Male	AE1006-ND	4.79	42.05	94.25	170.38	290.00	AK101-1.8
2	3m			AE1007-ND	7.99	70.18	157.30	284.35	484.00	AK102-3
3	2m	25	DB25M - Rt Angle Centronics 36 pin Male	AE1008-ND	8.25	72.50	162.50	293.75	500.00	AK525-2
3	2m		DB25M - Lft Angle Centronics 36 pin Male	AE1009-ND	8.25	72.50	162.50	293.75	500.00	AK525-L2
Molded Extension for 25 Pin Interfaces										
4	2m	25	2x D-Sub 25 Pin Male - Male	AE1010-ND	6.93	60.90	136.50	246.75	420.00	AK137-2
4	3m			AE1011-ND	8.58	75.40	169.00	305.50	520.00	AK162-3
4	2m	25	2x D-Sub 25 Pin Male - Female	AE1012-ND	7.06	62.06	139.10	251.45	428.00	AK135-2
4	3m			AE1013-ND	8.58	75.40	169.00	305.50	520.00	AK166-3
4	2m	25	2x D-Sub 25 Pin Female - Female	AE1014-ND	7.23	63.51	142.35	257.33	438.00	AK133-2
4	3m			AE1015-ND	10.03	88.16	197.60	357.20	608.00	AK170-3
Molded Extension for 9 Pin Interfaces										
5	2m	9	2x D-Sub 9 Pin Male - Male	AE1018-ND	5.35	46.98	105.30	190.35	324.00	AK129-2
5	3m			AE1019-ND	6.01	52.78	118.30	213.85	364.00	AK174-3
5	2m	9	2x D-Sub 9 Pin Male - Female	AE1020-ND	5.35	46.98	105.30	190.35	324.00	AK131-2
5	3m			AE1021-ND	6.01	52.78	118.30	213.85	364.00	AK178-3
5	2m	9	2x D-Sub 9 Pin Female - Female	AE1016-ND	5.35	46.98	105.30	190.35	324.00	AK152-2
5	3m			AE1017-ND	6.11	53.65	120.25	217.38	370.00	AK182-3
VGA Monitor Extension Cable - IBM PS/2										
6	2m	15	2x H/D D-Sub 15 Pin Male - Female	AE1022-ND	6.01	52.78	118.30	213.85	364.00	AK322-2
IBM PC-XT/AT Keyboard Extension										
7	2m	5	5 Pin Standard Din Male - Female	AE1023-ND	4.29	37.70	84.50	152.75	260.00	AK306-2
7	5m			AE1024-ND	8.75	76.85	172.25	311.38	530.00	AK307-5
PS/2 Keyboard Extension										
8	2m	6	6 Pin Mini Din Male - Female	AE1025-ND	5.84	51.33	115.05	207.98	354.00	AK323-2
8	5m			AE1026-ND	10.73	94.25	211.25	381.88	650.00	AK528-5
Power Splitter Cables										
9	.2m	4	Power Cable for 2 - 5 1/4" Drives	AE1027-ND	1.98	17.40	39.00	70.50	120.00	AK319-.2
9	.2m	4	Power Cable for 2 - 3 1/2" Drives	AE1028-ND	1.98	17.40	39.00	70.50	120.00	AK520-.2
9	.2m	4	Power Cable for 3 1/2" and 5 1/4" Drives	AE1029-ND	1.98	17.40	39.00	70.50	120.00	AK521-.2
IBM PC/AT Printer Adapter/Modem Cable										
10	2m	9	D-Sub 9 Pin Female - D-Sub 25 Pin Male	AE1030-ND	4.72	41.47	92.95	168.03	286.00	AK125-2

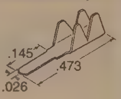
***Note:** All cable assemblies are overall foil shielded. Cable length in meters.*

AMP

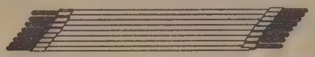
.100 Flat Flex Cable Assemblies

.100 Flat Flex Cable Material: • Conductors: Unplated copper per QQ-C-502 • Insulation: Flame retardant polyester film **Performance Characteristics:** • Current Rating: 2 amperes (28AWG equivalent) • Voltage Rating: 300 volts • Temperature Rating: -20°C to +105°C • Insulation Resistance: 5000 megohms (min.) • Insulation Flammability: Polyester, self-extinguishing per UL Flame Test VW-1

Solder Tab pin



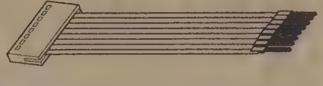
Solder Tab to Solder Tab



No. of Contacts	Length (In.)	Digi-Key Part No.	Pricing 1	10	100
2	2	A9AAT-0202F-ND	.59	4.82	35.49
2	3	A9AAT-0203F-ND	.71	5.76	42.42
2	4	A9AAT-0204F-ND	.82	6.70	49.35
2	5	A9AAT-0205F-ND	.94	7.64	56.28
2	6	A9AAT-0206F-ND	1.05	8.58	63.21
2	8	A9AAT-0208F-ND	1.28	10.43	76.86
3	2	A9AAT-0302F-ND	.76	6.18	45.57
3	3	A9AAT-0303F-ND	.88	7.15	52.71
3	4	A9AAT-0304F-ND	1.00	8.15	60.06
3	5	A9AAT-0305F-ND	1.12	9.15	67.41
3	6	A9AAT-0306F-ND	1.24	10.12	74.55
3	8	A9AAT-0308F-ND	1.49	12.11	89.25
4	2	A9AAT-0402F-ND	.91	7.38	54.39
4	3	A9AAT-0403F-ND	1.03	8.41	61.95
4	4	A9AAT-0404F-ND	1.16	9.43	69.51
4	5	A9AAT-0405F-ND	1.28	10.46	77.07
4	6	A9AAT-0406F-ND	1.41	11.49	84.63
4	8	A9AAT-0408F-ND	1.66	13.54	99.75
5	2	A9AAT-0502F-ND	1.04	8.46	62.37
5	3	A9AAT-0503F-ND	1.17	9.52	70.14
5	4	A9AAT-0504F-ND	1.30	10.57	77.91
5	5	A9AAT-0505F-ND	1.43	11.66	85.89
5	6	A9AAT-0506F-ND	1.56	12.71	93.66
5	8	A9AAT-0508F-ND	1.82	14.85	109.41
6	2	A9AAT-0602F-ND	1.18	9.60	70.77
6	3	A9AAT-0603F-ND	1.32	10.77	79.38
6	4	A9AAT-0604F-ND	1.47	11.97	88.20
6	5	A9AAT-0605F-ND	1.62	13.17	97.02
6	6	A9AAT-0606F-ND	1.76	14.36	105.84
6	8	A9AAT-0608F-ND	2.06	16.76	123.48
8	2	A9AAT-0802F-ND	1.48	12.06	88.83
8	3	A9AAT-0803F-ND	1.66	13.51	99.54
8	4	A9AAT-0804F-ND	1.84	14.99	110.46
8	5	A9AAT-0805F-ND	2.02	16.44	121.17
8	6	A9AAT-0806F-ND	2.20	17.90	131.88
8	8	A9AAT-0808F-ND	2.56	20.83	153.51
9	2	A9AAT-0902F-ND	1.65	13.40	98.70
9	3	A9AAT-0903F-ND	1.87	15.22	112.14
9	4	A9AAT-0904F-ND	2.09	17.04	125.58
9	5	A9AAT-0905F-ND	2.32	18.87	139.02
9	6	A9AAT-0906F-ND	2.54	20.69	152.46
9	8	A9AAT-0908F-ND	2.99	24.34	179.34
10	2	A9AAT-1002F-ND	1.72	14.02	103.32
10	3	A9AAT-1003F-ND	1.95	15.87	116.97
10	4	A9AAT-1004F-ND	2.32	18.87	139.02
10	5	A9AAT-1005F-ND	2.41	19.61	144.48
10	6	A9AAT-1006F-ND	2.64	21.46	158.13
10	8	A9AAT-1008F-ND	3.09	25.17	185.43
11	2	A9AAT-1102F-ND	1.80	14.62	107.73
11	3	A9AAT-1103F-ND	2.03	16.50	121.59
11	4	A9AAT-1104F-ND	2.26	18.41	135.66
11	5	A9AAT-1105F-ND	2.50	20.32	149.73
11	6	A9AAT-1106F-ND	2.73	22.20	163.59
11	8	A9AAT-1108F-ND	3.19	25.99	191.52
12	2	A9AAT-1202F-ND	2.08	16.90	124.53
12	3	A9AAT-1203F-ND	2.39	19.47	143.43
12	4	A9AAT-1204F-ND	2.70	22.00	162.12
12	5	A9AAT-1205F-ND	3.02	24.57	181.02
12	6	A9AAT-1206F-ND	3.33	27.10	199.71
12	8	A9AAT-1208F-ND	3.96	32.21	237.30
13	2	A9AAT-1302F-ND	2.21	17.96	132.30
13	3	A9AAT-1303F-ND	2.52	20.55	151.41
13	4	A9AAT-1304F-ND	2.84	23.14	170.52
13	5	A9AAT-1305F-ND	3.16	25.74	189.63
13	6	A9AAT-1306F-ND	3.48	28.33	208.74
13	8	A9AAT-1308F-ND	4.12	33.52	246.96
14	2	A9AAT-1402F-ND	2.34	19.04	140.28
14	3	A9AAT-1403F-ND	2.66	21.66	159.60
14	4	A9AAT-1404F-ND	2.98	24.28	178.92
14	5	A9AAT-1405F-ND	3.30	26.90	198.24
14	6	A9AAT-1406F-ND	3.63	29.55	217.77
14	8	A9AAT-1408F-ND	4.27	34.80	256.41
15	2	A9AAT-1502F-ND	2.47	20.12	148.26
15	3	A9AAT-1503F-ND	2.80	22.80	168.00
15	4	A9AAT-1504F-ND	3.13	25.48	187.74
15	5	A9AAT-1505F-ND	3.46	28.16	207.48
15	6	A9AAT-1506F-ND	3.79	30.84	227.22
15	8	A9AAT-1508F-ND	4.45	36.20	266.70
16	2	A9AAT-1602F-ND	2.60	21.18	156.03
16	3	A9AAT-1603F-ND	2.93	23.88	175.98
16	4	A9AAT-1604F-ND	3.27	26.62	196.14
16	5	A9AAT-1605F-ND	3.60	29.33	216.09
16	6	A9AAT-1606F-ND	3.93	32.03	236.04
16	8	A9AAT-1608F-ND	4.60	37.48	276.15
18	2	A9AAT-1802F-ND	3.31	26.93	198.45
18	3	A9AAT-1803F-ND	3.87	31.55	232.47
18	4	A9AAT-1804F-ND	4.44	36.17	266.49
18	5	A9AAT-1805F-ND	5.01	40.78	300.51
18	6	A9AAT-1806F-ND	5.58	45.40	334.53
18	8	A9AAT-1808F-ND	6.71	54.61	402.36
20	2	A9AAT-2002F-ND	3.57	29.07	214.20
20	3	A9AAT-2003F-ND	4.15	33.80	249.06
20	4	A9AAT-2004F-ND	4.73	38.50	283.71
20	5	A9AAT-2005F-ND	5.31	43.21	318.36
20	6	A9AAT-2006F-ND	5.88	47.91	353.01
20	8	A9AAT-2008F-ND	7.04	57.34	422.52

Single-Row Receptacle Housing to Solder Tab

Mates with single row .025 square pin, .100 headers.



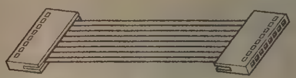
Housing Contacts — Material and Finish: Phosphor bronze; plated gold duplex or bright tin-lead overall. Duplex plated .015μ gold or .030μ gold on mating area. A9BAG – □□□□F-ND = .015μ gold, A9BAA – □□□□F-ND = .030μ gold.

No. of Contacts	Length (In.)	Digi-Key Part No.	Pricing 1	10	100
2	2	A9BAG-0202F-ND	1.62	13.17	97.02
2	3	A9BAG-0203F-ND	1.67	13.62	100.38
2	4	A9BAG-0204F-ND	1.73	14.11	103.95
2	5	A9BAG-0205F-ND	1.79	14.56	107.31
2	6	A9BAG-0206F-ND	1.85	15.05	110.88
2	8	A9BAG-0208F-ND	1.96	15.96	117.60
3	2	A9BAG-0302F-ND	1.87	15.25	112.35
3	3	A9BAG-0303F-ND	1.93	15.73	115.92
3	4	A9BAG-0304F-ND	1.99	16.22	119.49
3	5	A9BAG-0305F-ND	2.05	16.70	123.06
3	6	A9BAG-0306F-ND	2.11	17.21	126.84
3	8	A9BAG-0308F-ND	2.23	18.18	133.98
4	2	A9BAG-0402F-ND	2.12	17.24	127.05
4	3	A9BAG-0403F-ND	2.18	17.76	130.83
4	4	A9BAG-0404F-ND	2.24	18.27	134.61
4	5	A9BAG-0405F-ND	2.31	18.78	138.39
4	6	A9BAG-0406F-ND	2.37	19.29	142.17
4	8	A9BAG-0408F-ND	2.50	20.32	149.73
5	2	A9BAG-0502F-ND	2.36	19.18	141.33
5	3	A9BAG-0503F-ND	2.42	19.69	145.11
5	4	A9BAG-0504F-ND	2.49	20.24	149.10
5	5	A9BAG-0505F-ND	2.55	20.78	153.09
5	6	A9BAG-0506F-ND	2.61	21.29	156.87
5	8	A9BAG-0508F-ND	2.75	22.37	164.85
6	2	A9BAG-0602F-ND	2.59	21.12	155.61
6	3	A9BAG-0603F-ND	2.67	21.72	160.02
6	4	A9BAG-0604F-ND	2.74	22.32	164.43
6	5	A9BAG-0605F-ND	2.81	22.91	168.84
6	6	A9BAG-0606F-ND	2.89	23.51	173.25
6	8	A9BAG-0608F-ND	3.03	24.71	182.07
8	2	A9BAG-0802F-ND	3.09	25.14	185.22
8	3	A9BAG-0803F-ND	3.18	25.88	190.68
8	4	A9BAG-0804F-ND	3.27	26.59	195.93
8	5	A9BAG-0805F-ND	3.36	27.33	201.39
8	6	A9BAG-0806F-ND	3.45	28.07	206.85
8	8	A9BAG-0808F-ND	3.63	29.53	217.56
9	2	A9BAG-0902F-ND	3.35	27.30	201.18
9	3	A9BAG-0903F-ND	3.47	28.22	207.90
9	4	A9BAG-0904F-ND	3.58	29.13	214.62
9	5	A9BAG-0905F-ND	3.69	30.04	221.34
9	6	A9BAG-0906F-ND	3.80	30.95	228.06
9	8	A9BAG-0908F-ND	4.03	32.78	241.50
10	2	A9BAG-1002F-ND	3.56	28.98	213.57
10	3	A9BAG-1003F-ND	3.68	29.93	220.50
10	4	A9BAG-1004F-ND	3.79	30.87	227.43
10	5	A9BAG-1005F-ND	3.90	31.78	234.15
10	6	A9BAG-1006F-ND	4.02	32.72	241.08
10	8	A9BAG-1008F-ND	4.25	34.57	254.73
11	2	A9BAG-1102F-ND	3.77	30.69	226.17
11	3	A9BAG-1103F-ND	3.89	31.64	233.10
11	4	A9BAG-1104F-ND	4.00	32.60	240.24
11	5	A9BAG-1105F-ND	4.12	33.54	247.17
11	6	A9BAG-1106F-ND	4.24	34.49	254.10
11	8	A9BAG-1108F-ND	4.47	36.39	268.17
12	2	A9BAG-1202F-ND	4.10	33.40	246.12
12	3	A9BAG-1203F-ND	4.26	34.66	255.36
12	4	A9BAG-1204F-ND	4.41	35.94	264.81
12	5	A9BAG-1205F-ND	4.57	37.22	274.26
12	6	A9BAG-1206F-ND	4.73	38.50	283.71
12	8	A9BAG-1208F-ND	5.04	41.04	302.40
13	2	A9BAG-1302F-ND	4.34	35.34	260.40
13	3	A9BAG-1303F-ND	4.50	36.62	269.85
13	4	A9BAG-1304F-ND	4.66	37.93	279.51
13	5	A9BAG-1305F-ND	4.82	39.22	288.96
13	6	A9BAG-1306F-ND	4.98	40.53	298.62
13	8	A9BAG-1308F-ND	5.30	43.12	317.73
14	2	A9BAG-1402F-ND	4.57	37.25	274.47
14	3	A9BAG-1403F-ND	4.74	38.56	284.13
14	4	A9BAG-1404F-ND	4.90	39.90	294.00
14	5	A9BAG-1405F-ND	5.06	41.21	303.66
14	6	A9BAG-1406F-ND	5.22	42.52	313.32
14	8	A9BAG-1408F-ND	5.54	45.14	332.64
15	2	A9BAG-1502F-ND	5.00	40.73	300.09
15	3	A9BAG-1503F-ND	5.17	42.07	309.96
15	4	A9BAG-1504F-ND	5.33	43.41	319.83
15	5	A9BAG-1505F-ND	5.50	44.75	329.70
15	6	A9BAG-1506F-ND	5.66	46.08	339.57
15	8	A9BAG-1508F-ND	5.99	48.76	359.31
16	2	A9BAG-1602F-ND	5.31	43.21	318.36
16	3	A9BAG-1603F-ND	5.47	44.55	328.23
16	4	A9BAG-1604F-ND	5.64	45.91	338.31
16	5	A9BAG-1605F-ND	5.81	47.28	348.39
16	6	A9BAG-1606F-ND	5.97	48.62	358.26
16	8	A9BAG-1608F-ND	6.31	51.36	378.42
18	2	A9BAG-1802F-ND	6.14	49.96	368.13
18	3	A9BAG-1803F-ND	6.42	52.27	385.14
18	4	A9BAG-1804F-ND	6.70	54.58	402.15
18	5	A9BAG-1805F-ND	6.99	56.89	419.16
18	6	A9BAG-1806F-ND	7.27	59.19	436.17
18	8	A9BAG-1808F-ND	7.84	63.81	470.19
20	2	A9BAG-2002F-ND	6.74	54.92	404.67
20	3	A9BAG-2003F-ND	7.04	57.29	422.10
20	4	A9BAG-2004F-ND	7.33	59.65	439.53
20	5	A9BAG-2005F-ND	7.61	61.99	456.75
20	6	A9BAG-2006F-ND	7.90	64.35	474.18
20	8	A9BAG-2008F-ND	8.48	69.06	508.83

Also available in .030μ Gold, A9BAA – □□□□F-ND
Call for complete part number and pricing.

Single-Row Receptacle Housing to Single-Row Receptacle Housing

Mates with single row .025 square pin, .100 headers.



Plain Style Housing — Material: Black thermoplastic, flame retardant, 94V-0 rated. Duplex plated contacts. A9BBG – □□□□F-ND = .015μ gold, A9BBA – □□□□F-ND = .030μ gold

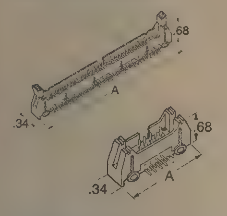
No. of Contacts	Length (In.)	Digi-Key Part No.	Pricing 1	10	100
2	2	A9BBG-0202F-ND	2.75	22.43	165.27
2	3	A9BBG-0203F-ND	2.81	22.91	168.84
2	4	A9BBG-0204F-ND	2.87	23.37	172.20
2	5	A9BBG-0205F-ND	2.93	23.85	175.77
2	6	A9BBG-0206F-ND	2.99	24.31	179.13
2	8	A9BBG-0208F-ND	3.10	25.25	186.06
3	2	A9BBG-0302F-ND	3.10	25.28	186.27
3	3	A9BBG-0303F-ND	3.16	25.76	189.84
3	4	A9BBG-0304F-ND	3.23	26.28	193.62
3	5	A9BBG-0305F-ND	3.29	26.76	197.19
3	6	A9BBG-0306F-ND	3.35	27.25	200.76
3	8	A9BBG-0308F-ND	3.47	28.24	208.11
4	2	A9BBG-0402F-ND	3.46	28.16	207.48
4	3	A9BBG-0403F-ND	3.52	28.67	211.26
4	4	A9BBG-0404F-ND	3.58	29.18	215.04
4	5	A9BBG-0405F-ND	3.65	29.70	218.82
4	6	A9BBG-0406F-ND	3.71	30.21	222.60
4	8	A9BBG-0408F-ND	3.84	31.24	230.16
5	2	A9BBG-0502F-ND	3.80	30.95	228.06
5	3	A9BBG-0503F-ND	3.87	31.49	232.05
5	4	A9BBG-0504F-ND	3.93	32.01	235.83
5	5	A9BBG-0505F-ND	4.00	32.55	239.82
5	6	A9BBG-0506F-ND	4.06	33.09	243.81
5	8	A9BBG-0508F-ND	4.19	34.14	251.58
6	2	A9BBG-0602F-ND	4.15	33.83	249.27
6	3	A9BBG-0603F-ND	4.23	34.43	253.68
6	4	A9BBG-0604F-ND	4.30	35.03	258.09
6	5	A9BBG-0605F-ND	4.38	35.63	262.50
6	6	A9BBG-0606F-ND	4.45	36.22	266.91
6	8	A9BBG-0608F-ND	4.60	37.42	275.73
8	2	A9BBG-0802F-ND	4.88	39.70	292.53
8	3	A9BBG-0803F-ND	4.96	40.41	297.78
8	4	A9BBG-0804F-ND	5.05	41.15	303.24
8	5	A9BBG-0805F-ND	5.15	41.90	308.70
8	6	A9BBG-0806F-ND	5.23	42.61	313.95
8	8	A9BBG-0808F-ND	5.41	44.06	324.66
9	2	A9BBG-0902F-ND	5.28	43.01	316.89
9	3	A9BBG-0903F-ND	5.39	43.92	323.61
9	4	A9BBG-0904F-ND	5.51	44.83	330.33
9	5	A9BBG-0905F-ND	5.62	45.74	337.05
9	6	A9BBG-0906F-ND	5.73	46.65	343.77
9	8	A9BBG-0908F-ND	5.95	48.48	357.21
10	2	A9BBG-1002F-ND	5.63	45.83	337.68
10	3	A9BBG-1003F-ND	5.74	46.77	344.61
10	4	A9BBG-1004F-ND	5.86	47.71	351.54
10	5	A9BBG-1005F-ND	5.97	48.62	358.26
10	6	A9BBG-1006F-ND	6.09	49.56	365.19
10	8	A9BBG-1008F-ND	6.31	51.41	378.84
11	2	A9BBG-1102F-ND	5.98	48.68	358.68
11	3	A9BBG-1103F-ND	6.09	49.62	365.61
11	4	A9BBG-1104F-ND	6.21	50.56	372.54
11	5	A9BBG-1105F-ND	6.33	51.53	379.68
11	6	A9BBG-1106F-ND	6.44	52.47	386.61
11	8	A9BBG-1108F-ND	6.68	54.38	400.68
12	2	A9BBG-1202F-ND	6.44	52.44	386.40
12	3	A9BBG-1203F-ND	6.59	53.69	395.64
12	4	A9BBG-1204F-ND	6.75	54.98	405.09
12	5	A9BBG-1205F-ND	6.91	56.26	414.54
12	6	A9BBG-1206F-ND	7.07	57.54	423.99
12	8	A9BBG-1208F-ND	7.38	60.08	442.68
13	2	A9BBG-1302F-ND	6.79	55.29	407.40
13	3	A9BBG-1303F-ND	6.95	56.60	417.06
13	4	A9BBG-1304F-ND	7.11	57.88	426.51
13	5	A9BBG-1305F-ND	7.27	59.19	436.17
13	6	A9BBG-1306F-ND	7.43	60.48	445.62
13	8	A9BBG-1308F-ND	7.75	63.07	464.73
14	2	A9BBG-1402F-ND	7.14	58.11	428.19
14	3	A9BBG-1403F-ND	7.30	59.42	437.85
14	4	A9BBG-1404F-ND	7.46	60.76	447.72
14	5	A9BBG-1405F-ND	7.62	62.07	457.38
14	6	A9BBG-1406F-ND	7.78	63.38	467.04
14	8	A9BBG-1408F-ND	8.11	66.01	486.36
15	2	A9BBG-1502F-ND	7.86	64.01	471.66
15	3	A9BBG-1503F-ND	8.03	65.35	481.53
15	4	A9BBG-1504F-ND	8.19	66.69	491.40
15	5	A9BBG-1505F-ND	8.35	68.03	501.27
15	6	A9BBG-1506F-ND	8.52	69.37	511.14
15	8	A9BBG-1508F-ND	8.85	72.05	530.88
16	2	A9BBG-1602F-ND	8.34	67.94	500.64
16	3	A9BBG-1603F-ND	8.51	69.31	510.72
16	4	A9BBG-1604F-ND	8.68	70.65	520.59
16	5	A9BBG-1605F-ND	8.84	72.02	530.67
16	6	A9BBG-1606F-ND	9.01	73.39	540 75
16	8	A9BBG-1608F-ND	9.35	76.10	560.70
18	2	A9BBG-1802F-ND	9.53	77.61	571.83
18	3	A9BBG-1803F-ND	9.81	79.91	588.84
18	4	A9BBG-1804F-ND	10.10	82.22	605.85
18	5	A9BBG-1805F-ND	10.38	84.53	622.86
18	6	A9BBG-1806F-ND	10.66	86.84	639.87
18	8	A9BBG-1808F-ND	11.23	91.46	673.89
20	2	A9BBG-2002F-ND	10.50	85.50	630.00
20	3	A9BBG-2003F-ND	10.79	87.84	647.22
20	4	A9BBG-2004F-ND	11.08	90.20	664.65
20	5	A9BBG-2005F-ND	11.37	92.57	682.08
20	6	A9BBG-2006F-ND	11.66	94.91	699.30
20	8	A9BBG-2008F-ND	12.23	99.61	733.95

Also available in .030μ Gold, A9BBA – □□□□F-ND
Call for complete part number and pricing.

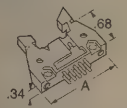
3M Latch/Eject Headers .100" x .100"

Four-wall shrouded housing to protect against physical and chemical pin damage. *Order optional ejector latches separately below.*

Right Angle Headers



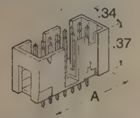
Straight Header



No. of Contacts	Dim. A	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Right Angle						
10	1 26	MHR10K-ND	1.54	116.92	529.10	3793-5002
14	1.46	MHR14K-ND	1.71	129.56	586.30	3314-5002
16	1.56	MHR16K-ND	1.77	134.30	607.75	3408-5002
20	1.76	MHR20K-ND	1.98	150.10	679.25	3428-5002
24	1.96	MHR24K-ND	2.18	165.90	750.75	3627-5002
26	2.06	MHR26K-ND	2.33	176.96	800.80	3429-5002
30	2.26	MHR30K-ND	2.68	203.82	922.35	3440-5002
34	2.46	MHR34K-ND	3.02	229.10	1036.75	3431-5002
40	2.76	MHR40K-ND	3.45	262.28	1186.90	3432-5002
50	3.26	MHR50K-ND	4.16	316.00	1430 00	3433-5002
60	3.76	MHR60K-ND	5.12	388.68	1758.90	3372-5002
Straight						
10	1.26	MHS10K-ND	1.54	116.92	529.10	3793-6003
14	1.46	MHS14K-ND	1.71	129.56	586.30	3314-6002
16	1.56	MHS16K-ND	1.77	134.30	607.75	3408-6002
20	1.76	MHS20K-ND	1.89	143.78	650.65	3428-6002
24	1.96	MHS24K-ND	2.18	165.90	750.75	3627-6002
26	2.06	MHS26K-ND	2.33	176.96	800.80	3429-6002
30	2.26	MHS30K-ND	2.68	203.82	922.35	3440-6002
34	2.46	MHS34K-ND	3.02	229.10	1036.75	3431-6002
40	2.76	MHS40K-ND	3.45	262.28	1186.90	3432-6002
50	3.26	MHS50K-ND	4.16	316.00	1430.00	3433-6002
60	3.76	MHS60K-ND	5.12	388.68	1758.90	3372-6002
Optional Ejector Latches for Connectors						
Short		MLKS01-ND*	.21/2	7.90	35.75	3505-2
Long		MLKS02-ND†	.21/2	7.90	35.75	3505-3

* Use without strain relief; † Use with strain relief

3M Low Profile Headers (Protected Headers)



Physical Specifications: Insulation: • Material: Glass filled Polyester (PBT) • Flammability: UL94V-0 • Color: Gray • Marking: 3M logo and Orientation Triangle **Contact:** • Material: Phosphor Bronze (C510) **Plating:** • Underplate: 100µ" Nickel--QQ-N-290, Class 2 • Wiping Area: Gold--MIL-G-45204, Type II, Grade C • Solder Tails: 200µ" 60/40 Tin Lead--MIL-P-81728 • Wrap Tails: Gold Flash

Electrical Specifications: • Current Rating: 2A • Insulation Resistance: >1x10⁸Ω @ 500Vdc • Withstanding voltage: 1000Vrms at Sea Level

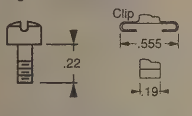
Environmental Specification:
• Temperature Rating: -55°C to +105°C

UL File No.: E68080
CSA File No.: LR 40971

No. of Contacts	Dim. A	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Straight Solder Tail						
10	0.79	MHB10K-ND	1.33	101.12	457.60	2510-6002UB
14	0.99	MHB14K-ND	1.37	104.28	471.90	2514-6002UB
16	1.09	MHB16K-ND	1.54	116.92	529.10	2516-6002UB
20	1.29	MHB20K-ND	1.60	121.66	550.55	2520-6002UB
24	1.49	MHB24K-ND	1.68	127.98	579.15	2524-6002UB
26	1.59	MHB26K-ND	1.71	129.56	586.30	2526-6002UB
30	1.79	MHB30K-ND	1.98	150.10	679.25	2530-6002UB
34	1.99	MHB34K-ND	2.06	156.42	707.85	2534-6002UB
40	2.29	MHB40K-ND	2.20	167.48	757.90	2540-6002UB
50	2.79	MHB50K-ND	2.72	206.98	936.65	2550-6002UB
60	3.29	MHB60K-ND	3.27	248.06	1122.55	2560-6002UB
Right Angle Solder Tail						
10	0.79	MHD10K-ND	1.48	112.18	507.65	2510-5002UB
14	0.99	MHD14K-ND	1.52	115.34	521.95	2514-5002UB
16	1.09	MHD16K-ND	1.68	127.98	579.15	2516-5002UB
20	1.29	MHD20K-ND	1.77	134.30	607.75	2520-5002UB
24	1.49	MHD24K-ND	1.85	140.62	636.35	2524-5002UB
26	1.59	MHD26K-ND	1.87	142.20	643.50	2526-5002UB
30	1.79	MHD30K-ND	2.54	192.76	872.30	2530-5002UB
34	1.99	MHD34K-ND	2.25	170.64	772.20	2534-5002UB
40	2.29	MHD40K-ND	2.41	183.28	829.40	2540-5002UB
50	2.79	MHD50K-ND	3.00	227.52	1029.60	2550-5002UB
60	3.29	MHD60K-ND	3.60	273.34	1236.95	2560-5002UB

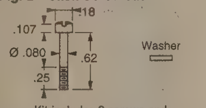
3M D-Sub Mounting Hardware

Fig. 1 – Jack Screw Kit



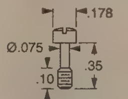
Kit includes 2 screws and 2 clips.

Fig. 2 – Jack Screw Kit



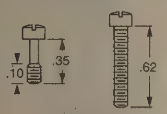
Kit includes 2 screws and 2 flat washers.

Fig. 3 – Jack Screw Kit



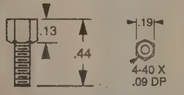
Kit includes 2 screws.

Fig. 4 – Screw Mount Kit



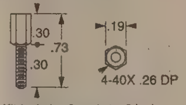
Kit includes 2 screws.

Fig. 5 – Jack Socket Kit



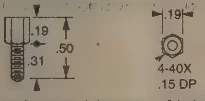
Kit includes 2 sockets, 4 flat washers, 2 lock washers, and 2 nuts.

Fig. 6 – Jack Socket Kit



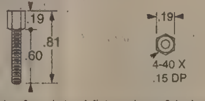
Kit includes 2 sockets, 2 lock washers, and 2 nuts.

Fig. 7 – Jack Socket Kit



Kit includes 2 sockets, 4 flat washers, 2 lock washers, and 2 nuts.

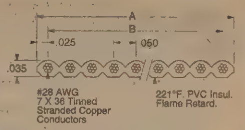
Fig. 8 – Jack Socket Kit



Kit includes 2 sockets, 4 flat washers, 2 lock washers, and 2 nuts.

Fig. No.	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
1	MDVS22-ND	1.00	75.84	343.20	3342-1
2	MDVS62-ND	1.04	79.00	357.50	3342-2
3	MDVS35-ND	.71	53.72	243.10	3342-4
4	MDSMK1-ND	.79	60.04	271.70	3342-3
5	MDVS44-ND	1.77	134.30	607.75	3341-1S
6	MDVS73-ND	1.60	121.66	550.55	3341-2
7	MDVS50-ND	1.77	134.30	607.75	3341-1L
8	MDVS81-ND	1.85	140.62	636.35	3341-4

3M Gray Flat Cable 3365 Series



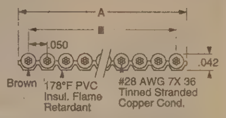
PHYSICAL: • Insulation Material: Polyvinyl Chloride (PVC) • Flammability Rating: UL VW-1 • Color: Gray • Marking: Red Edge • Conductors: 28 AWG 7x36 Tinned Stranded Copper **ELECTRICAL:** • Voltage Rating: 300 V • Insulation Resistance: >1 x 10^{10}Ω/ 10 ft. **ENVIRONMENTAL:** • Temperature Rating: -4°F to +221°F (-20°C to +105°C)

No. of Contacts	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll *Price Per Roll 5 ft.	10 ft.	25 ft.	50 ft.	100 ft.	300 ft.
10	MC10G-X-ND	1.98	3.67	8.18	14.11	22.57	67.72
14	MC14G-X-ND	2.77	5.14	11.46	19.75	31.61	94.82
16	MC16G-X-ND	3.16	5.87	13 09	22.58	36.12	108 36
20	MC20G-X-ND	3.95	7.34	16.37	28.23	45.16	135.48
24	MC24G-X-ND	4.74	8.81	19.64	33.87	54.19	162.56
26	MC26G-X-ND	5.14	9.54	21.28	36.69	58.70	176.12
34	MC34G-X-ND	6.72	12.47	27.83	47.98	76.77	230.30
37	MC37G-X-ND	7.31	13.58	30.28	52.21	83.54	250.62
40	MC40G-X-ND	7.90	14.68	32.74	56.45	90.31	270.94
50	MC50G-X-ND	9.88	18.34	40.92	70.55	112.89	338.66
60	MC60G-X-ND	11.85	22.01	49.11	84.67	135.47	406.40
64	MC64G-X-ND	12.64	23.48	52.38	90.31	144.50	433.50

(Note: Dimensions are in Inches.)

No. of Cond.	Dim. "A"	Dim. "B"
10	.500 ± 010	.450 ± .007
14	.700 ± .010	.650 ± .007
16	.800 ± .010	.750 ± .011
20	1 000 ± 015	.950 ± .011
24	1.200 ± .015	1.150 ± .011
26	1.300 ± .015	1.250 ± .011
34	1.700 ± .020	1.650 ± .015
37	1.850 ± .020	1.800 ± .015
40	2.000 ± .020	1.950 ± .015
50	2.500 ± .020	2.450 ± .015
60	3.000 ± .020	2.950 ± .015
64	3.200 ± .020	3.150 ± .015

Color Coded Flat Cable 3302 Series



PHYSICAL: • Insulation Material: Polyvinyl Chloride (PVC) • Flammability Rating: UL VW-1 • Color: 10 Color Repeat, Clear Carrier • Conductors: 28 AWG 7 x 36 Tinned Stranded Copper **ELECTRICAL:** • Voltage Rating: 300 V • Insulation Resistance: > 1 x 10^{9}Ω/ 10 ft. **ENVIRONMENTAL:** • Temperature Rating: -4°F to +176°F (-20°C to +80°C)

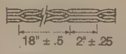
No. of Contacts	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll *Price Per Roll 5 ft.	10 ft.	25 ft.	50 ft.	100 ft.	300 ft.
10	MC10M-X-ND	3.06	5.67	12.66	21.83	34.92	104.76
14	MC14M-X-ND	4.28	7.95	17.73	30.56	48.90	146.70
16	MC16M-X-ND	4.89	9.08	20.27	34.94	55.91	167.72
20	MC20M-X-ND	6.11	11.35	25.32	43.65	69.84	209.52
24	MC24M-X-ND	7.33	13.62	30.38	52.39	83.82	251.46
26	MC26M-X-ND	7.95	14.76	32.92	56.75	90.81	272.42
34	MC34M-X-ND	10.39	19.29	43.03	74.20	118.71	356.14
37	MC37M-X-ND	11.31	21.00	46.84	80.76	129.22	387.66
40	MC40M-X-ND	12.22	22.70	50.63	87.30	139.68	419.04
50	MC50M-X-ND	15.28	28.37	63.29	109.12	174.59	523.78
60	MC60M-X-ND	18.33	34.05	75.95	130.95	209.52	628.56
64	MC64M-X-ND	19.55	36.31	81.01	139.67	223.47	670.42

(Note: Dimensions are in Inches.)

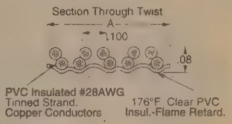
No. of Cond.	Dim. "A"	Dim. "B"
10	.500 ± .015	.450 ± .010
14	.700 ± .015	.650 ± .010
16	.800 ± .020	.750 ± .015
20	1.000 ± .020	.950 ± .015
24	1.200 ± .020	1.150 ± .015
26	1.300 ± .020	1.250 ± .015
34	1.700 ± .025	1.650 ± .020
37	1.850 ± .025	1.800 ± .020
40	2.000 ± .025	1.950 ± .020
50	2.500 ± .025	2.450 ± .020
60	3.000 ± .025	2.950 ± .020
64	3.200 ± .025	3.150 ± .020

Twisted Pair Flat Cable 1700 Series

PHYSICAL: • Insulation Material: Polyvinyl Chloride (PVC) • Flammability Rating: UL VW-1 **ELECTRICAL:** • Voltage Rating: • 300 V • Insulation Resistance: >1 x 10^{9}Ω/ 10ft. **ENVIRONMENTAL:** • Temperature Rating: -4°F to +176°F (-20°C to +80°C)



Standard product has alt. 18" twisted sections and 2" flat sections.



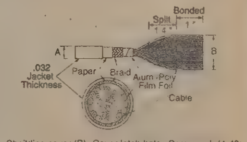
No. of Contacts	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll *Price Per Roll 5 ft.	10 ft.	25 ft.	50 ft.	100 ft.†
10	MC10F-X-ND	2.45	4.55	10.15	17.50	28.00
14	MC14F-X-ND	3.43	6.37	14.21	24.50	39 20
16	MC16F-X-ND	3.92	7.84	16.24	28.00	44.80
20	MC20F-X-ND	4.90	9.10	20.30	35.00	56.00
26	MC26F-X-ND	6.37	11.83	26.39	45.50	72.80
34	MC34F-X-ND	8.33	15.47	34.51	59.50	95.20
36	MC36F-X-ND	8.82	16.38	36.54	63.00	100.80
40	MC40F-X-ND	9.80	18.20	40.60	70.00	112.00
50	MC50F-X-ND	12.25	22.75	50.75	87.50	140.00
60	MC60F-X-ND	14.70	27.30	60.90	105.00	168.00
64	MC64F-X-ND	15.68	29.12	64.96	112.00	179.20

† If ordered in full reel size, may contain a splice. Comes in unreel box.

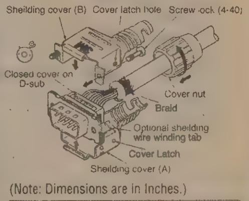
(Note: Dimensions are in Inches.)

No. of Cond.	Dim. "A"	Dim. "B"
10	.50	.450 ± .010
14	.70	.650 ± 010
16	.80	.750 ± .015
20	1.00	.950 ± .015
26	1.30	1 250 ± .015
34	1.70	1.650 ± .020
36	1.80	1.750 ± .020
40	2.00	1.950 ± .020
50	2.50	2.450 ± .020
60	3.00	2.950 ± .020
64	3.20	3.150 ± .020

Round Jacketed / Shielded Flat Cable 3659 Series



Physical: • Insulation Material: Polyvinyl Chloride (PVC) • Flammability Rating: UL VW-1 • Color: Black • Inner Cable: Scotchflex Product No. 3365; 28 AWG 7 x 36 Conductors; UL Style: 2651 • Shielding: 0.001 and 90% Optical Coverage Tinned Copper Braid **Electrical:** • Volt. Rating 150 V • Insulation Resistance: > 1 x 10^{10}Ω/ 10 ft. (3m) **Environmental:** • Temperature Rating: -4°F to +176°F (-20°C to +80°C)



No. of Cont.	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll *Price Per Roll 5 ft.	10 ft.	25 ft.	50 ft.	100 ft.
15	MC15R-X-ND	11.21	20.81	46.42	80.04	128.06
20	MC20R-X-ND	12.07	22.41	49.99	86.19	137.90
24	MC24R-X-ND	13.57	25.21	56.23	96.95	155.12
25	MC25R-X-ND	13.33	24.76	55.23	95.23	152.36
26	MC26R-X-ND	13.79	25.61	57.13	98.50	157.60
34	MC34R-X-ND	15.51	28.81	64.27	110.81	177.30
36	MC36R-X-ND	15.95	29.61	66.06	113.90	182.24
37	MC37R-X-ND	16.37	30.41	67.84	116.96	187.14
40	MC40R-X-ND	16.81	31.21	69.63	120.05	192.08
50	MC50R-X-ND	19.39	36.01	80.34	138.51	221.62
60	MC60R-X-ND	21.74	40.37	90.06	155.28	248.44
64	MC64R-X-ND	22.84	42.42	94 62	163.14	261.02

No. of Contacts	Digi-Key Part No.	Pricing 1	100	500	1000	3M Part No.
D-Sub Backshells						
9	MDBS09-ND	2.77	210.14	950.95	1729.00	3357-9209
15	MDBS15-ND	4.26	323.90	1465.75	2665.00	3357-9215
25	MDBS25-ND	4.58	347.60	1573.00	2860.00	3357-9225
37	MDBS37-ND	6.45	489.80	2216.50	4030.00	3357-9237
50	MDBS50-ND	10.77	818.44	3703.70	6734.00	3357-9250

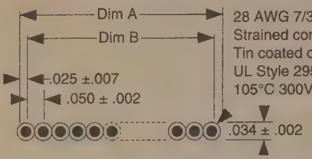
(Note: Dimensions are in Inches.)

No. of Cond.	Dim. "A"	Dim. "B"
15	.29	.700
20	.30	.950
24	.35	1.150
25	.35	1.200
26	.35	1.250
34	.39	1.650
36	.41	1.750
37	.41	1.800
40	.41	1.950
50	.50	2.450
60	.53	2.950
64	.54	3.150

OKI ELECTRIC CO., LTD.

Ribbon Cable

Physical Specifications (Dimensions)



Conductors	Dim. "A"	Dim. "B"
10	0.500±.010	0.450±.007
14	0.700±.010	0.650±.007
16	0.800±.015	0.750±.011
20	1.000±.015	0.950±.011
24	1.200±.015	1.150±.011
26	1.300±.015	1.250±.011
34	1.700±.020	1.650±.015
36	1.800±.020	1.750±.015
40	2.000±.020	1.950±.015
50	2.500±.020	2.450±.015
60	3.000±.020	2.950±.015
64	3.200±.020	3.150±.015

FLAT CABLE SPECIFICATIONS

Insulation Material: PVC, UL VW-1. **Capacitance pf1ft.:** 12.6. **Color:** Color-coded is standard 10 color repeat (brown, red, orange, yellow, green, blue, purple, gray, white, black). Gray has single-edge strip for pin one orientation. **Inductance µH/ft.:** 20. **Edge Marking:** None. **Propagation Delay ns1ft.:** 1.4. **Center Spacing in (mm):** .050 (1.27). **Insulation Resistance:** $1x10^{10}$ ohms 110 ft. 10f (3 m) sample used, measured at 500 V. **Conductor:** Stranded copper, tinned. **Rise Time ns:** 3. **Conductor Size:** #28 AWG 7x36. **Voltage Rating:** 300 V RMS. **Impedance, ohms:** 100. Impedance, capacitance, inductance, and propagation delay were measured Ground-Signal-Ground on a time-domain reflectometer. **Temperature Rating:** -.20 to + 105°C. .Maximum storage temperature for unterminated bulk cable is 120°F (50°C). **UL Style Number:** 2651.

Multi-Color Ribbon Cable

With Standard 10 Color Repeat Sequence

No. of Con-tacts	(Note: "X" in Digi-Key Part No. Represents No. of Feet) Digi-Key Part No.	Pricing 5	10	25	50	100	200
9	R012-X-ND	1.13	2.02	4.88	9.42	17.44	29.99
10	R000-X-ND	1.27	2.26	5.46	10.53	19.50	33.54
14	R001-X-ND	1.78	3.18	7.67	14.78	27.38	47.09
16	R002-X-ND	2.03	3.63	8.75	16.88	31.25	53.75
20	R003-X-ND	2.54	4.54	10.96	21.13	39.13	67.30
24	R004-X-ND	3.06	5.45	13.16	25.38	47.00	80.84
25	R011-X-ND	3.19	5.69	13.74	26.49	49.06	84.39
26	R005-X-ND	3.30	5.89	14.23	27.44	50.81	87.40
34	R006-X-ND	4.31	7.69	18.55	35.78	66.25	113.95
36	R010-X-ND	5.48	9.77	23.59	45.50	84.25	144.91
37	R013-X-ND	4.67	8.33	20.11	38.78	71.81	123.52
40	R007-X-ND	5.09	9.08	21.91	42 26	78.25	134.59
50	R008-X-ND	6.36	11.35	27.41	52.85	97.88	168.35
60	R009-X-ND	7.60	13.56	32.73	63.11	116.88	201.03
64	R014-X-ND	8.09	14.44	34.86	67.23	124.50	214.14

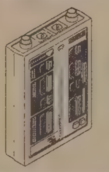
Gray Ribbon Cable

With Single Edge Red Strip For Pin One Orientation

No. of Con-tacts	(Note: "X" in Digi-Key Part No. Represents No. of Feet) Digi-Key Part No.	Pricing 5	10	25	50	100	200
9	R019-X-ND	.93	1.66	4.01	7.73	14.31	24.62
10	R020-X-ND	.87	1.55	2.68	7.22	13.38	23.01
14	R021-X-ND	1.24	2.20	5.32	10.26	19.00	32.68
16	R022-X-ND	1.40	2.49	6.02	11.61	21.50	36.98
20	R023-X-ND	1.76	3.13	7.56	14.58	27.00	46.44
24	R024-X-ND	2.10	3.74	9.03	17.42	32.25	55.47
26	R025-X-ND	2.29	4.09	9.87	19.04	35.25	60.63
34	R026-X-ND	2.99	5.34	12.88	24.84	46.00	79.12
40	R027-X-ND	3.51	6.27	15.14	29.19	54.06	92.99
50	R028-X-ND	4.39	7.83	18.90	36.45	67.50	116.10
60	R029-X-ND	5.25	9.37	22.63	43.64	80.81	139.00
64	R030-X-ND	10.08	17.98	43.40	83.70	155.00	266.60

Weidmüller
Paladin Tools

PC Cable Tester



Tests continuity of PC cables. Identifies open, shorted and cross connected wires. Tests combinations of coax: RG 58, 59, 62 BNC; RJ45 and RJ11 telephone cables; D-Sub 9 Pin (male/female); D-Sub 15 Pin (including H.D. and male/female); D-Sub 25 Pin (male/female). Tests shield continuity. Battery included.

PAL1570-ND............................$157.85

---

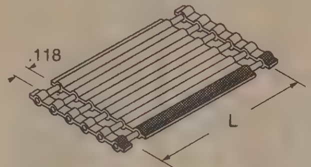
molex **Waldom**
Electronics Inc.
A Katy Company

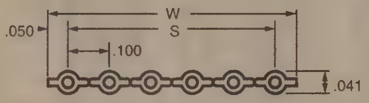
.100" (2.54 mm) Round Conductor Flat Cable in Precut Lengths

26 AWG (7 x 34) Stranded, Topcoat

Features:

- Gray PVC insulation.
- U.L. temperature rating -20°C to 105°C.
- U.L. voltage 300 V. max.
- U.L. flammability rating VW-1.
- U.L. Style No. 2651.
- U.L. recognized (File #E61522).
- CSA certification (File #LL61126).



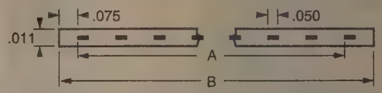


No. of Positions	Dim. S	Dim. W (Ref.)
3	.200 ± .008	.300
4	.300 ± .012	.400
5	.400 ±.013	.500
6	.500 ± .013	.600
7	.600 ± .013	.700
8	.700 ± .013	.800
9	.800 ± .013	.900
10	.900 ± .013	1.000

Pos.	"L" Inches	Digi-Key Part No.	Pricing 1	10	100	Molex Part No.
3	2	WM03-02-ND	.34	2.98	19.20	28100-0264
3	4	WM03-04-ND	.41	3.60	23.20	28100-0265
3	6	WM03-06-ND	.49	4.34	28.00	28100-0266
4	2	WM04-02-ND	.47	4.15	26.80	28100-0268
4	4	WM04-04-ND	.58	5.15	33.20	28100-0269
4	6	WM04-06-ND	.72	6.39	41.20	28100-0270
5	2	WM05-02-ND	.49	4.31	27.80	28100-0272
5	4	WM05-04-ND	.61	5.39	34.80	28100-0273
5	6	WM05-06-ND	.77	6.79	43.80	28100-0274
6	2	WM06-02-ND	.50	4.43	28.60	28100-0276
6	4	WM06-04-ND	.64	5.64	36.40	28100-0277
6	6	WM06-06-ND	.81	7.16	46.20	28100-0278
7	2	WM07-02-ND	.51	4.53	29.20	28100-0280
7	4	WM07-04-ND	.67	5.92	38.20	28100-0281
7	6	WM07-06-ND	.85	7.53	48.60	28100-0282
8	2	WM08-02-ND	.53	4.68	30.20	28100-0284
8	4	WM08-04-ND	.70	6.20	40.00	28100-0285
8	6	WM08-06-ND	.90	7.97	51.40	28100-0286
9	2	WM09-02-ND	.55	4.84	31.20	28100-0288
9	4	WM09-04-ND	.73	6.45	41.60	28100-0289
9	6	WM09-06-ND	.94	8.34	53.80	28100-0290
10	2	WM10-02-ND	.56	4.96	32.00	28100-0292
10	4	WM10-04-ND	.77	6.79	43.80	28100-0293
10	6	WM10-06-ND	1.00	8.84	57.00	28100-0294

AMP

.100 Flat Flex Cable



Conductors	Dim. "A"	Dim. "B"
2	.100	.300
3	.200	.400
4	.300	.500
5	.400	.600
6	.500	.700
8	.700	.900
9	.800	1.000
10	.900	1.100
11	1.000	1.200
12	1.100	1.300
13	1.200	1.400
14	1.300	1.500
15	1.400	1.600
16	1.500	1.700
18	1.700	1.900
20	1.900	2.100

Material:

- Conductors: Unplated copper per QQ-C-502
- Insulation: Flame retardant polyester film

Performance Characteristics:

- Current Rating: 2 amperes (28 AWG equivalent)
- Voltage Rating: 300 volts
- Temperature Rating: -20° to +105°C
- Insulation Resistance: 5000 megohms (min.)
- Insulation Flammability: Polyester, self-extinguishing per UL Flame Test VW-1

Typical Electrical Values:

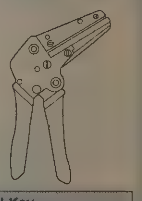
- Resistance: 55 ohms/1000 ft. max.
- Capacitance: 10.8 pf/ft (max.)
- Impedance: 128 ohms

Flex Cable

No. of Con-tacts	(Note: "X" in Digi-Key Part No. Represents Number of Feet) Digi-Key Part No.	Pricing 5 Ft.	10 Ft.	25 Ft.	50 Ft.	100 Ft.	250Ft.	500 Ft.
2	AF02-X-ND	3.20	5.71	13.79	26.60	49.25	98.50	147.83
3	AF03-X-ND	3.38	6.03	14.55	28.07	51.98	103.95	155.93
4	AF04-X-ND	3.51	6.26	15.12	29.16	54.00	108.00	162.00
5	AF05-X-ND	3.64	6.50	15.69	30.25	56.03	112.05	168.08
6	AF06-X-ND	4.08	7.28	17.58	33.90	62.78	125.55	188.33
8	AF08-X-ND	5.00	8.93	21.55	41.55	76.95	153.90	230.85
9	AF09-X-ND	6.23	11.12	26.84	51.76	95.85	191.70	287.55
10	AF10-X-ND	6.36	11.35	27.41	52.85	97.88	195.75	293.63
11	AF11-X-ND	6.49	11.59	27.97	53.95	99.90	199.80	299.70
12	AF12-X-ND	8.73	15.58	37.61	72.54	134.33	268.65	402.98
13	AF13-X-ND	8.86	15.82	38.18	73.63	136.35	272.70	409.05
14	AF14-X-ND	8.99	16.05	38.75	74.72	138.38	276.75	415.13
15	AF15-X-ND	9.17	16.36	39.50	76.18	141.08	282.15	423.23
16	AF16-X-ND	9.30	16.60	40.07	77.27	143.10	286.20	429.30
18	AF18-X-ND	15.79	28.18	68.01	131.17	242.90	485.80	728.70
20	AF20-X-ND	16.11	28.74	69.38	133.81	247.80	495.60	743.40

Weidmüller
Paladin Tools

Cable Cutter



- Hardened steel blades for long life.
- Light-weight for single hand operation.
- Cable cutter cuts up to 3.3" wide, .07" thick and 20 AWG at precisely 90°.

Description	Digi-Key Part No.	Price
Flat Ribbon Cable Cutter	PAL1812-ND	116.14
Replacement Blades for PAL1812-ND	PAL2803-ND	13.28
Anvil Cutter for PAL1812-ND	PAL2804-ND	24.90

3M Board Mount Interconnect Products

Finish Options:
- 10-microinch selective gold over 50-microinch nickel on contact post; 100-microinch 90/10 solder plate on tail portion.
- 100-microinch 90/0 solder plate on posts and tails.

2400 Series:
- Material: Glass filled Polyester.
- Flammability: UL94V-O.
- Color: Gray.
- Phosphor Bronze Plating.
- 100-microinch nickel underplating.
- Gold wiping area.
- 200-microinch 60/40 Tin on Solder Tails.
- Current Rating: 3 Amps.
- Withstanding Voltage: 100 Vac.
- Temperature Rating: -55°C to +105°C.
- UL File No. E88080, CSA File No. LR 40971.

Fig. 1 – Straight, Single Row Male

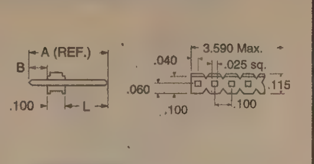

A (REF.)
B
.100
L
3.590 Max.
.040
.025 sq.
.060
.115
.100
.100

Fig. 2 – Straight, Dual Row Male (.1" x .1" Matrix)

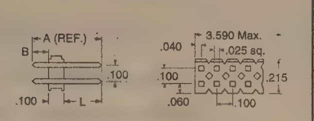

A (REF.)
B
.100
.100
L
3.590 Max.
.040
.025 sq.
.100
.215
.060
.100

Fig. 3 – Right Angle, Single Row Male

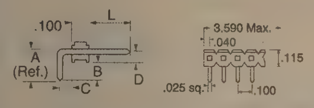

.100
L
A
(Ref.)
B
C
D
3.590 Max.
.040
.115
.025 sq.
.100

Fig. 4 – Right Angle, Dual Row Male (.1" x .1" Matrix)

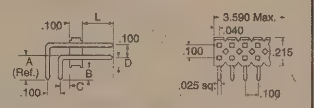

.100
L
.100
A
(Ref.)
B
C
D
.100
3.590 Max.
.040
.100
.215
.025 sq.
.100

Fig. 5 – Right Angle, Polarized Male (36 Circuits)

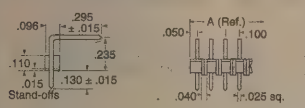

.295
± .015
.096
.235
.110
.015
Stand-offs
.130 ± .015
.050
A (Ref.)
.100
.040
.025 sq.

Fig. 6 – Straight, Single Row Female

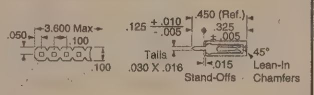

.050
3.600 Max
.100
.100
.125 +.010 -.005
.450 (Ref.)
.325 ± .005
Tails
.030 X .016
.015
Stand-Offs
45°
Lean-In
Chamfers

Fig. 7 – Straight, Dual Row Female (.1" x .1" Matrix)

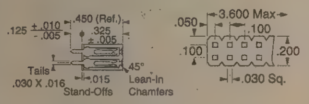

.125 +.010 -.005
.450 (Ref.)
.325 ± .005
Tails
.030 X .016
.015
Stand-Offs
45°
Lean-In
Chamfers
.050
3.600 Max
.100
.100
.200
.030 Sq.

Fig. 8 – Shorting Jumpers

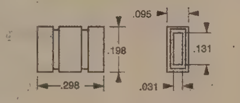

.198
.298
.095
.131
.031

Fig.	No. of Posts	Dim. L	Dim. A(ref)	Dim. B	Dim. C	Dim. D	Solder Plated	Price	Gold Plated	Price
1	36	.235"	.480	.145	—	—	N/A	—	929647-09-36-ND	1.64
			.545	.210	—	—	929834-02-36-ND	1.29	929647-02-36-ND	2.14
			.745	.410	—	—	929834-03-36-ND	1.35	929647-03-36-ND	2.56
			.845	.510	—	—	929834-04-36-ND	1.39	929647-04-36-ND	2.79
			.945	.610	—	—	929834-05-36-ND	1.39	929647-05-36-ND	2.95
			1.245	.910	—	—	929834-07-36-ND	1.58	929647-07-36-ND	3.68
	36	.295"	.535	.130	—	—	929400-01-36-ND	1.00	929450-01-36-ND	1.87
2	72	.235"	.480	.145	—	—	929836-09-36-ND	2.23	929665-09-36-ND	3.95
			.545	.210	—	—	929836-02-36-ND	2.75	929665-02-36-ND	4.35
			.645	.310	—	—	929836-08-36-ND	2.79	929665-08-36-ND	4.62
			.745	.410	—	—	N/A	—	929665-03-36-ND	5.24
			.845	.510	—	—	929836-04-36-ND	2.88	929665-04-36-ND	5.68
			.945	.610	—	—	929836-05-36-ND	3.04	929665-05-36-ND	6.14
	72	.318"	.593	.175	—	—	929710-10-36-ND	3.08	929715-10-36-ND	5.82
			.828	.410	—	—	929710-03-36-ND	3.62	929715-03-36-ND	6.66
3	14	.235"	.180	.110	.070	.075	929835-01-14-ND	.44	N/A	—
	36	.235"	.180	.105	.070	.075	929835-01-36-ND	.87	N/A	—
		.235"	.780	.720	.170	.060	N/A	—	929648-06-36-ND	3.72
4	72	.235"	.215	.140	.070	.075	929838-04-36-ND	2.43	929667-04-36-ND	6.01
			.480	.405	.070	.075	929838-02-36-ND	3.58	929667-02-36-ND	7.78
5	36	.295"	3.600	—	—	—	929500-01-36-ND	1.04	929550-01-36-ND	2.31
6	36	N/A	—	.125"	—	—	929974-01-36-ND	1.10	929850-01-36-ND	2.00
7	72	N/A	—	—	—	—	929975-01-36-ND	1.96	929852-01-36-ND	3.64
8	2	N/A	*SHUNTS!!*				929950-00-ND	1.04 per 10	929955-06-ND (10µ in. gold) 929957-08-ND (30µ in. gold)	1.46 per 10 1.87 per 10

* Sold in sets of 2.

AMP MTA .100 & .156 Receptacles and Post Headers

Material for Receptacles – Housing: Thermoplastic 94V-2 rated. **Contacts:** Tin plated phosphor bronze.
Material For Post Headers – Housing: Polyester 94V-0 rated, natural. **Posts:** Tin plated copper alloy.

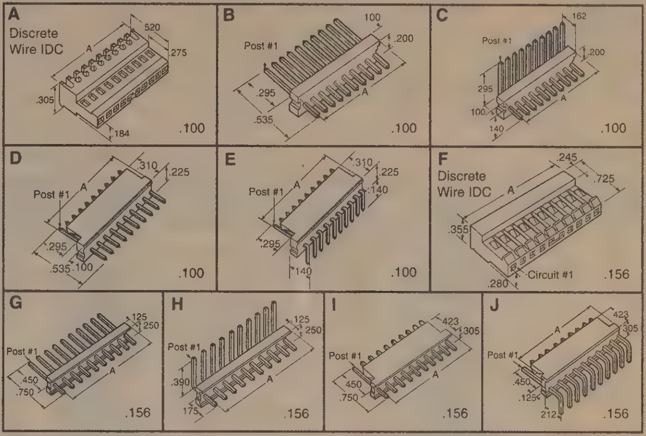
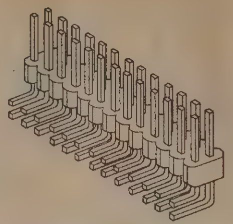

A
Discrete
Wire IDC
.520
.275
.305
.184
.100
B
Post #1
100
.200
.295
.535
.100
C
Post #1
.162
.200
295
100
140
.100
D
Post #1
.310
.225
.295
.535
.100
.100
E
Post #1
.310
.225
.140
.295
140
.100
F
Discrete
Wire IDC
.245
.725
.355
.280
Circuit #1
.156
G
Post #1
.125
.250
.450
.750
.156
H
Post #1
.125
.250
.390
175
.156
I
Post #1
.423
.305
450
.750
.156
J
Post #1
.423
.305
.450
.125
212
.156

Fig.	Description	Circuits	Dim. "A"	Color	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
	Receptacles, .100 Centers								
A	Closed End w/ Lock, w/out Polarizing Tabs, 24 AWG	2	.200	Natural	A1901-ND	.18	3.96	7.04	640441-2
		4	.400	Natural	A1902-ND	.25	5.71	10.15	640441-4
		6	.600	Natural	A1903-ND	.48	10.80	19.20	640441-6
		8	.800	Natural	A1904-ND	.64.	14.40	25.60	640441-8
		10	1.000	Natural	A1905-ND	.80	18.00	32.00	1-640441-0
A	Closed End w/ Lock, w/out Polarizing Tabs, 22 AWG	2	.200	Red	A1906-ND	.18	3.96	7.04	640440-2
		4	.400	Red	A1907-ND	.35	7.92	14.08	640440-4
		6	.600	Red	A1908-ND	.48	10.80	19.20	640440-6
		8	.800	Red	A1909-ND	.64	14.40	25.60	640440-8
		10	1.000	Red	A1910-ND	.80	18.00	32.00	1-640440-0
	Post Headers, .100 Centers								
B	Straight Post .025 Square	2	.200	—	A1911-ND	.19	4.31	7.66	640452-2
		4	.400	—	A1912-ND	.26	5.87	10.43	640452-4
		6	.600	—	A1913-ND	.36	8.00	14.22	640452-6
		8	.800	—	A1914-ND	.47	10.67	18.96	640452-8
		10	1.000	—	A1915-ND	.59	13.33	23.70	1-640452-0
C	Right Angle Post .025 Square	2	.200	—	A1916-ND	.14	3.05	5.42	640453-2
		4	.400	—	A1917-ND	.27	6.10	10.85	640453-4
		6	.600	—	A1918-ND	.37	8.32	14.79	640453-6
		8	.800	—	A1919-ND	.49	11.09	19.72	640453-8
		10	1.000	—	A1920-ND	.62	13.87	24.65	1-640453-0
	Post Headers, .100 Centers, Friction Lock Header								
D	Straight Post .025 Square	2	.200	—	A1921-ND	.14	3.23	5.74	640456-2
		4	.400	—	A1922-ND	.29	6.45	11.47	640456-4
		6	.600	—	A1923-ND	.39	8.80	15.64	640456-6
		8	.800	—	A1924-ND	.52	11.73	20.86	640456-8
		10	1.000	—	A1925-ND	.65	14.67	26.07	1-640456-0
E	Right Angle Post .025 Square	2	.200	—	A1926-ND	.23	5.28	9,39	640457-2
		4	.400	—	A1927-ND	.47	10.56	18.77	640457-4
		6	.600	—	A1928-ND	.64	14.40	25.60	640457-6
		8	.800	—	A1929-ND	.85	19.20	34.13	640457-8
		10	1.000	—	A1930-ND	1.07	24.00	42.67	1-640457-0
A9982-ND	T-Handle Tool for MTA .100							**$17.25 each**	59803-1
A1998-ND	Crimp Die for MTA .100 Receptacles (Must be used with handle A2031-ND)							**$103.74 each**	58246-1
A2031-ND	Manual Pistol Grip Tool for Metal & All-Plastic Shell Connectors. (Must order crimp die separately)							**$55.50 each**	58074-1

Fig.	Description	Circuits	Dim. "A"	Color	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
	Receptacles, .156 Centers								
F	Closed End w/Lock, w/out Polarizing Tabs	2	.312	Orange	A1951-ND	.21	4.62	8.21	640426-2
		4	.624	Orange	A1952-ND	.41	9.24	16.43	640426-4
		6	.936	Orange	A1953-ND	.56	12.60	22.40	640426-6
		8	1.248	Orange	A1954-ND	.75	16.80	29.87	640426-8
		10	1.560	Orange	A1955-ND	.93	21.00	37.34	1-640426-0
F	Closed End w/out Lock, w/out Polarizing Tabs	2	.312	Orange	A1956-ND	.21	4.62	8.21	640431-2
		4	.624	Orange	A1957-ND	.41	9.24	16.43	640431-4
		6	.936	Orange	A1958-ND	.56	12.60	22.40	640431-6
		8	1.248	Orange	A1959-ND	.75	16.80	29.87	640431-8
		10	1.560	Orange	A1960-ND	.93	21.00	37.34	1-640431-0
	Post Headers, .156 Centers								
G	Straight Post .045 Square	2	.312	—	A1961-ND	.12	2.77	4.93	640383-2
		4	.624	—	A1962-ND	.25	5.54	9.86	640383-4
		6	.936	—	A1963-ND	.34	7.56	13.44	640383-6
		8	1.248	—	A1964-ND	.45	10.08	17.92	640383-8
		10	1.560	—	A1965-ND	.56	12.60	22.40	1-640383-0
H	Right Angle Post .045 Square	2	.312	—	A1966-ND	.16	3.70	6.57	640385-2
		4	.624	—	A1967-ND	.33	7.39	13.14	640385-4
		6	.936	—	A1968-ND	.45	10.08	17.92	640385-6
		8	1.248	—	A1969-ND	.60	13.44	23.89	640385-8
		10	1.560	—	A1970-ND	.75	16.80	29.87	1-640385-0
	Post Headers, .156 Centers, Friction Lock Header								
I	Straight Post .045 Square	2	.312	—	A1971-ND	.16	3.70	6.57	640445-2
		4	.624	—	A1972-ND	.33	7.39	13.14	640445-4
		6	.936	—	A1973-ND	.45	10.08	17.92	640445-6
		8	1.248	—	A1974-ND	.60	13.44	23.89	640445-8
		10	1.560	—	A1975-ND	.75	16.80	29.87	1-640445-0
J	Right Angle Post .045 Square	2	.312	—	A1976-ND	.25	5.54	9.86	640389-2
		4	.624	—	A1977-ND	.49	11.09	19.71	640389-4
		6	.936	—	A1978-ND	.67	15.12	26.88	640389-6
		8	1.248	—	A1979-ND	.90	20.16	35.84	640389-8
		10	1.560	—	A1980-ND	.89	19.92	35.42	1-640389-0
A9981-ND	T-Handle Tool for MTA .156							**$18.00 each**	59804-1
A1999-ND	Crimp Die for MTA .156 Receptacles (Must be used with handle A2031-ND)							**$103.74 each**	58247-1
A2031-ND	Manual Pistol Grip Tool for Metal & All-Plastic Shell Connectors. (Must order crimp die separately)							**$55.50 each**	58074-1

Sullins .025" Square Headers

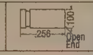


Available in 1 to 36 Pin Versions!

Features
• Available in 36-pin version or 1 to 35 size to meet your application. • Temperature: -65°C to + 125°C. • UL Flammability Rating: 94V-0. • Current Rating: 5 amperes.

Materials
• Insulator Material: Black thermoplastic polyester. • Contact Material: CA510, phosphor bronze. • Contact Plating: Gold = .000010 Gold (Head Only); Tin = .000100 Tin.

TO PURCHASE A 36 PIN HEADER...

Contact Finish	Dimensions (inches)		Digi-Key Part No.	Pricing			Sullins Part No.
	A	B		1	10	100	
Single Row Straight (36 Pins)							
Tin	.230	.120	S1012-36-ND	1.00	8.93	73.50	PTC36SAAN
	.230	.220	S1022-36-ND	1.54	13.77	113.40	PTC36SABN
	.230	.320	S1032-36-ND	1.78	15.91	131.04	PTC36SACN
	.230	.420	S1042-36-ND	2.45	21.93	180.60	PTC36SADN
	.230	.520	S1052-36-ND	2.13	19.10	157.29	PTC36SAEN
	.230	.620	S1062-36-ND	2.42	21.65	178.29	PTC36SAFN
	.230	.720	S1072-36-ND	2.55	22.82	187.95	PTC36SAGN
	.230	.820	S1082-36-ND	3.69	33.05	272.16	PTC36SAHN
	.318	.120	S1212-36-ND	1.38	12.34	101.64	PTC36SFAN
	.318	.220	S1222-36-ND	1.56	13.92	114.66	PTC36SFBN
	.318	.320	S1232-36-ND	2.39	21.42	176.40	PTC36SFCN
	.318	.420	S1242-36-ND	2.45	21.88	180.18	PTC36SFDN
	.318	.520	S1252-36-ND	3.08	27.54	226.80	PTC36SFEN
Gold	.230	.120	S1011-36-ND	1.31	11.73	96.60	PZC36SAAN
	.230	.220	S1021-36-ND	1.74	15.56	128.10	PZC36SABN
	.230	.320	S1031-36-ND	2.30	20.88	176.40	PZC36SACN
	.230	.420	S1041-36-ND	2.58	23.08	190.05	PZC36SADN
	.230	.520	S1051-36-ND	2.80	25.07	206.43	PZC36SAEN
	.230	.620	S1061-36-ND	3.05	27.29	224.70	PZC36SAFN
	.230	,720	S1071-36-ND	3.26	29.20	240.45	PZC36SAGN
	.230	.820	S1081-36-ND	4.10	36.72	302.40	PZC36SAHN
	.318	.120	S1211-36-ND	1.74	15.56	128.10	PZC36SFAN
	.318	.220	S1221-36-ND	2.05	18.36	151.20	PZC36SFBN
	.318	.320	S1231-36-ND	2.67	23.87	196.56	PZC36SFCN
	.318	.420	S1241-36-ND	2.85	25.50	210.00	PZC36SFDN
	.318	.520	S1251-36-ND	3.39	30.29	249.48	PZC36SFEN
Single Row Right-Angle (36 Pins)							
Tin	.230	.100	S1112-36-ND	1.35	12.09	99.54	PTC36SBAN
	.230	.200	S1122-36-ND	1.54	13.77	113.40	PTC36SBBN
	.230	.300	S1132-36-ND	1.85	16.52	136.08	PTC36SBCN
	.230	.400	S1142-36-ND	1.87	16.70	137.55	PTC36SBDN
	.230	.500	S1152-36-ND	2.57	22.95	189.00	PTC36SBEN
	.318	.100	S1312-36-ND	1.62	14.48	119.28	PTC36SGAN
	.318	.200	S1322-36-ND	2.05	18.36	151.20	PTC36SGBN
Gold	.230	.100	S1111-36-ND	1.74	15.56	128.10	PZC36SBAN
	.230	.200	S1121-36-ND	2.01	17.98	148.05	PZC36SBBN
	.230	.300	S1131-36-ND	2.36	21.11	173.88	PZC36SBCN
	.230	.400	S1141-36-ND	2.43	21.73	178.92	PZC36SBDN
	.230	.500	S1151-36-ND	3.08	27.54	226.80	PZC36SBEN
	.318	.100	S1311-36-ND	2.13	19.10	157.29	PZC36SGAN
	.318	.200	S1321-36-ND	2.85	25.50	210.00	PZC36SGBN
Dual Row Straight (72 Pins)							
Tin	.230	.120	S2012-36-ND	2.11	18.87	155.40	PTC36DAAN
	.230	.220	S2022-36-ND	3.08	27.54	226.80	PTC36DABN
	.230	.320	S2032-36-ND	3.71	33.15	273.00	PTC36DACN
	.230	.420	S2042-36-ND	4.13	36.92	304.08	PTC36DADN
	.230	.520	S2052-36-ND	4.45	39.78	327.60	PTC36DAEN
	.230	.620	S2062-36-ND	5.01	44.80	368.97	PTC36DAFN
	.230	.720	S2072-36-ND	5.36	47.94	394.80	PTC36DAGN
	.230	.820	S2082-36-ND	7.38	66.05	543.90	PTC36DAHN
	.318	.120	S2212-36-ND	2.88	25.76	212.10	PTC36DFAN
	.318	.220	S2222-36-ND	3.30	29.53	243.18	PTC36DFBN
	.318	.320	S2232-36-ND	4.92	44.06	362.88	PTC36DFCN
	.318	.420	S2242-36-ND	5.12	45.82	377.37	PTC36DFDN
	.318	.520	S2252-36-ND	6.16	55.08	453.60	PTC36DFEN
Gold	.230	.120	S2011-36-ND	2.34	20.91	172.20	PZC36DAAN
	.230	.220	S2021-36-ND	3.49	31.21	257.04	PZC36DABN
	230	.320	S2031-36-ND	4.10	36.72	302.40	PZC36DACN
	.230	.420	S2041-36-ND	5.34	47.74	393.12	PZC36DADN
	.230	.520	S2051-36-ND	5.79	51.77	426.30	PZC36DAEN
	.230	.620	S2061-36-ND	6.36	56.92	468.72	PZC36DAFN
	.230	.720	S2071-36-ND	6.72	60.15	495.39	PZC36DAGN
	.230	.820	S2081-36-ND	8.21	73.44	604.80	PZC36DAHN
	.318	.120	S2211-36-ND	3.49	31.21	257.04	PZC36DFAN
	.318	.220	S2221-36-ND	4.10	36.72	302.40	PZC36DFBN
	.318	.320	S2231-36-ND	5.34	47.74	393.12	PZC36DFCN
	.318	.420	S2241-36-ND	5.75	51.41	423.36	PZC36DFDN
	.318	.520	S2251-36-ND	6.77	60.59	498.96	PZC36DFEN
Dual Row Right-Angle (72 Pins)							
Tin	.230	.120	S2112-36-ND	2.85	25.50	210.00	PTC36DBAN
	.230	.220	S2122-36-ND	3.49	31.21	257.04	PTC36DBBN
	.230	.320	S2132-36-ND	3.69	33.05	272.16	PTC36DBCN
	.230	.420	S2142-36-ND	4.10	36.72	302.40	PTC36DBDN
	.230	.520	S2152-36-ND	5.13	45.90	378.00	PTC36DBEN
	.318	.120	S2312-36-ND	3.49	31.21	257.04	PTC36DGAN
	.318	.220	S2322-36-ND	4.10	36.72	302.40	PTC36DGBN
Gold	.230	.120	S2111-36-ND	3.69	33.05	272.16	PZC36DBAN
	.230	.220	S2121-36-ND	4.31	38.56	317.52	PZC36DBBN
	.230	.320	S2131-36-ND	4.72	42.23	347.76	PZC36DBCN
	.230	.420	S2141-36-ND	5.18	46.31	381.36	PZC36DBDN
	.230	.520	S2151-36-ND	6.16	55.08	453.60	PZC36DBEN
	.318	.120	S2311-36-ND	4.90	43.86	361.20	PZC36DGAN
	.318	.220	S2321-36-ND	5.75	51.41	423.36	PZC36DGBN
Shorting Jumpers							
Tin			S9000-ND		.93/10		STC02SYAN
Au Flash			S9001-ND		1.16/10		SPC02SYAN
Gold			S9002-ND		1.31/10		SSC02SYAN

TO PURCHASE A 1-35 PIN HEADER...

STEP 1	STEP 2	STEP 3
Digi-Key Part No.	Base Price	Pin Adder
Single Row Straight (36 Pins)		
S1012-XX-ND	.48	.02
S1022-XX-ND	.58	.03
S1032-XX-ND	.84	.03
S1042-XX-ND	.85	.05
S1052-XX-ND	.87	.04
S1062-XX-ND	.81	.05
S1072-XX-ND	.95	.05
S1082-XX-ND	1.47	.07
S1212-XX-ND	.41	.03
S1222-XX-ND	.60	.03
S1232-XX-ND	.79	.05
S1242-XX-ND	.84	.05
S1252-XX-ND	1.16	.06
S1011-XX-ND	.46	.03
S1021-XX-ND	.80	.03
S1031-XX-ND	.78	.04
S1041-XX-ND	.99	.05
S1051-XX-ND	.87	.06
S1061-XX-ND	1.13	.06
S1071-XX-ND	1,36	.06
S1081-XX-ND	1.55	.08
S1211-XX-ND	.80	.03
S1221-XX-ND	.78	.04
S1231-XX-ND	1.08	.05
S1241-XX-ND	.92	.06
S1251-XX-ND	1.14	.07
Single Row Right-Angle (36 Pins)		
S1112-XX-ND	.38	.03
S1122-XX-ND	.58	.03
S1132-XX-ND	.55	.04
S1142-XX-ND	.58	.04
S1152-XX-ND	.97	.05
S1312-XX-ND	.67	.03
S1322-XX-ND	.78	.04
S1111-XX-ND	.80	.03
S1121-XX-ND	.73	.04
S1131-XX-ND	.75	.05
S1141-XX-ND	.82	.04
S1151-XX-ND	1.16	.06
S1311-XX-ND	.87	.04
S1321-XX-ND	.92	.06
Dual Row Straight (72 Pins)		
S2012-XX-ND	.99	.04
S2022-XX-ND	1.16	.06
S2032-XX-ND	1.48	.07
S2042-XX-ND	1.58	.08
S2052-XX-ND	1.56	.09
S2062-XX-ND	1.81	.10
S2072-XX-ND	1.83	.11
S2082-XX-ND	2.93	.14
S2212-XX-ND	.95	.06
S2222-XX-ND	1.40	.06
S2232-XX-ND	1.72	.10
S2242-XX-ND	1.93	.10
S2252-XX-ND	2.33	.12
S2011-XX-ND	.92	.06
S2021-XX-ND	1.25	.07
S2031-XX-ND	1.55	.08
S2041-XX-ND	2.16	.10
S2051-XX-ND	2.29	.11
S2061-XX-ND	2.50	.12
S2071-XX-ND	2.58	.13
S2081-XX-ND	3.10	.16
S2211-XX-ND	1.25	.07
S2221-XX-ND	1.55	.08
S2231-XX-ND	2.16	.10
S2241-XX-ND	2.25	.11
S2251-XX-ND	2.63	.13
Dual Row Right-Angle (72 Pins)		
S2112-XX-ND	.92	.06
S2122-XX-ND	1.25	.07
S2132-XX-ND	1.47	.07
S2142-XX-ND	1.55	.08
S2152-XX-ND	1.94	.10
S2312-XX-ND	1.25	.07
S2322-XX-ND	1.55	.08
S2111-XX-ND	1.47	.07
S2121-XX-ND	1.77	.08
S2131-XX-ND	1.86	.09
S2141-XX-ND	1.99	.10
S2151-XX-ND	2.33	.12
S2311-XX-ND	1.69	.10
S2321-XX-ND	2.25	.11

HOW TO ORDER - 4 EASY STEPS

How do I order a S1012 header with 16 pins?

Call Digi-Key where you'll happily receive the price

or

Determine the cost yourself

S ☐☐☐☐ - ☐☐ - ND

Base Part Number

Number of Desired Pins per row

Step 1. Select needed "Digi-Key Part Number" and number of pins desired.

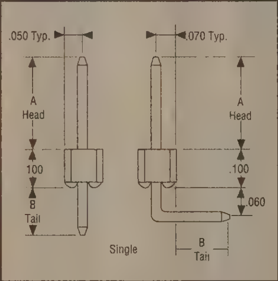
Step 2. Begin with appropriate "Base Price" of your selected Part Number (refer to chart).

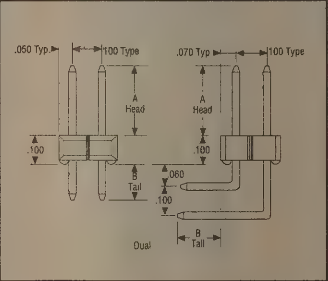
Step 3. Multiply the number of pins you desire by "Pin Adder" of your selected Part Number (refer to chart).

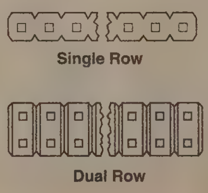
Step 4. Add Step 2 & Step 3 together for Final Cost!

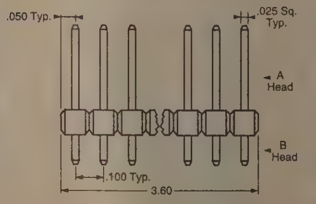
	Our Example	**Your Digi-Key Part Number**
Step 1.	S1012-16-ND	S __ __ __ __ - __ __ - ND
Step 2.	.48	______
Step 3.	16 x .02 = .32	____ x ____ = ______
Step 4.	Your Cost = $.80	Your Cost = $_____

NOTE: For quantities of 10 or more, call 1-800-DIGI-KEY.



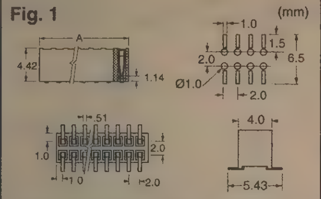






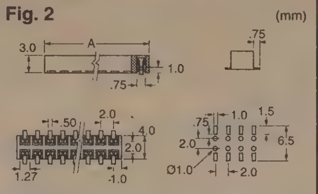
SPECIALTY ELECTRONICS INC. 2mm SMT Headers

Fig. 1



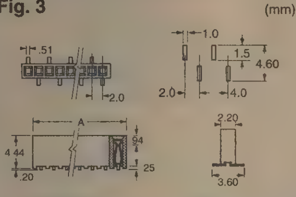
SPECIFICATIONS: • Housing Material: High temperature thermoplastic, UL flammability rating 94 V-O. • Color: Natural • Contact Material: Phosphor Bronze.

Fig. 2



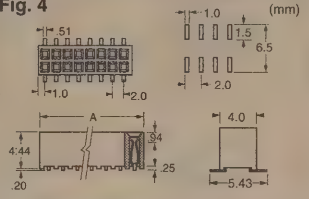
SPECIFICATIONS: • Housing Material: High temperature thermoplastic, UL flammability rating 94 V-O. • Color: Natural • Contact Material: Beryllium copper.

Fig. 3



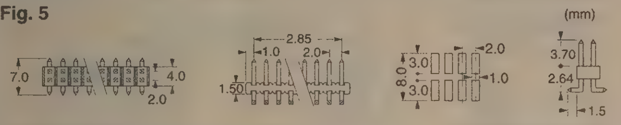
SPECIFICATIONS: • Housing Material: High temperature thermoplastic, UL flammability rating 94 V-O. • Color: Natural • Contact Material: Phosphor Bronze.

Fig. 4



SPECIFICATIONS: • Housing Material: High temperature thermoplastic, UL flammability rating 94 V-O. • Color: Natural • Contact Material: Phosphor Bronze.

Fig. 5

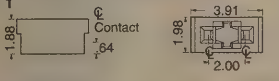


. **SPECIFICATIONS:** • Housing Material: High temp. thermoplastic, UL flammability rating 94 V-O • Color: Black • Pin Material: Phosphor Bronze, drawn wire.

Fig.	No. of Pos.	Dim. "A"	Finish	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer Part No.
				Dual Row, Bottom Entry					
1	8	8.026	15µ Gold	SPE1017-ND	1.34	11.99	98.70	390.10	203-04-15-01
1	12	12.040	15µ Gold	SPE1018-ND	1.85	16.58	136.50	539.50	203-06-15-01
1	16	16.053	15µ Gold	SPE1019-ND	2.39	21.42	176.40	697.20	203-08-15-01
1	20	20.066	15µ Gold	SPE1020-ND	2.91	26.01	214.20	846.60	203-10-15-01
1	24	24.079	15µ Gold	SPE1021-ND	3.42	30.60	252.00	996.00	203-12-15-01
1	26	26.086	15µ Gold	SPE1022-ND	3.71	33.15	273.00	1079.00	203-13-15-01
1	30	30.099	15µ Gold	SPE1023-ND	4.22	37.74	310.80	1228.40	203-15-15-01
				Dual Row, Bottom Entry, Ultra Low Profile					
2	8	8.026	15µ Gold	SPE1010-ND	1.11	9.95	81.90	323.70	233-0433-01
2	12	12.040	15µ Gold	SPE1011-ND	1.51	13.52	111.30	439.90	233-0633-01
2	16	16.053	15µ Gold	SPE1012-ND	1.94	17.34	142.80	564.40	233-0833-01
2	20	20.066	15µ Gold	SPE1013-ND	2.34	20.91	172.20	680.60	233-1033-01
2	24	24.079	15µ Gold	SPE1014-ND	2.74	24.48	201.60	796.80	233-1233-01
2	26	26.086	15µ Gold	SPE1015-ND	2.96	26.52	218.40	863.20	233-1333-01
2	30	30.099	15µ Gold	SPE1016-ND	3.36	30.09	247.80	979.40	233-1533-01
				Single Row, Top Entry					
3	4	8.026	15µ Gold	SPE1024-ND	.80	7.14	58.80	232.40	204-04-15-01
3	6	12.040	15µ Gold	SPE1025-ND	1.08	9.69	79.80	315.40	204-06-15-01
3	8	16.053	15µ Gold	SPE1026-ND	1.34	11.99	98.70	390.10	204-08-15-01
3	10	20.066	15µ Gold	SPE1027-ND	1.60	14.28	117.60	464.80	204-10-15-01
3	12	24.079	15µ Gold	SPE1028-ND	1.85	16.58	136.50	539.50	204-12-15-01
3	13	26.086	15µ Gold	SPE1029-ND	2.00	17.85	147.00	581.00	204-13-15-01
3	15	30.099	15µ Gold	SPE1030-ND	2.25	20.15	165.90	655.70	204-15-15-01
				Dual Row, Top Entry					
4	8	8.026	15µ Gold	SPE1031-ND	1.34	11.99	98.70	390.10	205-04-1501
4	12	12.040	15µ Gold	SPE1032-ND	1.85	16.58	136.50	539.50	205-06-1501
4	16	16.053	15µ Gold	SPE1033-ND	2.39	21.42	176.40	697.20	205-08-1501
4	20	20.066	15µ Gold	SPE1034-ND	2.91	26.01	214.20	846.60	205-10-1501
4	24	24.079	15µ Gold	SPE1035-ND	3.42	30.60	252.00	996.00	205-12-1501
4	26	26.086	15µ Gold	SPE1036-ND	3.71	33.15	273.00	1079.00	205-13-1501
4	30	30.099	15µ Gold	SPE1037-ND	4.22	37.74	310.80	1228.40	205-15-1501
				36 Position, Dual Row					
5	—	—	Gold	SPE1211-ND	2.34	20.91	172.20	680.60	SM2MD18S15-01
	—	—	Tin	SPE1212-ND	1.62	14.54	119.70	473.10	SM2MD18S02-01

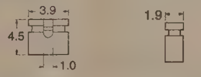
SPECIALTY ELECTRONICS INC. Shunts

Fig. 1



ULTRA LOW PROFILE. • 30µ" gold plated • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-0 • Color: Black • Contact Material: Beryllium Copper.

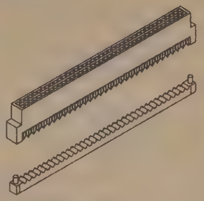
Fig. 2



STANDARD PROFILE. • Housing Material: Glass filled thermoplastic, UL flammability rating 94 V-0 • Contact Material: Phosphor Bronze.

Fig.	Finish	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer Part No.
		Shunts					
1	Ultra Low Profile, Tin	SPE1300-ND	.43	3.83	31.50	124.50	2MS-ULP-02
	Ultra Low Profile, Gold	SPE1301-ND	.83	7.40	60.90	240.70	2MS-ULP-30
2	Standard Profile, Gold	SPE1302-ND	.14	1.28	10.50	41.50	2JM-G

3M 2mm Wiremount Socket



2mm Wiremount Socket — 1mm Pitch Cable

Features: • Industry standard compatible • Mates with 2mm x 2mm grid pin strips • Low profile • Preassembled covers • Available with and without strain relief

Physical Specifications: • **Insulation Material:** Glass Filled Polyester (PBT), Flammability: UL94 V-0 • Color: Gray • **Contact Material:** Beryllium copper • **Contact Plating:** • Underplate and U-slot: 50-150µ" Nickel, QQ-N-290, Class 2 • Wiping area: Gold Mil-G-45204, Type II, Grade C • **Marking:** Orientation triangle and 3M logo

Electrical Specifications: • Current Rating: 1Amp • Insulation Resistance: >1x10Ω at 500 Vdc • Withstanding Voltage: 1000Vrms at Sea Level

Environmental Specifications: • Operating Temperature Rating: -55° to +105°C

Rating: UL File No. E86982, CSA File No. LR#48869

1.0mm Round Conductor Flat Cable - 28AWG Stranded, PVC

Features: • Close spacing permits high signal density • 28AWG wire on 1mm centers permits mass termination to 2 mm connectors • Zippable for branching or discrete termination • Stranded wire provides flexibility and extended product life

Physical Specifications: • Insulation Material: Polyvinyl Chloride (PVC) • Color: Gray • Marking: Red Edge • Conductors: 28 AWG, 7 x 36 Tinned Stranded Copper

Electrical Specifications: • Voltage Rating: 300V • Insulation Resistance: >1x10^{10}Ω/3m (10 ft) • Characteristic Impedance: 92Ω Unbalanced, 146Ω Balanced • Capacitance: 55.50 pF/m Unbalanced, 32.77 pF/m Balanced • Inductance: 0.47 µH/m Unbalanced, 0.70 µH/m Balanced • Propagation Delay: 4.95 ns/m Unbalanced, 4.78 ns/m Balanced

Environmental Specifications: • Temperature Rating Operating: -20°C to +105°C • Flammability Rating: *UL:* VW-1, *CSA:* FT1

Rating: UL File No. E42769, Style 2651 CSA File No. LL 53649 (optional)

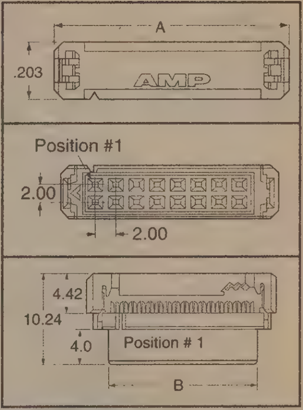
No. of Pos.	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
		IDC Socket Gold			
10	MSA10A-ND	1.98	150.10	679.25	152210-0100-GB
12	MSA12A-ND	2.29	173.80	786.50	152212-0100-GB
44	MSA44A-ND	4.47	339.70	1537.25	152244-0100-GB
50	MSA50A-ND	4.68	355.50	1608.75	152250-0100-GB
		IDC Socket Gold w/ Strain Relief			
10	MSE10A-ND	2.39	181.70	822.25	152210-0103-GB
12	MSE12A-ND	2.83	214.88	972.40	152212-0103-GB
44	MSE44A-ND	4.58	347.60	1573.00	152244-0103-GB
50	MSE50A-ND	4.99	379.20	1716.00	152250-0103-GB

No. of Pos.	(NOTE: "X" in Digi-Key Part No. Represents Number of Meters.) Digi-Key Part No.	Price Per Meters 5	10	25	50	100	3M Part No.
			Ribbon Cable Gray				
10	MC10L-X-ND	7.15	13.28	29.63	51.09	81.74	3625/10 100M
12	MC12L-X-ND	8.58	15.94	35.55	61.30	98.08	3625/12 100M
44	MC44L-X-ND	31.47	58.44	130.36	224.76	359.62	3625/44 100M
50	MC50L-X-ND	35.76	66.41	148.14	255.41	408.66	3625/50 100M

100m. Reel quantity may contain splices. Splice position will be marked on the reel.

AMP

2mm Ribbon Connectors



The new 2.0 (.079) AMP-LATCH® receptacle connector family features contacts on a true 2.0 x 2.0 (.079 x .079) mating grid for 1.0 (.039) pitch ribbon. These receptacles feature insulation displacement contacts (IDC) with a top/bottom single beam contact orientation. Contacts are beryllium copper, duplex plated 0.00076 (.000030) gold in the mating area and 0.00254 (.000100) min. tin-lead on termination end all over 0.00127 (.000050) nickel underplating. Contact mating area is 1.54 (.061) from the face of the housing and they accept 0.50mm (.0197) round or square posts.

Product Facts:

• True hard metric 2.0 x 2.0 mating grid for 1.0 pitch ribbon cable • Insulation displacement (IDC), beryllium copper contacts, duplex plated gold-over-nickel • U.L. 94V-0 rated thermoplastic components

Performance Data:

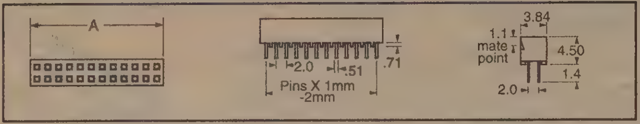
• Durability: 150 cycles • Termination Resistance: 25 milliohms max. • Mating Force: 1.67 N max. • Unmating Force: 0.14 N min. • Operating Temperature: -65°C to +105°C

No. of Pos.	Dimensions A	B	Digi-Key Part No.	Pricing 1	25	100	500	1000	5000	AMP Part No.
					Receptacle					
40	45.19	40.41	ASA40K-ND	3.23	73.20	207.40	915.00	1622.60	1525.00/M	111626-9
44	49.17	44.40	ASA44K-ND	3.52	79.80	226.10	997.50	1768.90	1662.50/M	1-111626-0
50	55.17	50.39	ASA50K-ND	4.03	91.20	258.40	1140.00	2021.60	1900.00/M	1-111626-1

2mm Ribbon Cable

No. of Pos.	Dimensions A	B	Digi-Key Part No.	Note: X in Part No. = Ft Per Roll *Price Per Roll 5ft	10ft	25ft	50ft	100ft	500ft	AMP Part No.
40	39.79	39.00	AM40G-X-ND	2.99	5.34	12.89	24.85	46.03	170.29	1-57051-1
44	43.79	43.00	AM44G-X-ND	3.14	5.60	13.51	26.06	48.25	178.53	1-57051-2
50	49.79	49.00	AM50G-X-ND	3.62	6.47	15.61	30.11	55.75	205.44	1-57051-3

3M 2mm x 2mm Vertical Socket



Features: • High temperature dielectric • IR, vapor & wave solder compatible • Available in thru hole • Industry standard compatible • Minimizes PC board stacking heights • End stackable feature • Side stackable feature

Physical Specifications: • **Insulation Material:** High Temperature Glass Filled Polyester (PCT) • Color: Natural • **Marking:** Molded orientation delta • **Contact Material:** Beryllium copper • **Contact Plating:** • Wiping area: 30µ" gold plate • Solder Tails: 100µ" 90/10 SnPb plate • Underplate: 50µ" nickel

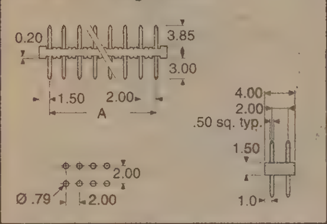
Electrical Specifications: • Current Rating: 1.5Amp • Insulation Resistance: 5000 Megohms @ 250 volts min. • Withstanding Voltage: 500 VDC @ Sea level

Environmental Specifications: • Operating Temperature: -55° to +105°C

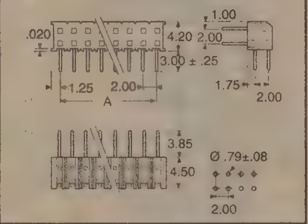
No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Socket Vertical PC Mount						
8	.310	3M1008-ND	1.04	79.00	357.50	150208-6002-TB
10	.389	3M1010-ND	1.29	97.96	443.30	150210-6002-TB
12	.467	3M1012-ND	1.54	116.92	529.10	150212-6002-TB
20	.782	3M1020-ND	2.58	195.92	886.60	150220-6002-TB
24	.940	3M1024-ND	3.10	235.42	1065.35	150224-6002-TB
30	1.176	3M1030-ND	3.87	293.88	1329.90	150230-6002-TB
40	1.570	3M1040-ND	5.16	391.84	1773.20	150240-6002-TB
44	1.727	3M1044-ND	5.68	431.34	1951.95	150244-6002-TB
50	1.964	3M1050-ND	6.45	489.80	2216.50	150250-6002-TB
60	2.357	3M1060-ND	7.74	587.76	2659.80	150260-6002-TB

2mm x 2mm Pin Strip Headers

Dual Row – Straight Header



Dual Row – Right Angle Header



Features: • Industry standard compatible • High temperature dielectric • IR, vapor & wave solder compatible • Straight Solder Tail • Maximizes use of PC board space • Mates with boardmount and wiremount products • End stackable feature • Side stackable feature

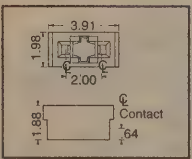
Physical Specifications: • **Contact Plating:** • Wiping area: Gold - MIL-G-45204, Type II, Grade C • Solder Tails: 200µ" 90/10 Tin Lead - MIL-P-81728 • Underplate: 100µ" nickel - QQ-N-290, Class 2 • **Contact Material:** Copper Alloy • **Insulation Material:** • Right Angle: Glass Filled Polyester (PCT) • Straight: Liquid Crystal Polymer (LCP) • Flammability: UL 94V-0 • **Color:** • Natural

Electrical Specifications: • Current Rating: 1.5Amp • Insulation Resistance: >5x10⁸ Ohms @ 250 VDC • Withstanding Voltage: 500 VDC @ Sea level

Environmental Specifications: • Operating Temperature: -55° to +105°C

No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Dual Row Straight Header						
8	.295	3M1108-ND	.83	63.20	286.00	151208-8422-TB
10	.374	3M1110-ND	1.04	79.00	357.50	151210-8422-TB
12	.453	3M1112-ND	1.25	94.80	429.00	151212-8422-TB
20	.768	3M1120-ND	2.08	158.00	715.00	151220-8422-TB
24	.925	3M1124-ND	2.50	189.60	858.00	151224-8422-TB
30	1.162	3M1130-ND	3.12	237.00	1072.50	151230-8422-TB
40	1.556	3M1140-ND	4.16	316 00	1430.00	151240-8422-TB
44	1.714	3M1144-ND	4.58	347.60	1573.00	151244-8422-TB
50	1.950	3M1150-ND	5.20	395.00	1787.50	151250-8422-TB
60	2.344	3M1160-ND	4.99	379.20	1716.00	151260-8422-TB
Dual Row Right Angle Header						
8	.295	3M1208-ND	.94	71.10	321.75	151208-7422-TB
10	.374	3M1210-ND	1.16	88.48	400.40	151210-7422-TB
12	.453	3M1212-ND	1.41	107.44	486.20	151212-7422-TB
20	.768	3M1220-ND	2.35	178.54	807.95	151220-7422-TB
24	.925	3M1224-ND	2.81	213.30	965.25	151224-7422-TB
30	1.162	3M1230-ND	3.52	267.02	1208.35	151230-7422-TB
40	1.556	3M1240-ND	4.70	357.08	1615.90	151240-7422-TB
44	1.714	3M1244-ND	5.16	391.84	1773.20	151244-7422-TB
50	1.950	3M1250-ND	5.87	445.56	2016.30	151250-7422-TB
60	2.344	3M1260-ND	5.87	445.56	2016.30	151260-7422-TB

3M 2mm Ultra Low Profile Shunt



• **Finish:** Nickel underplate. Selective gold or tin/lead all-over overplate. **Nickel:** .000050 min. thick **Gold (selective):** .000030 thick **Tin/lead (90/10):** .000150 thick

• **Material:** **Housing:** Glass Filled Thermoplastic. Color: Black UL94V-0 **Contact:** Beryllium Copper

Plating	Digi-Key Part No.	Pricing 1	100	500	3M Part No.
Tin	953170-00-ND	.46	34.76	157.30	953170-00
Gold	953170-30-ND	.44	33.18	150.15	953170-30

NorComp 2mm Headers

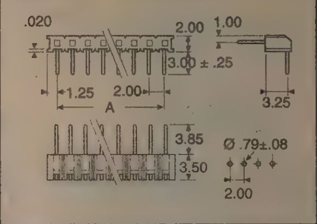
2mm Headers Features:

• 15 microinches selective gold plating • Insulator is glass filled thermoplastic UL Rating 94V0 • Color: Black • Contact material is phosphor bronze • "Post plated" contacts; no bare edges.

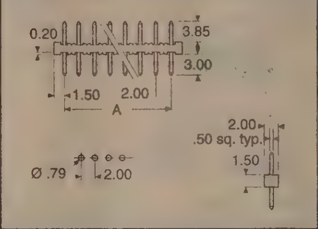
2mm Receptacle Features:

• Printed Circuit Board Mounted Receptacle • 2mm(.079") centers for real estate savings • Single and Dual Row Offerings • 15 microinches selective gold • Insulator, housing, material is glass filled thermoplastic, UL Rating 94VO • Color: Black • Contact material is phosphor bronze

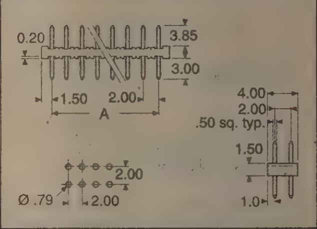
Single Row – Right Angle Header



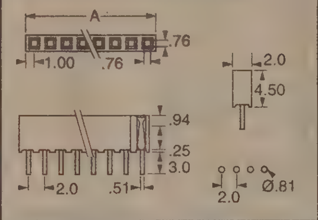
Single Row – Straight Header



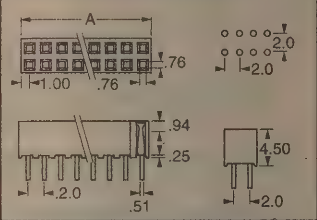
Dual Row – Straight Header



Single Row – Vertical Receptacle



Dual Row – Vertical Receptacle



Manufacturer's Full Length Headers and Receptacles Available in Multiple Pin Versions

Dim. (mm) A	Digi-Key Part No.	Pricing 1	10	100	Manufacturer Part No.
Header Single Row Straight – 36 Pins					
70.0	2163S-36-ND	2.70	24.16	198.95	2163-36-01-P2
Header Single Row Right Angle – 36 Pins					
70.0	2163R-36-ND	2.70	24.16	198.95	2163-36-02-P2
Header Dual Row Straight – 72 Pins					
70.0	2164S-36-ND	5.10	45.63	375.79	2164-72-01-P2
Receptacle Single Row Vertical – 12 Pins					
12.0	2063S-12-ND	2.42	21.65	178.32	2063-12-01-P2
Receptacle Dual Row Vertical – 24 Pins					
12.0	2064S-12-ND	4.10	36.68	302.11	2064-24-01-P2

Digi-Key's Cut Length to your Specification

Digi-Key Part No.	Base Price	Pin Adder
2163S-XX-ND	.90	.05
2163R-XX-ND	.90	.05
2164S-XX-ND	1.50	.10
2063S-XX-ND	.50	.16
2064S-XX-ND	1.10	.25

HOW TO ORDER — 4 Easy Steps

Q. How do I order a 2163S header with 16 pins?

A. Call Digi-Key where you'll happily receive the price or determine the cost yourself.

Step 1. Select needed "Digi-Key Part Number" and number of pins desired.
Step 2. Begin with appropriate "Base Price" of your selected Part Number (refer to chart).
Step 3. Multiply the number of pins you desire by "Pin Adder" of your selected Part Number (refer to chart).
Step 4. Add Step 2 and Step 3 together for Final Cost.

2 ☐☐☐☐ - ☐☐ - ND

Base Part Number
Number of Desired Pins Per Row

OUR EXAMPLE		*YOUR DIGI-KEY PART NUMBER*	
Step 1.	2163S-16-ND	Step 1.	2 _ _ _ _ - _ _ - ND
Step 2.	.90	Step 2.	____
Step 3.	16 x .05 = .80	Step 3.	x = ____
Step 4.	Your Cost = $1.70	Step 4.	Your Cost = ____

NOTE: For Quantities of 10 or More, Call 1-800-DIGI-KEY

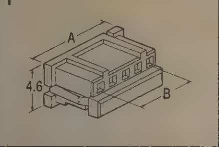
HRS HIROSE ELECTRIC CO.,LTD.

2mm Connectors

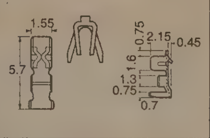
SPECIFICATIONS: DF3 & DF11 Series: • Current Capacity: 3A w/AWG24 cable • Rated Voltage: 250VAC • Insulation Res : Min. 1000MΩ at 500VDC • Withstand Volt.: 650VAC • Contact Res.: Max. 30MΩ at 0.1ADC. **A3B Series:** Current Rating: 2A at 1P • Voltage: 200VAC at 1P • Insulation Res.: 1000MΩ or more at 500VDC • Withstanding Voltage: 650VAC r.m.s. for 1 min. • Contact Res.: 15mΩ or less at 100mADC.

DF3 SERIES - Single Row

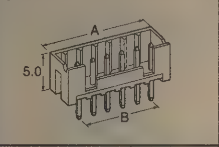
1



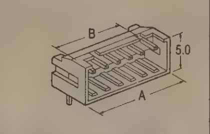
2



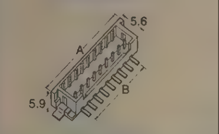
3



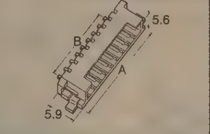
4



5 — Surface Mount

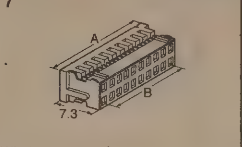


6 — Surface Mount

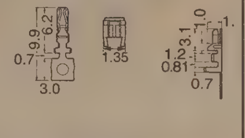


DF11 SERIES - Dual Row

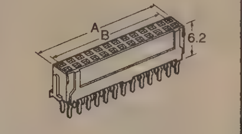
7



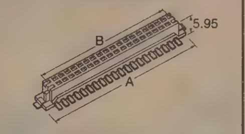
8



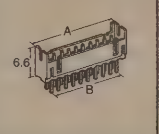
9



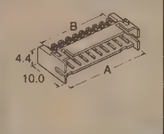
10 — Surface Mount



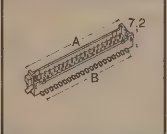
11



12

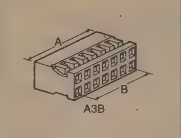


13 — Surface Mount

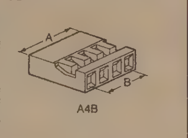


A3B/A4B SERIES - Crimp

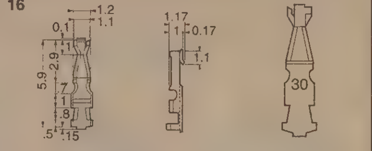
14



15



16



17

Note: For use with all series.

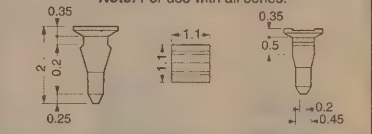


Fig.	No. of Pins	Description	Dim. (mm)		Digi-Key	Pricing			Hirose
			A	B	Part No.	1	5	100	Part No.
DF3 Series — Single Row Connectors									
1	2	Single Row Crimp Socket	6.0	2.0	H2083-ND	.22	.63	9.00	DF3-2S-2C
	3	Single Row Crimp Socket	8.0	4.0	H2084-ND	.23	.67	9.50	DF3-3S-2C
	4	Single Row Crimp Socket	10.0	6.0	H2085-ND	.23	.67	9.50	DF3-4S-2C
	5	Single Row Crimp Socket	12.0	8.0	H2086-ND	.23	.72	10.25	DF3-5S-2C
	6	Single Row Crimp Socket	14.0	10.0	H2087-ND	.23	.74	10.50	DF3-6S-2C
	7	Single Row Crimp Socket	16.0	12.0	H2088-ND	.24	.77	11.00	DF3-7S-2C
	8	Single Row Crimp Socket	18.0	14.0	H2089-ND	.25	.79	11.25	DF3-8S-2C
	9	Single Row Crimp Socket	20.0	16.0	H2146-ND	.25	.88	12.50	DF3-9S-2C
	10	Single Row Crimp Socket	22.0	18.0	H2091-ND	.26	.89	12.75	DF3-10S-2C
	11	Single Row Crimp Socket	24.0	20.0	H2092-ND	.27	.93	13.25	DF3-11S-2C
	12	Single Row Crimp Socket	26.0	22.0	H2093-ND	.25	.96	13.75	DF3-12S-2C
2		Crimp Contact for DF3 Sockets			H2138-ND	2.27/100			DF3-2428SC
		Crimp Tool for DF3 Crimp Contacts			H9997-ND	$1006.29 each			DF3-TA2428HC
3	2	Vertical Protected Header	6.0	2.0	H2094-ND	.20	.57	8.15	DF3A-2P-2DSA
	3	Vertical Protected Header	8.0	4.0	H2095-ND	.23	.68	9.75	DF3A-3P-2DSA
	4	Vertical Protected Header	10.0	6.0	H2096-ND	.25	.78	11.19	DF3A-4P-2DSA
	5	Vertical Protected Header	12.0	8.0	H2097-ND	—	1.05	15.02	DF3A-5P-2DSA
	6	Vertical Protected Header	14.0	10.0	H2098-ND	—	1.08	15.48	DF3A-6P-2DSA
	7	Vertical Protected Header	16.0	12.0	H2099-ND	—	1.13	16.11	DF3A-7P-2DSA
	8	Vertical Protected Header	18.0	14.0	H2147-ND	—	1.59	22.70	DF3A-8P-2DSA
	9	Vertical Protected Header	20.0	16.0	H2101-ND	—	1.74	24.88	DF3A-9P-2DSA
	10	Vertical Protected Header	22.0	18.0	H2102-ND	—	1.84	26.29	DF3A-10P-2DSA
	11	Vertical Protected Header	24.0	20.0	H2103-ND	—	1.88	26.79	DF3A-11P-2DSA
	12	Vertical Protected Header	26.0	22.0	H2104-ND	—	1.92	27.46	DF3A-12P-2DSA
4	2	Rt. Angle Prot. Header	6.0	2.0	H2105-ND	—	1.17	16.75	DF3-2P-2DS
	3	Rt. Angle Prot. Header	8.0	4.0	H2106-ND	—	1.37	19.50	DF3-3P-2DS
	4	Rt. Angle Prot. Header	10.0	6.0	H2107-ND	—	1.49	21.25	DF3-4P-2DS
	5	Rt. Angle Prot. Header	12.0	8.0	H2108-ND	—	1.79	25.50	DF3-5P-2DS
	6	Rt. Angle Prot. Header	14.0	10.0	H2109-ND	—	1.91	27.25	DF3-6P-2DS
	7	Rt. Angle Prot. Header	16.0	12.0	H2110-ND	—	2.05	29.25	DF3-7P-2DS
	8	Rt. Angle Prot. Header	18.0	14.0	H2111-ND	—	2.15	30.75	DF3-8P-2DS
	9	Rt. Angle Prot. Header	20.0	16.0	H2112-ND	—	2.43	34.75	DF3-9P-2DS
	10	Rt. Angle Prot. Header	22.0	18.0	H2113-ND	—	2.57	36.75	DF3-10P-2DS
	11	Rt. Angle Prot. Header	24.0	20.0	H2114-ND	—	3.01	43.00	DF3-11P-2DS
	12	Rt. Angle Prot. Header	26.0	22.0	H2115-ND	—	3.15	45.00	DF3-12P-2DS
5	2	SMT. Vertical Header	8.5	2.0	H2116-ND	.54	—	38.25	DF3-2P-2V
	3	SMT. Vertical Header	10.5	4.0	H2117-ND	.56	—	40.25	DF3-3P-2V
	4	SMT. Vertical Header	12.5	6.0	H2118-ND	.59	—	42.00	DF3-4P-2V
	5	SMT. Vertical Header	14.5	8.0	H2119-ND	.62	—	44.50	DF3-5P-2V
	6	SMT. Vertical Header	16.5	10.0	H2148-ND	.65	—	46.50	DF3-6P-2V
	7	SMT. Vertical Header	18.5	12.0	H2121-ND	.68	—	48.25	DF3-7P-2V
	8	SMT. Vertical Header	20.5	14.0	H2122-ND	.70	—	50.00	DF3-8P-2V
	9	SMT. Vertical Header	22.5	16.0	H2123-ND	.77	—	55.25	DF3-9P-2V
	10	SMT. Vertical Header	24.5	18.0	H2124-ND	.80	—	57.00	DF3-10P-2V
	11	SMT.Vertical Header	26.5	20.0	H2125-ND	.87	—	62.00	DF3-11P-2V
	12	SMT. Vertical Header	28.5	22.0	H2126-ND	.89	—	63.75	DF3-12P-2V
6	2	SMT. Rt. Angle Header	8.5	2.0	H2127-ND	.55	—	39.00	DF3-2P-2H
	3	SMT. Rt. Angle Header	10.5	4.0	H2128-ND	.57	—	40.75	DF3-3P-2H
	4	SMT. Rt. Angle Header	12.5	6.0	H2129-ND	.60	—	42.75	DF3-4P-2H
	5	SMT. Rt. Angle Header	14.5	8.0	H2130-ND	.63	—	45.25	DF3-5P-2H
	6	SMT. Rt. Angle Header	16.5	10.0	H2131-ND	.66	—	47.25	DF3-6P-2H
	7	SMT. Rt. Angle Header	18.5	12 0	H2149-ND	.69	—	49.00	DF3-7P-2H
	8	SMT. Rt. Angle Header	20.5	14.0	H2133-ND	.71	—	50.75	DF3-8P-2H
	9	SMT. Rt. Angle Header	22.5	16.0	H2134-ND	.79	—	56.25	DF3-9P-2H
	10	SMT. Rt. Angle Header	24.5	18.0	H2135-ND	.81	—	58.00	DF3-10P-2H
	11	SMT. Rt. Angle Header	26.5	20.0	H2136-ND	.89	—	63.25	DF3-11P-2H
	12	SMT. Rt. Angle Header	28.5	22.0	H2137-ND	.91	—	64.75	DF3-12P-2H
DF11 Series — Dual Row Connectors									
7	4	Dual Row Crimp Socket	6.0	2.0	H2019-ND	.27	1.30	18.50	DF11-4DS-2C
	6	Dual Row Crimp Socket	8.0	4.0	H2021-ND	.29	1.40	20.00	DF11-6DS-2C
	8	Dual Row Crimp Socket	10.0	6.0	H2022-ND	.27	1.33	19.00	DF11-8DS-2C
	10	Dual Row Crimp Socket	12.0	8.0	H2023-ND	.29	1.40	20.00	DF11-10DS-2C
	12	Dual Row Drimp Socket	14.0	10.0	H2024-ND	.30	1.47	21.00	DF11-12DS-2C
	14	Dual Row Crimp Socket	16.0	12.0	H2140-ND	.32	1.54	22.00	DF11-14DS-2C
	16	Dual Row Crimp Socket	18.0	14.0	H2025-ND	.33	1.61	23.00	DF11-16DS-2C
	18	Dual Row Crimp Socket	20.0	16.0	H2026-ND	.34	1.66	23.75	DF11-18DS-2C
	20	Dual Row Crimp Socket	22.0	18.0	H2027-ND	.36	1.77	25.25	DF11-20DS-2C
	22	Dual Row Crimp Socket	24.0	20.0	H2028-ND	.38	1.86	26.50	DF11-22DS-2C
	24	Dual Row Crimp Socket	26.0	22.0	H2029-ND	.40	1.93	27.50	DF11-24DS-2C
8		Crimp Contact for DF11 Crimp Socket			H2139-ND	1.87/100			DF11-2428SC
		Crimp Tool for DF11 Crimp Contact			H9995-ND	915.50 each			DF11-TA2428HC
		Extraction Tool for DF11 Crimp Socket			H9996-ND	7.57 each			DF-C-PO(B)

Fig.	No. of Pins	Description	Dim. (mm)		Digi-Key	Pricing			Hirose
			A	B	Part No.	1	25	100	Part No.
9	8	Vertical PCB Socket	10.0	6.0	H2030-ND	.99	21.15	70.50	DF11-8DS-2DSA
	10	Vertical PCB Socket	12.0	8.0	H2031-ND	1.07	23.03	76.75	DF11-10DS-2DSA
	12	Vertical PCB Socket	14.0	10.0	H2141-ND	1.17	24.98	83.25	DF11-12DS-2DSA
	14	Vertical PCB Socket	16.0	12.0	H2033-ND	1.26	26.93	89.75	DF11-14DS-2DSA
	16	Vertical PCB Socket	18.0	14.0	H2034-ND	1.38	29.48	98.25	DF11-16DS-2DSA
	18	Vertical PCB Socket	20.0	16.0	H2035-ND	1.47	31.43	104.75	DF11-18DS-2DSA
	20	Vertical PCB Socket	22.0	18.0	H2036-ND	1.60	34.20	114.00	DF11-20DS-2DSA
	22	Vertical PCB Socket	24.0	20.0	H2037-ND	1.69	36.15	120.50	DF11-22DS-2DSA
	24	Vertical PCB Socket	26.0	22.0	H2038-ND	1.78	38.10	127.00	DF11-24DS-2DSA
10	4	SMT. Socket	8.5	2.0	H2039-ND	.89	18.98	63.25	DF11-4DS-2V
	6	SMT. Socket	10.5	4.0	H2040-ND	.99	21.23	70.75	DF11-6DS-2V
	8	SMT. Socket	12.5	6.0	H2041-ND	1.10	23.63	78.75	DF11-8DS-2V
	10	SMT. Socket	14.5	8.0	H2042-ND	1.20	25.80	86.00	DF11-10DS-2V
	12	SMT. Socket	16.5	10.0	H2043-ND	1.32	28.35	94.50	DF11-12DS-2V
	14	SMT. Socket	18.5	12.0	H2142-ND	1.42	30.53	101.75	DF11-14DS-2V
	16	SMT. Socket	20.5	14.0	H2045-ND	1.55	33.15	110.50	DF11-16DS-2V
	18	SMT. Socket	22.5	16.0	H2046-ND	1.65	35.40	118.00	DF11-18DS-2V
	20	SMT. Socket	24.5	18.0	H2047-ND	1.76	37.65	125.50	DF11-20DS-2V
	22	SMT. Socket	26.5	20.0	H2048-ND	1.86	39.83	132.75	DF11-22DS-2V
	24	SMT. Socket	28.5	22.0	H2049-ND	1.96	42.08	140.25	DF11-24DS-2V
11	4	Vertical Protected Header	6.0	2.0	H2143-ND	.41	8.78	29.25	DF11-4DP-2DSA
	6	Vertical Protected Header	8.0	4.0	H2051-ND	.46	9.90	33.00	DF11-6DP-2DSA
	8	Vertical Protected Header	10.0	6.0	H2052-ND	.49	10.50	35.00	DF11-8DP-2DSA
	10	Vertical Protected Header	12.0	8.0	H2053-ND	.55	11.85	39.50	DF11-10DP-2DSA
	12	Vertical Protected Header	14.0	10.0	H2054-ND	.62	13.35	44.50	DF11-12DP-2DSA
	14	Vertical Protected Header	16.0	12.0	H2055-ND	.68	14.55	48.50	DF11-14DP-2DSA
	16	Vertical Protected Header	18.0	14.0	H2056-ND	.59	12.68	42.25	DF11-16DP-2DSA
	18	Vertical Protected Header	20.0	16.0	H2057-ND	.81	17.33	57.75	DF11-18DP-2DSA
	20	Vertical Protected Header	22.0	18.0	H2058-ND	.98	20.93	69.75	DF11-20DP-2DSA
	22	Vertical Protected Header	24.0	20.0	H2059-ND	.97	20.85	69.50	DF11-22DP-2DSA
	24	Vertical Protected Header	26.0	22.0	H2060-ND	1.03	22.05	73.50	DF11-24DP-2DSA
12	4	Rt. Angle Prot. Header	6.0	2.0	H2061-ND	.44	9.53	31.75	DF11-4DP-2DS
	6	Rt. Angle Prot. Header	8.0	4.0	H2062-ND	.50	10.80	36.00	DF11-6DP-2DS
	8	Rt. Angle Prot. Header	10.0	6.0	H2063-ND	.54	11.55	38.50	DF11-8DP-2DS
	10	Rt. Angle Prot. Header	12.0	8.0	H2145-ND	.61	13.05	43.50	DF11-10DP-2DS
	12	Rt. Angle Prot. Header	14.0	10.0	H2065-ND	.69	14.78	49.25	DF11-12DP-2DS
	14	Rt. Angle Prot. Header	16.0	12.0	H2066-ND	.75	16.13	53.75	DF11-14DP-2DS
	16	Rt. Angle Prot. Header	18.0	14.0	H2067-ND	.68	14.63	48.75	DF11-16DP-2DS
	18	Rt. Angle Prot. Header	20.0	16.0	H2068-ND	.90	19.35	64.50	DF11-18DP-2DS
	20	Rt. Angle Prot. Header	22.0	18.0	H2069-ND	.98	21.08	70.25	DF11-20DP-2DS
	22	Rt. Angle Prot. Header	24.0	20.0	H2070-ND	1.10	23.55	78.50	DF11-22DP-2DS
	24	Rt. Angle Prot. Header	26.0	22.0	H2071-ND	1.16	24.90	83.00	DF11-24DP-2DS
13	4	SMT. Protected Header	2.0	8.5	H2072-ND	.99	21.23	70.75	DF11-4DP-2V
	6	SMT. Protected Header	4.0	10.5	H2073-ND	1.11	23.78	79.25	DF11-6DP-2V
	8	SMT. Protected Header	6.0	12.5	H2074-ND	1.18	25.20	84.00	DF11-8DP-2V
	10	SMT. Protected Header	8.0	14.5	H2075-ND	1.26	27.00	90.00	DF11-10DP-2V
	12	SMT. Protected Header	10.0	16.5	H2076-ND	1.33	28.50	95.00	DF11-12DP-2V
	14	SMT. Protected Header	12.0	18.5	H2077-ND	1.41	30.30	101.00	DF11-14DP-2V
	16	SMT. Protected Header	14.0	20.5	H2078-ND	1.49	31.95	106.50	DF11-16DP-2V
	18	SMT. Protected Header	16.0	22.5	H2079-ND	1.58	33.83	112.75	DF11-18DP-2V
	20	SMT. Protected Header	18.0	24.5	H2080-ND	1.63	34.95	116.50	DF11-20DP-2V
	22	SMT. Protected Header	20.0	26.5	H2081-ND	1.72	36.75	122.50	DF11-22DP-2V
	24	SMT. Protected Header	22.0	28.5	H2082-ND	1.80	38.55	128.50	DF11-24DP-2V
A3B/A4B Series — Crimp Connectors									
14	4	Dual Row Crimp Socket	4.0	2.0	H2001-ND	.26	5.40	18.00	A3B-4D-2C
	6	Dual Row Crimp Socket	6.0	4.0	H2002-ND	.27	5.70	19.00	A3B-6D-2C
	8	Dual Row Crimp Socket	8.0	6.0	H2003-ND	.29	6.08	20.25	A3B-8D-2C
	10	Dual Row Crimp Socket	10.0	8.0	H2004-ND	.31	6.38	21.25	A3B-10D-2C
	12	Dual Row Crimp Socket	12.0	10.0	H2005-ND	.32	6.75	22.50	A3B-12D-2C
	14	Dual Row Crimp Socket	14.0	12.0	H2006-ND	.33	6.98	23.25	A3B-14D-2C
	18	Dual Row Crimp Socket	18.0	16.0	H2007-ND	.36	7.50	25.00	A3B-18D-2C
	20	Dual Row Crimp Socket	20.0	18.0	H2008-ND	.37	7.73	25.75	A3B-20D-2C
	24	Dual Row Crimp Socket	24.0	22.0	H2009-ND	.39	8.18	27.25	A3B-24D-2C
	28	Dual Row Crimp Socket	28.0	26.0	H2010-ND	.42	8.70	29.00	A3B-28D-2C
15	2	Single Row Crimp Socket	4.0	2.0	H2011-ND	.25	5.25	17.50	A4B-2S-2C
	3	Single Row Crimp Socket	6.0	4.0	H2012-ND	.26	5.33	17.75	A4B-3S-2C
	4	Single Row Crimp Socket	8.0	6.0	H2013-ND	.26	5.40	18.00	A4B-4S-2C
	5	Single Row Crimp Socket	10.0	8.0	H2014-ND	.26	5.48	18.25	A4B-5S-2C
	6	Single Row Crimp Socket	12.0	10.0	H2015-ND	.27	5.63	18.75	A4B-6S-2C
	8	Single Row Crimp Socket	16.0	14.0	H2016-ND	.28	5.78	19.25	A4B-8S-2C
	10	Single Row Crimp Socket	20.0	18.0	H2017-ND	.29	6.00	20.00	A4B-10S-2C
	12	Single Row Crimp Socket	24.0	22.0	H2018-ND	.30	6.15	20.50	A4B-12S-2C
16		Crimp Terminal for A3B-A4B Type			H9999-ND	4.08/100			A3B-2630SCC
		Crimp Tool for A3B-A4B Type			H9998-ND	1059.60 each			A3B-TA2630HC
17		Polarizing Key for Socket Connectors			H2000-ND	2.61/10;		10.43/100	A3-GPIN(A)

HRS HIROSE ELECTRIC CO.,LTD.

NEW! 1mm Connectors

DF13 SERIES are 1.25mm pitch, compact "PCB-to-Wire" Nylon Connectors best suited for high density applications requiring reduced cost production, and light-weight. **Electrical:** Current Capacity: 1A. Rated Voltage: AC150V. Insulation Resistance: Condition: DC100, Standard Value: Min. 500MΩ. Withstanding Voltage: Condition: At specified value, Standard Value: AC500V. Contact Resistance: Condition: At DC0.1A, Standard Value: Max. 30mΩ. **Material & Finish:** Pin Header Insulator: Polyamide resin, beige, UL94V-0. Pin Header Contact: Brass, Tin plating. Pin Header Hardware: Brass, Tin plating. Crimp Socket Insulator: Polyamide resin, beige, UL94V-0. Crimp Socket Contact: Phosphor bronze, Tin plating.

DF9 SERIES - SMT 1mm Center Line Board-To-Board Connector

- 4.3mm mated height between PCBs.
- Insulator is manufactured from polyamide to withstand the high temperatures resulting from V.P.S., IR, and Heat blow soldering.
- PCB contact is a "Gull-Wing" type design to ensure reliable performance.
- Designed to control and accept dimensional changes by thermo-elasticity.
- Reinforcement hardware is provided to eliminate mechanical stress to solder joints during mating and unmating cycles.

Electrical: Rated Current: 0.5A. Rated Voltage: AC150V. Insulation Resistance: Condition: DC100V, Standard Value: Min. 500MΩ. Withstanding Voltage: Condition: At standard value, Standard Value: 50m or less. Contact Resistance: Condition: At 0.1 ADC, Standard Value: 50m or less.

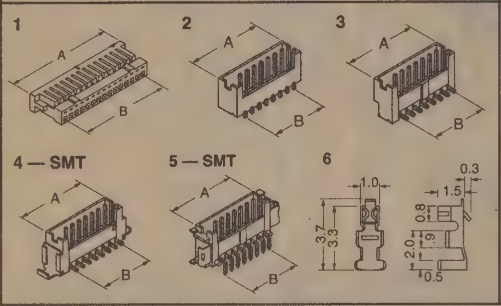
Material & Finish: Receptacle Header Insulator: Polyamide resin, beige (natural), UL94V-0. Receptacle Header Connector: Phosphor bronze, Tin plating. Receptacle Header Fitting: Brass, Tin plating.

FX2 SERIES is a 50 mil spacing, 2 piece connector for use in board-to-board application.

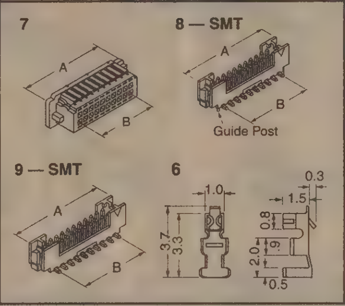
- High performance PPS resin insulator is compatible to VPS, IR and hot air reflow.
- Gull wing-shaped lead is used for ease of checking soldered connection.
- Use of positioning boss for substrate packaging offers improved handling capability.
- Solder-fixing reinforcement bracket, which disperses inserting/extracting stress, is available for optional specification.

Electrical: Rated Current: 0.5A. Rated Voltage: 125VAC. Insulation Resistance: More than 1000M at 250VDC. Withstanding Voltage: 300VAC. Contact Resistance: Less than 45 mm-ohms at 100mA DC. Duribility: 500 times mating cycles. **Insulator Material & Finish:** Dip Type: Black polyamide resin, UL94V-0. SMT Type: Light Brawn PPS resin, UL94V-0. Socket: Black PBT resin and polyamide resin, UL94V-0. **Contact Material & Finish:** Receptacle Header: Phosphor Bronze with Selective Gold plating. Socket: Beryllium Copper with Selective Gold plating.

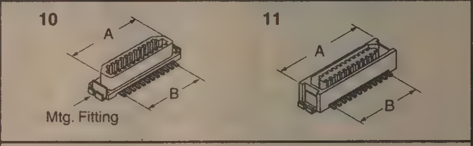
DF13 Series - Single Row



DF13 Series - Dual Row



DF9 Series - SMT (with Reinforced Hard.)



FX2 Series - SMT

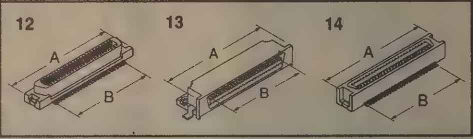


Fig.	No. of Pins	Description	Dim. (mm)		Digi-Key Part No.	Pricing			Hirose Part No.
			A	B		1	25	100	
DF13 Series — Single Row Crimp Socket Connectors									
1	2	Single Row Socket	4.15	1.25	H2179-ND	16	3.39	11.30	DF13-2S-1.25C
	3	Single Row Socket	5.40	2.50	H2180-ND	.17	3.55	11.83	DF13-3S-1.25C
	4	Single Row Socket	6.65	3.75	H2181-ND	.21	4.49	14.95	DF13-4S-1.25C
	5	Single Row Socket	7.90	5.00	H2182-ND	.22	4.68	15.60	DF13-5S-1.25C
	6	Single Row Socket	9.15	6.25	H2183-ND	.23	4.85	16.15	DF13-6S-1.25C
	7	Single Row Socket	10.40	7.50	H2184-ND	.23	5.02	16.73	DF13-7S-1.25C
	8	Single Row Socket	11.65	8.75	H2185-ND	.34	7.21	24 03	DF13-8S-1.25C
	10	Single Row Socket	14.15	11.25	H2186-ND	.35	7.57	25.23	DF13-10S-1.25C
	11	Single Row Socket	15.40	12.50	H2187-ND	.37	8.01	26.70	DF13-11S-1.25C
	12	Single Row Socket	16.65	13.75	H2188-ND	.38	8.18	27.25	DF13-12S-1.25C
	14	Single Row Socket	19.15	16.25	H2189-ND	.41	8.86	29.53	DF13-14S-1.25C
	15	Single Row Socket	20.40	17.50	H2259-ND	.42	9.02	30.05	DF13-15S-1.25C
DF13 Series — Single Row Connectors, Pin Header, Straight Type									
2	2	Pin Header, Straight Type	4.15	1.25	H2191-ND	.27	5.82	19.40	DF13-2P-1.25DSA
	3	Pin Header, Straight Type	5.40	2.50	H2192-ND	.33	7.11	23.70	DF13-3P-1.25DSA
	4	Pin Header, Straight Type	6.65	3.75	H2193-ND	43	9.31	31.03	DF13-4P-1.25DSA
	5	Pin Header, Straight Type	7.90	5.00	H2194-ND	.49	10.56	35.20	DF13-5P-1.25DSA
	6	Pin Header, Straight Type	9.15	6.25	H2195-ND	.55	11.82	39.40	DF13-6P-1.25DSA
	7	Pin Header, Straight Type	10.40	7.50	H2196-ND	.61	13.11	43.70	DF13-7P-1.25DSA
	8	Pin Header, Straight Type	11.65	8.75	H2197-ND	.76	16.31	54.35	DF13-8P-1.25DSA
	10	Pin Header, Straight Type	14.15	11.25	H2198-ND	.88	18.83	62.78	DF13-10P-1.25DSA
DF13 Series — Single Row Connectors, Pin Header, Right Angle Type									
3	2	Pin Header, Right Angle Type	4.15	1.25	H2199-ND	.30	6.45	21.50	DF13-2P-1.25DS(20)*
	3	Pin Header, Right Angle Type	5.40	2.50	H2260-ND	.37	7.95	26.50	DF13-3P-1.25DS(20)*
	4	Pin Header, Right Angle Type	6.65	3.75	H2201-ND	.48	10.35	34.50	DF13-4P-1.25DS(20)*
	5	Pin Header, Right Angle Type	7.90	5.00	H2202-ND	.55	11.78	39.25	DF13-5P-1.25DS(20)*
	6	Pin Header, Right Angle Type	9.15	6.25	H2203-ND	.62	13.28	44.25	DF13-6P-1.25DS(20)*
	7	Pin Header, Right Angle Type	10.40	7.50	H2204-ND	.69	14.78	49.25	DF13-7P-1.25DS(20)*
	8	Pin Header, Right Angle Type	11.65	8.75	H2205-ND	.85	18.15	60.50	DF13-8P-1.25DS(20)*
	10	Pin Header, Right Angle Type	14.15	11.25	H2206-ND	.99	21.15	70.50	DF13-10P-1.25DS(20)*
DF13 Series — Single Row Connectors, SMT-Compatible Pin Header									
4	2	Pin Header, Straight Type	4.15	1.25	H2207-ND	.59	12.68	42.25	DF13-2P-1.25V(20)*
	3	Pin Header, Straight Type	5.40	2.50	H2208-ND	.61	13.13	43.75	DF13-3P-1.25V(20)*
	4	Pin Header, Straight Type	6.65	3.75	H2209-ND	.68	14.63	48.75	DF13-4P-1.25V(20)*
	5	Pin Header, Straight Type	7.90	5.00	H2210-ND	.71	15.15	50.50	DF13-5P-1.25V(20)*
	6	Pin Header, Straight Type	9.15	6.25	H2211-ND	.78	16.80	56 00	DF13-6P-1.25V(20)*
	7	Pin Header, Straight Type	10.40	7.50	H2212-ND	.86	18.45	61.50	DF13-7P-1.25V(20)*
	8	Pin Header, Straight Type	11.65	8.75	H2213-ND	1.03	22.05	73.50	DF13-8P-1.25V(20)*
	10	Pin Header, Straight Type	14.15	11.25	H2214-ND	1.18	25.35	84.50	DF13-10P-1.25V(20)*
	11	Pin Header, Straight Type	15.40	12.50	H2215-ND	1.27	27.30	91.00	DF13-11P-1.25V(20)*
	12	Pin Header, Straight Type	16.65	13.75	H2216-ND	1.35	29.03	96.75	DF13-12P-1.25V(20)*
	14	Pin Header, Straight Type	19.15	16.25	H2217-ND	1.53	32.78	109.25	DF13-14P-1.25V(20)*
	15	Pin Header, Straight Type	20.40	17.50	H2218-ND	1.60	34.28	114.25	DF13-15P-1.25V(20)*
DF13 Series — Single Row Connectors, SMT-Compatible Pin Header, Right Angle Type									
5	2	Pin Header, Right Angle Type	4.15	1.25	H2219-ND	.46	9.83	32.75	DF13-2P-1.25H(20)*
	3	Pin Header, Right Angle Type	5.40	2.50	H2220-ND	.51	11.03	36.75	DF13-3P-1.25H(20)*
	4	Pin Header, Right Angle Type	6.65	3.75	H2221-ND	.61	13.13	43.75	DF13-4P-1.25H(20)*
	5	Pin Header, Right Angle Type	7.90	5.00	H2222-ND	.67	14.33	47.75	DF13-5P-1.25H(20)*
	6	Pin Header, Right Angle Type	9.15	6.25	H2223-ND	.74	15.90	53.00	DF13-6P-1.25H(20)*
	7	Pin Header, Right Angle Type	10.40	7.50	H2224-ND	.81	17.40	58.00	DF13-7P-1.25H(20)*
	8	Pin Header, Right Angle Type	11.65	8.75	H2225-ND	.98	20.93	69.75	DF13-8P-1.25H(20)*
	10	Pin Header, Right Angle Type	14.15	11.25	H2226-ND	1.13	24.15	80.50	DF13-10P-1.25H(20)*
	11	Pin Header, Right Angle Type	15.40	12.50	H2227-ND	1.27	27.30	91.00	DF13-11P-1.25H(20)*
	12	Pin Header, Right Angle Type	16.65	13.75	H2228-ND	1.28	27.53	91.75	DF13-12P-1.25H(20)*
	14	Pin Header, Right Angle Type	19.15	16.25	H2229-ND	1.45	31.05	103.50	DF13-14P-1.25H(20)*
	15	Pin Header, Right Angle Type	20.40	17.50	H2230-ND	1.52	32.48	108.25	DF13-15P-1.25H(20)*
DF13 Series — Dual Row Crimp Socket Connectors									
7	10	Dual Row Sockets	10.40	5.00	H2231-ND	.18	3.95	13.18	DF13-10DS-1.25C
	20	Dual Row Sockets	16.65	11.25	H2232-ND	.22	4.80	16.00	DF13-20DS-1.25C
	30	Dual Row Sockets	22.90	17.50	H2233-ND	.26	5.65	18.83	DF13-30DS-1.25C
	40	Dual Row Sockets	29.15	23.75	H2234-ND	.30	6.44	21.48	DF13-40DS-1.25C

* (20) indicates tin plating; (50) indicates gold plating.

Fig.	No. of Pins	Description	Dim. (mm)		Digi-Key Part No.	Pricing			Hirose Part No.
			A	B		1	25	100	
DF13 Series — Double Row Sockets, Straight Pin Headers - SMT (gold)									
8	10	Headers w/Guide Posts	12.10	5.00	H2235-ND	1.12	24.00	80.00	DF13-10DP-1.25V(50)*
	20	Headers w/Guide Posts	18.35	11.25	H2236-ND	1.82	39.00	130.00	DF13-20DP-1.25V(50)*
	30	Headers w/Guide Posts	24.60	17.50	H2237-ND	2.56	54.75	182.50	DF13-30DP-1.25V(50)*
	40	Headers w/Guide Posts	30.85	23.75	H2238-ND	3.29	70.50	235.00	DF13-40DP-1.25V(50)*
DF13 Series — Double Row Sockets, Straight Pin Headers - SMT (gold)									
9	10	Headers w/o Guide Posts	12.10	5.00	H2239-ND	1.12	24.00	80.00	DF13A-10DP-1.25V(50)*
	20	Headers w/o Guide Posts	18.35	11.25	H2240-ND	1.82	39.00	130.00	DF13A-20DP-1.25V(50)*
	30	Headers w/o Guide Posts	24.60	17.50	H2241-ND	2.56	54.75	182.50	DF13A-30DP-1.25V(50)*
	40	Headers w/o Guide Posts	30.85	23.75	H2242-ND	3.29	70.50	235.00	DF13A-40DP-1.25V(50)*
DF13 Series — Socket Crimp Terminal									
6		Socket Crimp Contacts, Tin Plating, AWG 26-30			H9992-ND	—	—	3.00	DF13-2630SCF
		Socket Crimp Contacts, Gold Plating, AWG 26-30			H9991-ND	—	—	5.48	DF13-2630SCFA
—		Crimp Tool for DF13			H9994-ND	111250	—	—	DF13-TB2630HC
DF9 Series — SMT 1mm Center Line Board To Board Connector									
10	9	Receptacle w/Guide Post	8.30	3.00	H2152-ND	2.42	51.75	172.50	DF9-9S-1V(20)*
	11	Receptacle w/Guide Post	9.30	4.00	H2153-ND	2.59	55.50	185.00	DF9-11S-1V(20)*
	13	Receptacle w/Guide Post	10.30	5.00	H2154-ND	2.77	59.25	197.50	DF9-13S-1V(20)*
	15	Receptacle w/Guide Post	11.30	6.00	H2155-ND	2.45	52.50	175.00	DF9-15S-1V(20)*
	17	Receptacle w/Guide Post	12.30	7.00	H2156-ND	1.75	37.50	125.00	DF9-17S-1V(20)*
	19	Receptacle w/Guide Post	13.30	8.00	H2157-ND	2.14	45.75	152.50	DF9-19S-1V(20)*
	21	Receptacle w/Guide Post	14.30	9.00	H2158-ND	2.77	59.25	197.50	DF9-21S-1V(20)*
	23	Receptacle w/Guide Post	15.30	10.00	H2159-ND	2.03	43.50	145.00	DF9-23S-1V(20)*
	25	Receptacle w/Guide Post	16.30	11.00	H2160-ND	3.01	64.50	215.00	DF9-25S-1V(20)*
	31	Receptacle w/Guide Post	19.30	14.00	H2161-ND	2.17	46.50	155.00	DF9-31S-1V(20)*
	41	Receptacle w/Guide Post	24.30	19.00	H2162-ND	3.36	72.00	240.00	DF9-41S-1V(20)*
	51	Receptacle w/Guide Post	29.30	24.00	H2163-ND	5.39	115.50	385.00	DF9-51S-1V(54)*
	31	Receptacle w/o Guide Post	19.30	14.00	H2176-ND	3.71	79.50	265.00	DF9B-31S-1V(20)*
	41	Receptacle w/o Guide Post	24.30	19.00	H2177-ND	4.38	93.75	312.50	DF9B-41S-1V(20)*
	51	Receptacle w/o Guide Post	29.30	24.00	H2178-ND	5.85	125.25	417.50	DF9B-51S-1V(54)*
DF9 Series — SMT 1mm Center Line Board To Board Connector									
11	9	Pin Header w/Reinforce Hard.	8.30	3.00	H2258-ND	2.42	51.75	172.50	DF9-9P-1V(20)*
	11	Pin Header w/Reinforce Hard.	9.30	4.00	H2165-ND	2.52	54.00	180.00	DF9-11P-1V(20)*
	13	Pin Header w/Reinforce Hard.	10.30	5.00	H2166-ND	1.47	31.50	105.00	DF9-13P-1V(20)*
	15	Pin Header w/Reinforce Hard.	11.30	6.00	H2167-ND	2.91	62.25	207.50	DF9-15P-1V(20)*
	17	Pin Header w/Reinforce Hard.	12.30	7.00	H2168-ND	1.75	37.50	125.00	DF9-17P-1V(20)*
	19	Pin Header w/Reinforce Hard.	13.30	8.00	H2169-ND	2.21	47.25	157.50	DF9-19P-1V(20)*
	21	Pin Header w/Reinforce Hard.	14.30	9.00	H2170-ND	2.84	60.75	202.50	DF9-21P-1V(20)*
	23	Pin Header w/Reinforce Hard.	15.30	10.00	H2171-ND	3.05	65.25	217.50	DF9-23P-1V(20)*
	25	Pin Header w/Reinforce Hard.	16.30	11.00	H2172-ND	3.05	65.25	217.50	DF9-25P-1V(20)*
	31	Pin Header w/Reinforce Hard.	19.30	14.00	H2173-ND	2.87	61.50	205.00	DF9-31P-1V(20)*
	41	Pin Header w/Reinforce Hard.	24.30	19.00	H2174-ND	3.36	72.00	240.00	DF9-41P-1V(20)*
	51	Pin Header w/Reinforce Hard.	29.30	24.00	H2175-ND	5.39	115.50	385.00	DF9-51P-1V(54)*
FX2 Series — Receptacle SMT Type									
12	20	Straight Type Receptacle	22.75	11.43	H2248-ND	5.11	109.50	365.00	FX2-20S-1.27SV
	40	Straight Type Receptacle	35.45	24.13	H2249-ND	6.51	139.50	465.00	FX2-40S-1.27SV
	52	Straight Type Receptacle	43.07	31.75	H2250-ND	7.39	158.25	527.50	FX2-52S-1.27SV
	60	Straight Type Receptacle	48.15	36.83	H2251-ND	7.95	170.25	567.50	FX2-60S-1.27SV
	80	Straight Type Receptacle	60.85	49.53	H2252-ND	9.07	194.25	647.50	FX2-80S-1.27SV
FX2 Series — Header SMT Type									
13	20	Right Angle Type Header	22.75	12.065	H2243-ND	3.01	64.50	215.00	FX2-20P-0.635SH
	40	Right Angle Type Header	35.45	24.765	H2244-ND	4.03	86.25	287.50	FX2-40P-0.635SH
	52	Right Angle Type Header	43.07	32.385	H2245-ND	4.69	100.50	335.00	FX2-52P-0.635SH
	60	Right Angle Type Header	48.15	37.465	H2246-ND	5.11	109.50	365.00	FX2-60P-0.635SH
	80	Right Angle Type Header	60.85	50.165	H2247-ND	6.23	133.50	445.00	FX2-80P-0.635SH
FX2 Series — Header SMT Type									
14	20	Straight Type Header	22.75	11.43	H2253-ND	4.87	104.25	347.50	FX2-20P-1.27SV
	40	Straight Type Header	35.45	24.13	H2254-ND	6.20	132.75	442.50	FX2-40P-1.27SV
	52	Straight Type Header	43.07	31.75	H2255-ND	7.04	150.75	502.50	FX2-52P-1.27SV
	60	Straight Type Header	48.15	36.83	H2256-ND	7.53	161.25	537.50	FX2-60P-1.27SV
	80	Straight Type Header	60.85	49.53	H2257-ND	8.89	190.50	635.00	FX2-80P-1.27SV

HRS HIROSE ELECTRIC CO.,LTD.

1mm Flex Connectors

1mm Pitch Flexible Printed Circuit Connectors (Figures 1 and 2)

• Features: • High-density packaging achieved by 1 mm pitch contacts • Dual-side contact construction allows FPC and FFC conductors to be inserted in either direction • Enhanced contact reliability through high contact pressure • Applicable to 0.25 to 0.35 mm thick flexible printed circuit boards • Uses PBT (UL94V-0) insulating materials which are highly resistant to solvents and high temperature • Kinked dip posts for board retention during wave soldering

• Material/Finish: • Insulator: Polybutylene phthalate, black • Contacts: Phosphor bronze, Tin-lead plated

• Electrical: • Rated Current: 0.5A • Insulation Resistance: At 100V DC, 500MΩ Min. • Withstand Voltage: For 1 minute, 150V AC • Contact Resistance: 40mΩ Max.

SMT ZIF Type Flexible PCB Connectors (Figures 3 and 4)

• Features: • Low profile type with 3mm packaged height. 1mm pitch permits high-density packaging. • Excellent workability is offered by the ZIF structure which provides positive contact by only lightly inserting FPC/FFC and then pushing in the movable locking flap. • Recommended thickness of flexible circuit board is 0.25 to 0.30mm. • PPS (UL94V-0) with excellent solvent resistance and high temperature resistance is used for the insulation material. • The SMT type connectors permit high density and automatic packaging on circuit boards. • Also available in embossed tape packaging.

• Material/Finish: • Insulator: PPS Resin, Natural Finish • Contact: Phosphor Bronze, Tin Plating

• Electrical Performance: • Current Rating: 0.5A • Insulator Resistance: Min. 500MΩ at 100VDC • Withstanding Voltage: 150VAC for 1 minute at specified value • Contact Resistance: Max. 25mΩ

Fig. 1

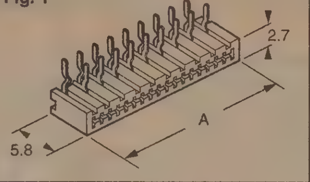


Fig. 2

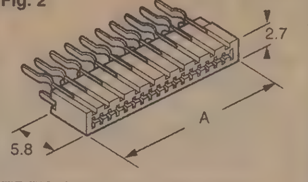


Fig. 3

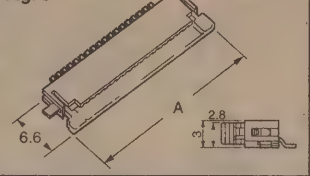


Fig. 4

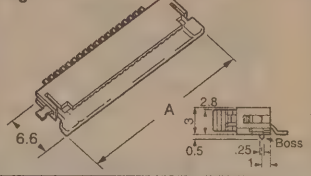


Fig. No.	No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	10	100	250	Hirose Part No.
			Right Angle					
1	6	8	HFG06T-ND	.53	4.28	30.00	65.63	FH21-6S-1DS
1	8	10	HFG08T-ND	.60	4.85	34.00	74.38	FH21-8S-1DS
1	10	12	HFG10T-ND	.77	6.27	44.00	96.25	FH21-10S-1DS
1	12	14	HFG12T-ND	.88	7.13	50.00	109.38	FH21-12S-1DS
1	14	16	HFG14T-ND	.98	7.98	56.00	122.50	FH21-14S-1DS
1	16	18	HFG16T-ND	1.12	9.12	64.00	140.00	FH21-16S-1DS
1	18	20	HFG18T-ND	1.23	9.98	70.00	153.13	FH21-18S-1DS
1	20	22	HFG20T-ND	1.40	11.40	80.00	175.00	FH21-20S-1DS
1	22	24	HFG22T-ND	1.44	11.69	82.00	179.38	FH21-22S-1DS
1	24	26	HFG24T-ND	1.54	12.54	88.00	192.50	FH21-24S-1DS
1	26	28	HFG26T-ND	1.68	13.68	96.00	210.00	FH21-26S-1DS
1	28	30	HFG28T-ND	1.86	15.11	106.00	231.88	FH21-28S-1DS
1	30	32	HFG30T-ND	1.89	15.39	108.00	236.25	FH21-30S-1DS
			Straight					
2	6	8	HFF06T-ND	.49	3.99	28.00	61.25	FH21-6S-1DSA
2	8	10	HFF08T-ND	.56	4.56	32.00	70.00	FH21-8S-1DSA
2	10	12	HFF10T-ND	.70	5.70	40.00	87.50	FH21-10S-1DSA
2	12	14	HFF12T-ND	.81	6.56	46.00	100.63	FH21-12S-1DSA
2	14	16	HFF14T-ND	.88	7.13	50.00	109.38	FH21-14S-1DSA
2	16	18	HFF16T-ND	1.02	8.27	58.00	126.88	FH21-16S-1DSA
2	18	20	HFF18T-ND	1.09	8.84	62.00	135.63	FH21-18S-1DSA
2	20	22	HFF20T-ND	1.26	10.26	72.00	157.50	FH21-20S-1DSA
2	22	24	HFF22T-ND	1.30	10.55	74.00	161.88	FH21-22S-1DSA
2	24	26	HFF24T-ND	1.40	11.40	80.00	175.00	FH21-24S-1DSA
2	26	28	HFF26T-ND	1.51	12.26	86.00	188.13	FH21-26S-1DSA
2	28	30	HFF28T-ND	1.65	13.40	94.00	205.63	FH21-28S-1DSA
2	30	32	HFF30T-ND	1.68	13.68	96.00	210.00	FH21-30S-1DSA

Fig. No.	No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	10	100	250	Hirose Part No.
			SMT Flex Without Board Mount Boss					
3	6	12.2	HFE06F-ND	1.19	9.69	68.00	148.75	FH10A-6S-1SH
3	8	14.2	HFE08F-ND	1.37	11.12	78.00	170.63	FH10A-8S-1SH
3	10	16.2	HFE10F-ND	1.47	11.97	84.00	183.75	FH10A-10S-1SH
3	12	18.2	HFE12F-ND	1.58	12.83	90.00	196.88	FH10A-12S-1SH
3	14	20.2	HFE14F-ND	1.72	13.97	98.00	214.38	FH10A-14S-1SH
3	16	22.2	HFE16F-ND	1.89	15.39	108.00	236.25	FH10A-16S-1SH
3	18	24.2	HFE18F-ND	2.07	16.82	118.00	258.13	FH10A-18S-1SH
3	20	26.2	HFE20F-ND	2.17	17.67	124.00	271.25	FH10A-20S-1SH
3	22	28.2	HFE22F-ND	2.24	18.24	128.00	280.00	FH10A-22S-1SH
3	24	30.2	HFE24F-ND	2.35	19.10	134.00	293.13	FH10A-24S-1SH
3	26	31.2	HFE26F-ND	2.70	21.95	154.00	336.88	FH10A-26S-1SH
3	28	34.2	HFE28F-ND	2.84	23.09	162.00	354.38	FH10A-28S-1SH
3	30	36.2	HFE30F-ND	2.87	23.37	164.00	358.75	FH10A-30S-1SH
			SMT Flex With Board Mount Boss					
4	6	12.2	HFH06T-ND	1.19	9.69	68.00	148.75	FH10A-6S-1SHB
4	8	14.2	HFH08T-ND	1.37	11.12	78.00	170.63	FH10A-8S-1SHB
4	10	16.2	HFH10T-ND	1.47	11.97	84.00	183.75	FH10A-10S-1SHB
4	12	18.2	HFH12T-ND	1.58	12.83	90.00	196.88	FH10A-12S-1SHB
4	14	20.2	HFH14T-ND	1.72	13.97	98.00	214.38	FH10A-14S-1SHB
4	16	22.2	HFH16T-ND	1.89	15.39	108.00	236.25	FH10A-16S-1SHB
4	18	24.2	HFH18T-ND	2.07	16.82	118.00	258.13	FH10A-18S-1SHB
4	20	26.2	HFH20T-ND	2.17	17.67	124.00	271.25	FH10A-20S-1SHB
4	22	28.2	HFH22T-ND	2.24	18.24	128.00	280.00	FH10A-22S-1SHB
4	24	30.2	HFH24T-ND	2.35	19.10	134.00	293.13	FH10A-24S-1SHB
4	26	32.2	HFH26T-ND	2.70	21.95	154.00	336.88	FH10A-26S-1SHB
4	28	34.2	HFH28T-ND	2.84	23.09	162.00	354.38	FH10A-28S-1SHB
4	30	36.2	HFH30T-ND	2.87	23.37	164.00	358.75	FH10A-30S-1SHB

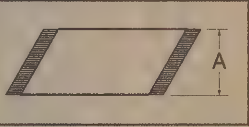
Parlex CORPORATION

1mm Flex Cable

Parlex custom jumper cable's are available with flat conductors of desired length, stripped at both ends. The insulation has been stripped from one side only, exposing one surface of the conductors. Conductors have been pre-tinned for direct insertion into connectors.

Features: • Superior Mechanical and Shielding Performance • Meets FCC, CIS PR/VDE effectivity requirements for Inter connects. • High flexibility rating of 10 million flex cycles on a .6" radius with optimum design layout. • Selective shielding to both sides giving a full 360° of shielding effectiveness. • Superior mechanical and abrasion resistnace.

Cable Characteristics: • **Conductors:** Cu., tin/lead plated • **Current Rating:** 1.50 amps • **Voltage Rating:** 300 volts • **Insulation:** polyester • **Temperature Rating:** -55°C to 105°C • **Dielectric Strength:** 2500 volts/mil • **U.L. Flame Rating:** VW-1 • **U.L. Styles:** 2643 & 20566



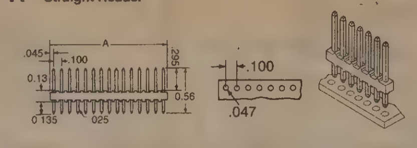
No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	10	100	250	Parlex Part No.
		6" Unshielded Flat Flex Cable					
6	7.15	HF06U-06-ND	3.33	27.08	190.00	415.63	1.00MM-6-6-B
8	9.15	HF08U-06-ND	3.50	28.50	200.00	437.50	1.00MM-8-6-B
10	11.15	HF10U-06-ND	3.85	31.35	220.00	481.25	1.00MM-10-6-B
12	13.15	HF12U-06-ND	4.20	34.20	240.00	525.00	1.00MM-12-6-B
14	15.15	HF14U-06-ND	4.38	35.63	250.00	546.88	1.00MM-14-6-B
16	17.15	HF16U-06-ND	4.73	38.48	270.00	590.63	1.00MM-16-6-B
18	19.15	HF18U-06-ND	4.90	39.90	280.00	612.50	1.00MM-18-6-B
20	21.15	HF20U-06-ND	5.25	42.75	300.00	656.25	1.00MM-20-6-B
22	23.15	HF22U-06-ND	5.60	45.60	320.00	700.00	1.00MM-22-6-B
24	25.15	HF24U-06-ND	5.95	48.45	340.00	743.75	1.00MM-24-6-B
26	27.15	HF26U-06-ND	6.48	52.73	370.00	809.38	1.00MM-26-6-B
28	29.15	HF28U-06-ND	6.83	55.58	390.00	853.13	1.00MM-28-6-B
30	31.15	HF30U-06-ND	7.00	57.00	400.00	875.00	1.00MM-30-6-B
		12" Unshielded Flat Flex Cable					
6	7.15	HF06U-12-ND	4.38	35.63	250.00	546.88	1.00MM-6-12-B
8	9.15	HF08U-12-ND	4.55	37.05	260.00	568.75	1.00MM-8-12-B
10	11.15	HF10U-12-ND	4.90	39.90	280.00	612.50	1.00MM-10-12-B
12	13.15	HF12U-12-ND	5.25	42.75	300.00	656.25	1.00MM-12-12-B
14	15.15	HF14U-12-ND	5.43	44.18	310.00	678.13	1.00MM-14-12-B
16	17.15	HF16U-12-ND	5.78	47.03	330.00	721.88	1.00MM-16-12-B
18	19.15	HF18U-12-ND	6.13	49.88	350.00	765.63	1.00MM-18-12-B
20	21.15	HF20U-12-ND	6.48	52.73	370.00	809.38	1.00MM-20-12-B
22	23.15	HF22U-12-ND	6.83	55.58	390.00	853.13	1.00MM-22-12-B
24	25.15	HF24U-12-ND	7.18	58.43	410.00	896.88	1.00MM-24-12-B
26	27.15	HF26U-12-ND	7.53	61.28	430.00	940.63	1.00MM-26-12-B
28	29.15	HF28U-12-ND	7.70	62.70	440.00	962.50	1.00MM-28-12-B
30	31.15	HF30U-12-ND	7.88	64.13	450.00	984.38	1.00MM-30-12-B
		18" Unshielded Flat Flex Cable					
6	7.15	HF06U-18-ND	5.25	42.75	300.00	656.25	1.00MM-6-18-B
8	9.15	HF08U-18-ND	5.43	44.18	310.00	678.13	1.00MM-8-18-B
10	11.15	HF10U-18-ND	5.78	47.03	330.00	721.88	1.00MM-10-18-B
12	13.15	HF12U-18-ND	6.13	49.88	350.00	765.63	1.00MM-12-18-B
14	15.15	HF14U-18-ND	6.48	52.73	370.00	809.38	1.00MM-14-18-B
16	17.15	HF16U-18-ND	6.83	55.58	390.00	853.13	1.00MM-16-18-B
18	19.15	HF18U-18-ND	7.00	57.00	400.00	875.00	1.00MM-18-18-B
20	21.15	HF20U-18-ND	7.35	59.85	420.00	918.75	1.00MM-20-18-B
22	23.15	HF22U-18-ND	7.70	62.70	440.00	962.50	1.00MM-22-18-B
24	25.15	HF24U-18-ND	8.05	65.55	460.00	1006.25	1.00MM-24-18-B
26	27.15	HF26U-18-ND	8.40	68.40	480.00	1050.00	1.00MM-26-18-B
28	29.15	HF28U-18-ND	8.58	69.83	490.00	1071.88	1.00MM-28-18-B
30	31.15	HF30U-18-ND	8.58	69.83	490.00	1071.88	1.00MM-30-18-B

No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	10	100	250	Parlex Part No.
		6" Shielded Flat Flex Cable					
6	7.15	HF06S-06-ND	5.25	42.75	300.00	656.25	1.00MM-6-6-B-SH2-G1
8	9.15	HF08S-06-ND	5.43	44.18	310.00	678.13	1.00MM-8-6-B-SH2-G1
10	11.15	HF10S-06-ND	5.78	47.03	330.00	721.88	1.00MM-10-6-B-SH2-G1
12	13.15	HF12S-06-ND	6.30	51.30	360.00	787.50	1.00MM-12-6-B-SH2-G1
14	15.15	HF14S-06-ND	6.65	54.15	380.00	831.25	1.00MM-14-6-B-SH2-G1
16	17.15	HF16S-06-ND	7.00	57.00	400.00	875.00	1.00MM-16-6-B-SH2-G1
18	19.15	HF18S-06-ND	7.35	59.85	420.00	918.75	1.00MM-18-6-B-SH2-G1
20	21.15	HF20S-06-ND	7.70	62.70	440.00	962.50	1.00MM-20-6-B-SH2-G1
22	23.15	HF22S-06-ND	8.23	66.98	470.00	1028.13	1.00MM-22-6-B-SH2-G1
24	25.15	HF24S-06-ND	8.58	69.83	490.00	1071.88	1.00MM-24-6-B-SH2-G1
26	27.15	HF26S-06-ND	9.28	75.53	530.00	1159.38	1.00MM-26-6-B-SH2-G1
28	29.15	HF28S-06-ND	9.63	78.38	550.00	1203.13	1.00MM-28-6-B-SH2-G1
30	31.15	HF30S-06-ND	9.98	81.23	570.00	1246.88	1.00MM-30-6-B-SH2-G1
		12" Shielded Flat Flex Cable					
6	7.15	HF06S-12-ND	7.88	64.13	450.00	984.38	1.00MM-6-12-B-SH2G1
8	9.15	HF08S-12-ND	8.23	66.98	470.00	1028.13	1.00MM-8-12-B-SH2G1
10	11.15	HF10S-12-ND	8.75	71.25	500.00	1093.75	1.00MM-10-12-B-SH2G1
12	13.15	HF12S-12-ND	9.28	75.53	530.00	1159.38	1.00MM-12-12-B-SH2G1
14	15.15	HF14S-12-ND	9.98	81.23	570.00	1246.88	1.00MM-14-12-B-SH2G1
16	17.15	HF16S-12-ND	10.50	85.50	600.00	1312.50	1.00MM-16-12-B-SH2G1
18	19.15	HF18S-12-ND	10.85	88.35	620.00	1356.25	1.00MM-18-12-B-SH2G1
20	21.15	HF20S-12-ND	11.20	91.20	640.00	1400.00	1.00MM-20-12-B-SH2G1
22	23.15	HF22S-12-ND	11.55	94.05	660.00	1443.75	1.00MM-22-12-B-SH2G1
24	25.15	HF24S-12-ND	12.08	98.33	690.00	1509.38	1.00MM-24-12-B-SH2G1
26	27.15	HF26S-12-ND	12.60	102.60	720.00	1575.00	1.00MM-26-12-B-SH2G1
28	29.15	HF28S-12-ND	12.95	105.45	740.00	1618.75	1.00MM-28-12-B-SH2G1
30	31.15	HF30S-12-ND	13.30	108.30	760.00	1662.50	1.00MM-30-12-B-SH2G1
		18" Shielded Flat Flex Cable					
6	7.15	HF06S-18-ND	9.63	78.38	550.00	1203.13	1.00MM-6-18-B-SH2G1
8	9.15	HF08S-18-ND	9.98	81.23	570.00	1246.88	1.00MM-8-18-B-SH2G1
10	11.15	HF10S-18-ND	10.68	86.93	610.00	1334.38	1.00MM-10-18-B-SH2G1
12	13.15	HF12S-18-ND	11.20	91.20	640.00	1400.00	1.00MM-12-18-B-SH2G1
14	15.15	HF14S-18-ND	11.73	95.48	670.00	1465.63	1.00MM-14-18-B-SH2G1
16	17.15	HF16S-18-ND	12.25	99.75	700.00	1531.25	1.00MM-16-18-B-SH2G1
18	19.15	HF18S-18-ND	12.95	105.45	740.00	1618.75	1.00MM-18-18-B-SH2G1
20	21.15	HF20S-18-ND	13.48	109.73	770.00	1684.38	1.00MM-20-18-B-SH2G1
22	23.15	HF22S-18-ND	14.00	114.00	800.00	1750.00	1.00MM-22-18-B-SH2G1
24	25.15	HF24S-18-ND	14.53	118.28	830.00	1815.63	1.00MM-24-18-B-SH2G1
26	27.15	HF26S-18-ND	15.23	123.98	870.00	1903.13	1.00MM-26-18-B-SH2G1
28	29.15	HF28S-18-ND	15.40	125.40	880.00	1925.00	1.00MM-28-18-B-SH2G1
30	31.15	HF30S-18-ND	15.93	129.68	910.00	1990.63	1.00MM-30-18-B-SH2G1

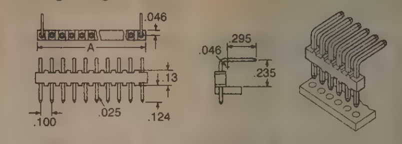
.100" Center Headers (.025 Diameter Pins)

The Molex KK® Concept utilizes a double cantilever contact design in mating with P.C. board pins. UL Recognized (File #29179), CSA Recognized (File 19980). **Voltage Rating:** 250 VAC Max. **Current Rating:** Up to 2.5 Amps (w/22 AWG wire). **Resistance:** 20 milliohms max. **Dialectic Withstanding Voltage:** 1500 VAC for 60 seconds. **Storage Temperature:** -40°C to 105°C. **Material:** 94V-0.

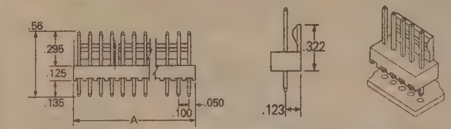
A - Straight Header



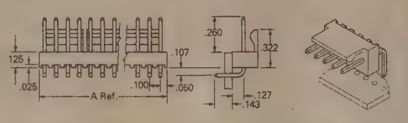
B - Right Angle Header



C - Straight-Friction Lock Header



D - Right Angle-Friction Lock Header



E - Center Crimp Terminal Housing
(contacts sold separately)

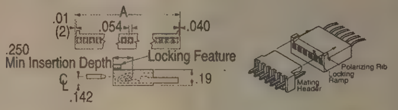
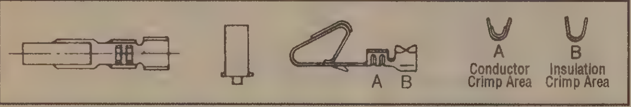


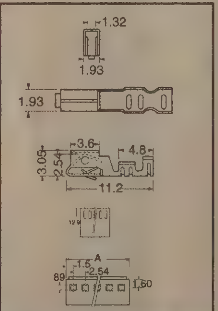
Fig.	Circuits	Dim "A"	Digi-Key Part No.	Pricing 1	10	100	500	1000	Molex Part No.
.100" Center Headers Tin Plating									
A	2	.19	WM4000-ND	.20	1.77	11.40	40.76	75.98	22-03-2021
	3	.29	WM4001-ND	.31	2.73	17.60	62.92	117.30	22-03-2031
	4	.39	WM4002-ND	.41	3.63	23.40	83.66	155.96	22-03-2041
	5	.49	WM4003-ND	.51	4.53	29.20	104.39	194.62	22-03-2051
	6	.59	WM4004-ND	.61	5.39	34.80	124.41	231 94	22-03-2061
	7	.69	WM4005-ND	.72	6.36	41.00	146.58	273.27	22-03-2071
	8	.79	WM4006-ND	.72	6.36	41.00	146.58	273.27	22-03-2081
	9	.89	WM4007-ND	.81	7.13	46.00	164.45	306 59	22-03-2091
	10	99	WM4008-ND	.81	7.19	46.40	165.88	309 26	22-03-2101
	11	1.09	WM4009-ND	.90	7.94	51.20	183.04	341.25	22-03-2111
	12	1.19	WM4010-ND	.98	8.71	56.20	200.92	374.57	22-03-2121
B	2	.19	WM4100-ND	.23	2.05	13.20	47.19	87 98	22-05-2021
	3	.29	WM4101-ND	.34	2.98	19.20	68.64	127.97	22-05-2031
	4	.39	WM4102-ND	.45	4.00	25.80	92.24	171.96	22-05-2041
	5	.49	WM4103-ND	.57	5.02	32.40	115.83	215.95	22-05-2051
	6	.59	WM4104-ND	.68	6.05	39.00	139.43	259.94	22-05-2061
	7	.69	WM4105-ND	.79	7.01	45.20	161.59	301.26	22-05-2071
	8	.79	WM4106-ND	.91	8.06	52.00	185.90	346.58	22-05-2081
	9	.89	WM4107-ND	1.03	9.08	58.60	209.50	390.57	22-05-2091
	10	.99	WM4108-ND	1.03	9.15	59.00	210.93	393.24	22-05-2101
	11	1.09	WM4109-ND	1.14	10.11	65.20	233.09	434 56	22-05-2111
	12	1.19	WM4110-ND	1.24	10.94	70.60	252.40	470.55	22-05-2121
C	2	.200	WM4200-ND	.29	2.60	16.80	60.06	111 97	22-23-2021
	3	.300	WM4201-ND	.44	3.88	25.00	89.38	166.63	22-23-2031
	4	.400	WM4202-ND	.48	4.25	27.40	97.96	182.62	22-23-2041
	5	.500	WM4203-ND	.60	5.33	34.40	122.98	229 28	22-23-2051
	6	.600	WM4204-ND	.63	5.58	36.00	128.70	239.94	22-23-2061
	7	700	WM4205-ND	.66	5.86	37.80	135.14	251.94	22-23-2071
	8	.800	WM4206-ND	.76	6.73	43.40	155.16	289 26	22-23-2081
	9	.900	WM4207-ND	.85	7.56	48.80	174.46	325.25	22-23-2091
	10	1.000	WM4208-ND	.86	7.63	49.20	175.89	327 92	22-23-2101
	11	1.100	WM4209-ND	.95	8.40	54.20	193.77	361.24	22-23-2111
	12	1.200	WM4210-ND	1.03	9.15	59.00	210.93	393.24	22-23-2121
D	2	.200	WM4300-ND	.61	5.39	34.80	124.41	231 94	22-05-3021
	3	.300	WM4301-ND	.70	6.17	39.80	142.29	265.27	22-05-3031
	4	.400	WM4302-ND	.78	6.91	44.60	159.45	297.26	22-05-3041
	5	.500	WM4303-ND	.85	7.56	48.80	174.46	325.25	22-05-3051
	6	.600	WM4304-ND	.96	8.46	54.60	195.20	363.91	22-05-3061
	7	.700	WM4305-ND	1.11	9.86	63.60	227.37	423.89	22-05-3071
	8	.800	WM4306-ND	1.16	10.29	66.40	237.38	442 56	22-05-3081
	9	.900	WM4307-ND	1.20	10.66	68.80	245.96	458.55	22-05-3091
	10	1.000	WM4308-ND	1.22	10.82	69.80	249.54	465 22	22-05-3101
	11	1.100	WM4309-ND	1.34	11.87	76.60	273.85	510.54	22-05-3111
	12	1.200	WM4310-ND	1.38	12.21	78.80	281.71	525.20	22-05-3121
.100 Center Header Gold Plating									
A	2	.19	WM2722-ND	.52	4.59	29.60	105.82	197 28	22-10-2021
	3	.29	WM2723-ND	.64	5.62	36.29	129.73	241.86	22-10-2031
	4	.39	WM2724-ND	1.00	8.90	57.40	205.21	382 57	22-10-2041
	5	.49	WM2725-ND	1.05	9.34	60.26	215.42	401.61	22-10-2051
	6	.59	WM2726-ND	1.50	13.27	85.60	306.02	570 52	22-10-2061
	7	.69	WM2727-ND	1.41	12.46	80.42	287.49	535 97	22-10-2071
	8	.79	WM2728-ND	1.91	16.96	109.40	391.11	729.15	22-10-2081
	9	.89	WM2729-ND	1.81	16.04	103.49	369.97	689.75	22-10-2091
	10	.99	WM2730-ND	2.39	21.17	136.60	488.35	910.44	22-10-2101
	11	1.09	WM2731-ND	2.21	19.55	126.11	450.85	840.54	22-10-2111
	12	1.19	WM2732-ND	2.41	21.35	137.76	492.49	918.17	22-10-2121
B	2	.19	WM2733-ND	.47	4.13	26.66	95.30	177.66	22-12-2021
	3	.29	WM2734-ND	.67	5.97	38.53	137.74	256.79	22-12-2031
	4	.39	WM2735-ND	.87	7.71	49.73	177.78	331.44	22-12-2041
	5	.49	WM2736-ND	1.09	9.62	62.05	221.82	413.55	22-12-2051
	6	.59	WM2737-ND	1.31	11.60	74.82	267.47	498.65	22-12-2061
	7	.69	WM2738-ND	1.52	13.51	87.14	311.51	580.76	22-12-2071
	8	.79	WM2739-ND	1.74	15.45	99.68	356.36	664.37	22-12-2081
	9	.89	WM2740-ND	1.97	17.43	112.45	402.00	749.47	22-12-2091
	10	.99	WM2741-ND	2.18	19.27	124.32	444.44	828.59	22-12-2101
	11	1.09	WM2742-ND	2.40	21.21	136.86	489.29	912.20	22-12-2111
	12	1.19	WM2743-ND	2.61	23.12	149.18	533.33	994.31	22-12-2121
C	2	.200	WM2700-ND	.58	5.15	33.20	118.69	221.28	22-11-2022
	3	.300	WM2701-ND	.94	8.34	53.80	192.34	358.58	22-11-2032
	4	.400	WM2702-ND	.98	8.65	55.80	199.49	371.91	22-11-2042
	5	.500	WM2703-ND	1.39	12.28	79.20	283.14	527.87	22-11-2052
	6	.600	WM2704-ND	1.53	13.55	87.40	312.46	582.52	22-11-2062
	7	.700	WM2705-ND	1.78	15.75	101 60	363.22	677.16	22-11-2072
	8	.800	WM2706-ND	1.86	16.46	106.20	379.67	707.82	22-11-2082
	9	.900	WM2707-ND	2.10	18.57	119.80	428.29	798.47	22-11-2092
	10	1.000	WM2708-ND	2.32	20.58	132.80	474.76	885.11	22-11-2102
	11	1.100	WM2709-ND	2.56	22.69	146.40	523.38	975.76	22-11-2112
	12	1.200	WM2710-ND	2.56	22.69	146.40	523.38	975.76	22-11-2122
D	2	.200	WM2711-ND	1.01	8.96	57.80	206.64	385.24	22-12-2024
	3	.300	WM2712-ND	1.06	9.39	60.60	216.65	403.90	22-12-2034
	4	.400	WM2713-ND	1.37	12.09	78.00	278.85	519.87	22-12-2044
	5	.500	WM2714-ND	1.61	14.29	92.20	329.62	614.51	22-12-2054
	6	.600	WM2715-ND	1.78	15.75	101.60	363.22	677.16	22-12-2064
	7	.700	WM2716-ND	1.94	17.17	110.80	396.11	738.48	22-12-2074
	8	.800	WM2717-ND	2.11	18.69	120.60	431.15	803.80	22-12-2084
	9	900	WM2718-ND	2.20	19.50	125.80	449.74	838.46	22-12-2094
	10	1.000	WM2719-ND	2.47	21.92	141.40	505.51	942.43	22-12-2104
	11	1.100	WM2720-ND	2.75	24.40	157.40	562.71	1049.07	22-12-2114
	12	1.200	WM2721-ND	3.03	26.82	173.00	618.48	1153.05	22-12-2124
.100" Center Crimp Terminal Housing (Contacts Sold Separately Below) With Locking Ramp and Polarizing Ribs									
E	2	.22	WM2000-ND	.14	1.27	8.20	33.83	54.65	22-01-3027
	3	.32	WM2001-ND	.21	1.89	12.20	50.33	81.31	22-01-3037
	4	.42	WM2002-ND	.29	2.54	16.40	67.65	109.31	22-01-3047
	5	.52	WM2003-ND	.35	3.10	20.00	82.50	133.30	22-01-3057
	6	.62	WM2004-ND	.42	3.75	24.20	99.83	161.29	22-01-3067
	7	.72	WM2005-ND	.49	4.37	28.20	116.33	187.95	22-01-3077
	8	.82	WM2006-ND	.57	5.05	32.60	134.48	217.28	22-01-3087
	9	.92	WM2007-ND	.64	5.70	36.80	151.80	245.27	22-01-3097
	10	1.02	WM2008-ND	.70	6.23	40.20	165.83	267.93	22-01-3107
	11	1.12	WM2009-ND	.77	6.85	44.20	182.33	294.59	22-01-3117
	12	1.22	WM2010-ND	.86	7.60	49.00	202.13	326.59	22-01-3127
With Locking Ramp									
E	2	.22	WM2011-ND	.13	1.12	7.20	25.74	47.99	22-01-2027
	3	.32	WM2012-ND	.19	1.64	10.60	37.90	70.65	22-01-2037
	4	.42	WM2013-ND	.25	2.20	14.20	50.77	94.64	22-01-2047
	5	.52	WM2014-ND	.31	2.73	17.60	62.92	117.30	22-01-2057
	6	.62	WM2015-ND	.37	3.32	21.40	76.51	142.63	22-01-2067
	7	.72	WM2016-ND	.44	3.88	25.00	89.38	166.63	22-01-2077
	8	.82	WM2017-ND	.49	4.37	28.20	100.82	187.95	22-01-2087
	9	.92	WM2018-ND	.56	4.99	32.20	115.12	214.61	22-01-2097
	10	1.02	WM2019-ND	.62	5.46	35.20	125.84	234.61	22-01-2107
	11	1.12	WM2020-ND	.69	6.08	39.20	140.14	261.27	22-01-2117
	12	1.22	WM2021-ND	.75	6.67	43.00	153.73	286.60	22-01-2127
Polarizing key for .100" Housings			**WM2400-ND**	.11/1	1.09/10	6.67/100			15-04-9209
Polarizing peg for .100" Housings			**WM2401-ND**	.11/1	.96/10	6.20/100			15-04-9210

Crimp Terminals For .100" Center Housings

Material: Brass, Plating: 200-300µ inch Hot-Tin Dip tin plating.



Description	Wire Size	Insulation Diameter	Finish	Digi-Key Part No.	Pricing 10	100	500	Molex Part No.
For .100" Housings	22-30	.062 Max.	Tin	WM2200-ND	1.05	8.75	35.00	08-50-0114
	22-30	.062 Max.	Gold	WM2312-ND	2.85	23.75	95.00	08-55-0102
Hand Tool (Waldom)				WM9900-ND		13.57 ea.		W-HT-1921
Extraction Tool (Waldom)				WM9906-ND		2.40 ea.		W-HT-1884
Production Tool (Molex)				WM9915-ND		226.53 ea.		11-01-0185
Extraction Tool (Molex)				WM9927-ND		9.22 ea.		11-03-0022



.100" High Pressure Terminal Housings

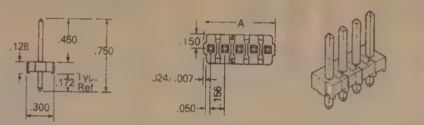
- Standard with locking ramp
- 94V-0 material
- Mates with .025" (0.64mm) Pins
- Up to 425 grams normal force
- Multiple contacting points
- Patented double cantilever with box shroud
- Accepts #22 to 30 AWG wire, .062" insulation dia.

Circuits	Dimension "A"	Digi-Key Part No.	Pricing 1	10	100	Molex Part No.
1	.12	WM2600-ND	.19	1.64	10.60	10-11-2013
2	.22	WM2601-ND	.13	1.18	7.60	10-11-2023
3	.32	WM2602-ND	.19	1.71	11.00	10-11-2033
4	.42	WM2603-ND	.27	2.36	15.20	10-11-2043
5	.52	WM2604-ND	.33	2.91	18.80	10-11-2053
6	.62	WM2605-ND	.40	3.50	22.60	10-11-2063
7	.72	WM2606-ND	.46	4.06	26.20	10-11-2073
8	.82	WM2607-ND	.53	4.65	30.00	10-11-2083
9	.92	WM2608-ND	.59	5.21	33.60	10-11-2093
10	1.02	WM2609-ND	.66	5.86	37.80	10-11-2103
11	1.12	WM2610-ND	.72	6.42	41.40	10-11-2113
12	1.22	WM2611-ND	.81	7.13	46.00	10-11-2123
Crimp Terminal, 22-30, Tin/Copper Plating		WM2612-ND	—	1.98	16.50	08-50-0005

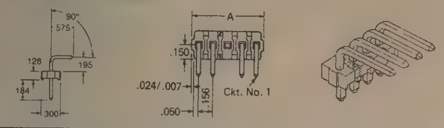
.156" Center Headers
(.045 Diameter Pins)

The Molex KK® Concept utilizes a double cantilever contact design in mating with P.C. board pins. UL Recognized (File #29179), CSA Recognized (File 19980).
Voltage Rating: 250 VAC Max.
Current Rating: Up to 7 Amps (w/18 AWG wire).
Resistance: 20 milliohms max.
Dialectic Withstanding Voltage: 1500 VAC for 60 seconds.
Storage Temperature: -40°C to 105°C.
Material: 94V-0.

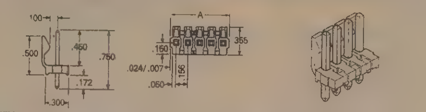
A - Straight Header



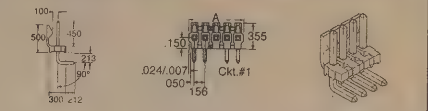
B - Right Angle Header



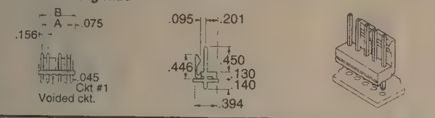
C - Straight-Friction Lock Header for use w/Locking Ramp only



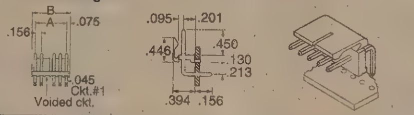
D - Right Angle-Friction Lock Header for use w/Locking Ramp only



E - Straight Friction Lock Header for use with Locking Ramp & Polarizing Ribs



F - Right Angle Friction Lock Header for use with Locking Ramp & Polarizing Ribs



G - Center Crimp Terminal Housing (contacts sold separately)

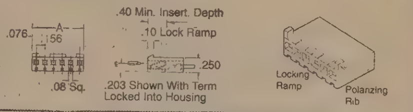
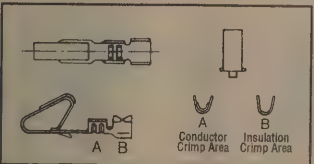


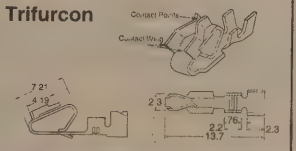
Fig.	Circuits	Dim "A"	Dim "B"	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Molex Part No.
.156" Center headers								
A	2	.267	—	WM4400-ND	.14	1.26	7.56	26-48-1021
	3	.423	—	WM4401-ND	.22	1.92	11.52	26-48-1031
	4	.579	—	WM4402-ND	.29	2.58	15.48	26-48-1041
	5	.735	—	WM4403-ND	.36	3.21	19.26	26-48-1051
	6	.891	—	WM4404-ND	.44	3.87	23.22	26-48-1061
	7	1.047	—	WM4405-ND	.51	4.53	27.18	26-48-1071
	8	1.203	—	WM4406-ND	.58	5.13	30.78	26-48-1081
	9	1.359	—	WM4407-ND	.66	5.85	35.10	26-48-1091
	10	1.515	—	WM4408-ND	.74	6.51	39.06	26-48-1101
	11	1.671	—	WM4409-ND	.81	7.11	42.66	26-48-1111
	12	1.827	—	WM4410-ND	.88	7.77	46.62	26-48-1121
B	2	.267	—	WM4500-ND	.17	1.47	8.82	26-48-1022
	3	.423	—	WM4501-ND	.25	2 19	13.14	26-48-1032
	4	.579	—	WM4502-ND	.33	2.94	17.64	26-48-1042
	5	.735	—	WM4503-ND	.41	3.60	21.60	26-48-1052
	6	.891	—	WM4504-ND	.50	4.38	26.28	26-48-1062
	7	1.047	—	WM4505-ND	.58	5.10	30.60	26-48-1072
	8	1.203	—	WM4506-ND	66	5.85	35 10	26-48-1082
	9	1.359	—	WM4507-ND	.74	6.57	39.42	26-48-1092
	10	1.515	—	WM4508-ND	.83	7.32	43.92	26-48-1102
	11	1.671	—	WM4509-ND	.91	8.04	48.24	26-48-1112
	12	1.827	—	WM4510-ND	1.00	8.79	52.74	26-48-1122
C	2	.310	—	WM4600-ND	18	1.62	9.72	26-48-1025
	3	.466	—	WM4601-ND	.28	2.43	14.58	26-48-1035
	4	.622	—	WM4602-ND	.37	3.24	19.44	26-48-1045
	5	.778	—	WM4603-ND	.47	4.11	24.66	26-48-1055
	6	.934	—	WM4604-ND	.56	4.92	29.52	26-48-1065
	7	1.090	—	WM4605-ND	.65	5.76	34.56	26-48-1075
	8	1.246	—	WM4606-ND	.75	6.60	39.60	26-48-1085
	9	1.402	—	WM4607-ND	.84	7.41	44.46	26-48-1095
	10	1.558	—	WM4608-ND	.94	8.25	49.50	26-48-1105
	11	1.714	—	WM4609-ND	1.03	9.06	54.36	26-48-1115
	12	1.870	—	WM4610-ND	1.12	9.87	59.22	26-48-1125
D	2	.310	—	WM4700-ND	.13	1.13	6.77	26-48-1026
	3	.466	—	WM4701-ND	32	2.79	16.74	26-48-1036
	4	.622	—	WM4702-ND	.43	3.75	22.50	26-48-1046
	5	.778	—	WM4703-ND	.53	4.68	28.08	26-48-1056
	6	.934	—	WM4704-ND	.63	5.58	33.48	26-48-1066
	7	1.090	—	WM4705-ND	.75	6.60	39.60	26-48-1076
	8	1.246	—	WM4706-ND	.85	7.53	45.18	26-48-1086
	9	1.402	—	WM4707-ND	.96	8.49	50.94	26-48-1096
	10	1.558	—	WM4708-ND	1.07	9.42	56.52	26-48-1106
	11	1.714	—	WM4709-ND	1.18	10.38	62.28	26-48-1116
	12	1.870	—	WM4710-ND	1.28	11.28	67.68	26-48-1126
E	2	.156	.306	WM4620-ND	.22	1.95	11.70	26-60-4020
	3	.312	.462	WM4621-ND	.37	3.27	19.62	26-60-4030
	4	.468	.618	WM4622-ND	.43	3.81	22.86	26-60-4040
	5	.624	.774	WM4623-ND	.54	4.74	28.44	26-60-4050
	6	.780	.930	WM4624-ND	.64	5.67	34.02	26-60-4060
	7	.936	1.086	WM4625-ND	.68	6.03	36.18	26-60-4070
	8	1.092	1.242	WM4626-ND	.86	7.62	45.72	26-60-4080
	9	1.248	1.398	WM4627-ND	.88	7.80	46.80	26-60-4090
	10	1.404	1.554	WM4628-ND	.98	8.64	51.84	26-60-4100
	11	1.560	1.710	WM4629-ND	1.08	9.54	57.24	26-60-4110
	12	1.716	1.866	WM4630-ND	1.30	11.43	68.58	26-60-4120
F	2	.156	.306	WM4640-ND	.24	2.13	12.78	26-60-5020
	3	.312	.462	WM4641-ND	.36	3.18	19.08	26-60-5030
	4	.468	.618	WM4642-ND	.47	4.11	24.66	26-60-5040
	5	.624	.774	WM4643-ND	.53	4.68	28.08	26-60-5050
	6	.780	.930	WM4644-ND	.70	6.21	37.26	26-60-5060
	7	.936	1.086	WM4645-ND	.75	6.63	39.78	26-60-5070
	8	1.092	1.242	WM4646-ND	.85	7.53	45.18	26-60-5080
	9	1.248	1.398	WM4647-ND	.96	8.49	50.94	26-60-5090
	10	1.404	1.554	WM4648-ND	1.18	10.38	62.28	26-60-5100
	11	1.560	1.710	WM4649-ND	1.30	11.43	68.58	26-60-5110
	12	1.716	1.866	WM4650-ND	1.29	11.34	68.04	26-60-5120
.156 Center Headers - Gold								
A	2	.267	—	WM5002-ND	.66	5.85	35.10	26-48 2021
	3	.423	—	WM5003-ND	.99	8.70	52.20	26-48-2031
	4	.579	—	WM5004-ND	1.32	11.64	69.84	26-48-2041
	5	.735	—	WM5005-ND	1.65	14.55	87.30	26-48-2051
	6	.891	—	WM5006-ND	1.98	17.49	104.94	26-48-2061
	7	1.047	—	WM5007-ND	2.31	20.40	122.40	26-48-2071
	8	1.203	—	WM5008-ND	2.64	23.28	139.68	26-48-2081
	9	1.359	—	WM5009-ND	2.97	26.19	157.14	26-48-2091
	10	1.515	—	WM5010-ND	3.30	29.13	174.78	26-48-2101
	11	1.671	—	WM5011-ND	3.63	32.04	192.24	26-48-2111
	12	1.827	—	WM5012-ND	3.96	34.98	209.88	26-48-2121
B	2	.267	—	WM5102-ND	.79	6.96	41.76	26-48-2022
	3	.423	—	WM5103-ND	1.19	10.47	62.82	26-48-2032
	4	.579	—	WM5104-ND	1.58	13.92	83.52	26-48-2042
	5	.735	—	WM5105-ND	1.98	17.43	104.58	26-48-2052
	6	.891	—	WM5106-ND	2.37	20.91	125.46	26-48-2062
	7	1.047	—	WM5107-ND	2.77	24.42	146.52	26-48-2072
	8	1.203	—	WM5108-ND	3.15	27.81	166.86	26-48-2082
	9	1.359	—	WM5109-ND	3.55	31.32	187.92	26-48-2092
	10	1.515	—	WM5110-ND	3.94	34.77	208.62	26-48-2102
	11	1.671	—	WM5111-ND	4.34	38.28	229.68	26-48-2112
	12	1.827	—	WM5112-ND	4.74	41.79	250.74	26-48-2122
C	2	.310	—	WM5200-ND	.68	6.00	36.00	26-48-2025
	3	.466	—	WM5201-ND	1.02	9.00	54.00	26-48-2035
	4	.622	—	WM5202-ND	1.37	12.06	72.36	26-48-2045
	5	.778	—	WM5203-ND	1.71	15.06	90.36	26-48-2055
	6	.934	—	WM5204-ND	2.04	18.00	108.00	26-48-2065
	7	1.090	—	WM5205-ND	2.39	21.06	126.36	26-48-2075
	8	1.246	—	WM5206-ND	2.73	24.06	144.36	26-48-2085
	9	1.402	—	WM5207-ND	3.06	27.00	162.00	26-48-2095
	10	1.558	—	WM5208-ND	3.41	30.06	180.36	26-48-2105
	11	1.714	—	WM5209-ND	3.75	33.06	198.36	26-48-2115
	12	1.870	—	WM5210-ND	4.09	36.09	216.54	26-48-2125
D	2	.310	—	WM5212-ND	.91	8.04	48.24	26-48-2026
	3	.466	—	WM5213-ND	1.36	12.00	72.00	26-48-2036
	4	.622	—	WM5214-ND	1.82	16.02	96.12	26-48-2046
	5	.778	—	WM5215-ND	2.26	19.98	119.88	26-48-2056
	6	.934	—	WM5216-ND	2.73	24.06	144.36	26-48-2066
	7	1.090	—	WM5217-ND	3.18	28.02	168.12	26-48-2076
	8	1.246	—	WM5218-ND	3.62	31.98	191.88	26-48-2086
	9	1.402	—	WM5219-ND	4.08	36.00	216.00	26-48-2096
	10	1.558	—	WM5220-ND	4.54	40.02	240.12	26-48-2106
	11	1.714	—	WM5221-ND	4.98	43.98	263.88	26-48-2116
	12	1.870	—	WM5222-ND	5.44	48.00	288.00	26-48-2126
E	2	.156	.306	WM5224-ND	.69	6.12	36.69	26-61-4020
	3	.312	.462	WM5225-ND	1.71	15.09	90.54	26-61-4030
	4	.468	.618	WM5226-ND	1.33	11.73	70.36	26-61-4040
	5	.624	.774	WM5227-ND	1.66	14.62	87.70	26-61-4050
	6	.780	.930	WM5228-ND	1.99	17.54	105.24	26-61-4060
	7	.936	1.086	WM5229-ND	2.32	20.46	122.77	26-61-4070
	8	1.092	1.242	WM5230-ND	2.65	23.35	140.11	26-61-4080
	9	1.248	1.398	WM5231-ND	2.98	26.28	157.65	26-61-4090
	10	1.404	1.554	WM5232-ND	3.31	29.20	175.19	26-61-4100
	11	1.560	1.710	WM5233-ND	3.64	32.16	192.93	26-61-4110
	12	1.716	1.866	WM5234-ND	4.00	35.28	211.68	26-61-4120
F	2	.156	.306	WM5235-ND	.87	7.66	45.96	26-61-5020
	3	.312	.462	WM5236-ND	1.30	11.49	68.95	26-61-5030
	4	.468	.618	WM5237-ND	1.69	14 88	89.31	26-61-5040
	5	.624	.774	WM5238-ND	1.99	17.54	105.24	26-61-5050
	6	.780	930	WM5239-ND	2.53	22.34	134.06	26-61-5060
	7	.936	1.086	WM5240-ND	2.95	26.01	156.04	26-61-5070
	8	1.092	1.242	WM5241-ND	3.36	29.67	178.01	26-61-5080
	9	1.248	1.398	WM5242-ND	3.79	33.43	200.59	26-61-5090
	10	1.404	1.554	WM5243-ND	4.23	37.30	223.78	26-61-5100
	11	1.560	1.710	WM5244-ND	4.65	40.99	245.95	26-61-5110
	12	1.716	1.866	WM5245-ND	5.06	44.69	268.13	26-61-5120
.156" Center Crimp Terminal Housing (Contacts Sold Separately Below) w/Locking Ramp - 94V-2 Nylon								
G	2	.31	—	WM2100-ND	.16	1.40	9.00	09-50-3021
	3	.46	—	WM2101-ND	.24	2.11	13.60	09-50-3031
	4	.62	—	WM2102-ND	.32	2.79	18.00	09-50-3041
	5	.78	—	WM2103-ND	.40	3,50	22.60	09-50-3051
	6	.93	—	WM2104-ND	.47	4.19	27.00	09-50-3061
	7	1.09	—	WM2105-ND	.55	4.90	31.60	09-50-3071
	8	1.24	—	WM2106-ND	.63	5.58	36.00	09-50-3081
	9	1.40	—	WM2107-ND	.71	6.29	40.60	09-50-3091
	10	1.56	—	WM2108-ND	.79	7.01	45.20	09-50-3101
	11	1.71	—	WM2109-ND	.87	7.69	49.60	09-50-3111
	12	1.87	—	WM2110-ND	.95	8.40	54.20	09-50-3121
With Locking Ramp and Polarizing Ribs - 94V-0 Polyester								
G	2	.34	—	WM2111-ND	.16	1.46	9.40	09-50-8023
	3	.50	—	WM2112-ND	.25	2.23	14.40	09-50-8033
	4	.65	—	WM2113-ND	.33	2.91	18.80	09-50-8043
	5	.81	—	WM2114-ND	.42	3.69	23.80	09-50-8053
	6	.97	—	WM2115-ND	.49	4.37	28.20	09-50-8063
	7	1.12	—	WM2116-ND	.50	4.46	28.75	09-50-8073
	8	1.28	—	WM2117-ND	.65	5.80	37.40	09-50-8083
	9	1.43	—	WM2118-ND	.64	5.67	36.57	09-50-8093
	10	1.60	—	WM2119-ND	.82	7.25	46.80	09-50-8103
	11	1.75	—	WM2120-ND	.78	6.92	44.62	09-50-8113
	12	1.90	—	WM2121-ND	.85	7.56	48.76	09-05-8123
With Locking Ramp - 94V-0 Polyester								
G	2	.34	—	WM2122-ND	.15	1.33	8.60	09-50-8021
	3	.50	—	WM2123-ND	.24	2.11	13.60	09-50-8031
	4	.65	—	WM2124-ND	.31	2.73	17.60	09-50-8041
	5	.81	—	WM2125-ND	.39	3.44	22.20	09-50-8051
	6	.97	—	WM2126-ND	.46	4.06	26.20	09-50-8061
	7	1.12	—	WM2127-ND	.55	4.84	31.20	09-50-8071
	8	1.28	—	WM2128-ND	.62	5.46	35.20	09-50-8081
	9	1.43	—	WM2129-ND	.70	6.17	39.80	09-50-8091
	10	1.60	—	WM2130-ND	.77	6.79	43.80	09-50-8101
	11	1.75	—	WM2131-ND	.85	7.50	48.40	09-50-8111
	12	1.90	—	WM2132-ND	.92	8.18	52.80	09-50-8121
Polarizing key for .156" Housings				**WM2402-ND**	.16/1	1.46/10		15-04-0219
Polarizing peg for .156" Housings				**WM2403-ND**	.16/1	1.46/10		15-04-0220
Polarizing key for .156" Friclock Housings				**WM2404-ND**	.13/1	1.17/10		15-04-0297

Crimp Terminals For .156" Center Housings

Plating: 200-300µ" Hot-Tin Dip tin plating or 15µ" of Select Gold



Trifurcon



Description	Material	Wire Size	Insulation Diameter	Finish	Digi-Key Part No.	Pricing 10	Pricing 100	Pricing 500	Molex Part No.
For .156" Housings	Brass	18-24	.110 Max.	Tin	WM2300-ND	.78	6.50	26.00	08-50-0106
	Brass	22-26	.065 Max.	Tin	WM2301-ND	.78	6.50	26.00	08-50-0108
	Bronze	18-24	.110	Tin	WM2302-ND	.87	7.25	29.00	08-52-0072
	Bronze	22-26	.065	Tin	WM2303-ND	.87	7.25	29.00	08-50-0134
	Brass	18-24	.110	Gold	WM2305-ND	2 43	20.25	81.00	08-56-0106
	Brass	22-26	.065	Gold	WM2306-ND	2.31	19.25	77.00	08-56-0108
	Bronze	18-24	.110	Gold	WM2304-ND	8.67	72.25	289.00	08-58-0122
	Bronze	22-26	.065	Gold	WM2307-ND	8.67	72.25	289.00	08-58-0126
	Trifurcon	18-24	.110	Tin	WM2313-ND	1.02	8.50	34.00	08-52-0113
	Trifurcon	22-26	.065	Tin	WM2314-ND	1.02	8.50	34.00	08-52-0125
Hand Tool (Waldom)					WM9903-ND		13.57 ea.		W-HT-1919
Extraction Tool For (Waldom)					WM9906-ND		2.40 ea.		W-HT-1884
Hand Tool (Molex)					WM9926-ND		36.83 ea.		11-01-0014MLX
Production Tool (Molex)					WM9916-ND		226.53 ea.		11-01-0026
Extraction Tool (Molex)					WM9928-ND		9.22 ea.		11-03-0016

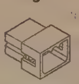
Power Connectors

.062" Diameter Connectors

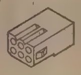
- UL File Number E-29179; CSA File Number LR-19980.
- Up to 5 amperes per circuit.*
- 250 Volt rating.*
- Friction lock.
- Standard color is natural. (* Ratings based on fully loaded housings.)

(a) Electrical ratings are per circuit. (b) Center spacing .248" will accommodate: 14, 16 and 18 AWG with 1/32" insulation — 16 with 18 AWG (double crimp), each with 1/32" insulation. WM1400-WM1405 housings have positive locking rather than detent lock. (c) 4 circuits in square grid pattern. (d) Has positive lock rather than detent lock. (e) Mounting ears are molded flush with back edge of wire end. Not centered on side.

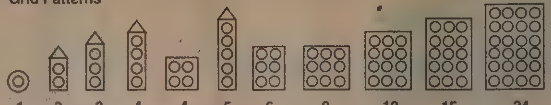
Plug



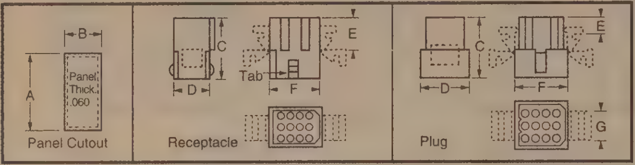
Receptacle



Grid Patterns



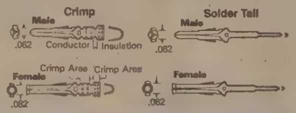
(contacts sold separately)



Grid. Space	Circ. (a)	Type	Max. Amps	Max. Volts	A	B	C	D	F	Digi-Key Part No.	1	10	100	Molex Part No.
.062" Diameter Connector Housings — With Detent Only, Free Hanging														
.145"	1	Plug	5	250	—	—	.750	—	—	WM1201-ND	.19	1.79	10.97	03-06-2011
		Receptacle	5	250	—	—	.780	—	.183	WM1200-ND	.19	1.79	10.97	03-06-1011
	2	Plug	5	250	.609	.318	.780	.300	.440	WM1220-ND	.33	3.08	18.92	03-06-2023
		Receptacle	5	250	.505	.265	.810	.192	.340	WM1230-ND	.35	3.29	20.21	03-06-1023
	3	Plug	5	250	.754	.318	.750	.300	.590	WM1221-ND	.40	3.75	23.01	03-06-2032
		Receptacle	5	250	.650	.265	.780	.192	.484	WM1231-ND	.40	3.75	23.01	03-06-1032
	4	Plug	5	250	.865	.312	.750	.295	.730	WM1222-ND	.56	5.32	32.68	03-06-2042
		Receptacle	5	250	.785	.260	.780	.192	.630	WM1232-ND	.56	5.32	32.68	03-06-1042
	4 (c)	Plug	5	250	.615	.465	.750	.442	.442	WM1223-ND	.57	5.39	33.11	03-06-2044
		Receptacle	5	250	.506	.400	.750	.339	.339	WM1233-ND	.57	5.39	33.11	03-06-1044
	5	Plug	5	250	1.044	.318	.750	.310	.890	WM1224-ND	.58	5.53	33.97	03-06-2055
		Receptacle	5	250	.940	.265	.780	.192	.775	WM1234-ND	.74	6.97	42.79	03-06-1056
	6	Plug	5	250	.615	.607	.750	.600	.450	WM1225-ND	.60	5.67	34.83	03-06-2061
		Receptacle	5	250	.552	.505	.780	.494	.344	WM1235-ND	.60	5.67	34.83	03-06-1062
	9	Plug	5	250	.752	.615	.750	.590	.590	WM1226-ND	.61	5.74	35.26	03-06-2092
		Receptacle	5	250	.650	.552	.780	.494	.489	WM1236-ND	.61	5.74	35.26	03-06-1092
	12	Plug	5	250	.903	.614	.750	.590	.740	WM1227-ND	.64	6.02	36.98	03-06-2122
		Receptacle	5	250	.795	.563	.780	.494	.634	WM1237-ND	.66	6.27	38.49	03-06-1122
	15	Plug	5	250	1.042	.614	.750	.590	.880	WM1228-ND	.86	8.12	49.88	03-06-2152
		Receptacle	5	250	.934	.563	.780	.487	.776	WM1238-ND	1.02	9.66	59.34	03-06-1152
	24	Plug	5	250	1.182	.765	.750	.740	1.040	WM1229-ND	2.09	19.74	121.26	03-06-2242
.062" Diameter Connector Housings — With Mounting Ears & Detent, Panel Mount														
.145"	2	Plug	5	250	.609	.318	.780	.300	.440	WM1203-ND	.33	3.08	18.92	03-06-2024
		Receptacle	5	250	.505	.265	.810	.192	.340	WM1202-ND	.35	3.29	20.21	03-06-1022
	3	Plug	5	250	.754	.318	.750	.300	.590	WM1205-ND	.40	3.75	23.01	03-06-2033
		Receptacle	5	250	.650	.265	.780	.192	.484	WM1204-ND	.40	3.75	23.01	03-06-1038
	4	Plug	5	250	.865	.312	.750	.295	.730	WM1207-ND	.56	5.32	32.68	03-06-2041
		Receptacle	5	250	.785	.260	.780	.192	.630	WM1206-ND	.56	5.32	32.68	03-06-1041
	4 (c)	Plug	5	250	.615	.465	.750	.442	.442	WM1209-ND	.57	5.39	33.11	03-06-2043
		Receptacle	5	250	.506	.400	.750	.339	.339	WM1208-ND	.57	5.39	33.11	03-06-1043
	5	Plug	5	250	1.044	.318	.750	.310	.890	WM1240-ND	.58	5.53	33.97	03-06-2054
		Receptacle	5	250	.940	.265	.780	.192	.775	WM1241-ND	.74	6.97	42.79	03-06-1055
	6	Plug	5	250	.615	.607	.750	.600	.450	WM1211-ND	.60	5.67	34.83	03-06-2062
		Receptacle	5	250	.552	.505	.780	.494	.344	WM1210-ND	.60	5.67	34.83	03-06-1061
	9	Plug	5	250	.752	.615	.750	.590	.590	WM1213-ND	.61	5.74	35.26	03-06-2091
		Receptacle	5	250	.650	.552	.780	.494	.489	WM1212-ND	.61	5.74	35.26	03-06-1091
	12	Plug	5	250	.903	.614	.750	.590	.740	WM1215-ND	.64	6.02	36.98	03-06-2121
		Receptacle	5	250	.795	.563	.780	.494	.634	WM1214-ND	.66	6.27	38.49	03-06-1121
	15	Plug	5	250	1.042	.614	.750	.590	.880	WM1217-ND	.86	8.12	49.88	03-06-2151
		Receptacle	5	250	.934	.563	.780	.487	.776	WM1216-ND	1.02	9.66	59.34	03-06-1151
	24	Plug	5	250	1.182	.765	.750	.740	1.040	WM1219-ND	2.09	19.74	121.26	03-06-2241
		Receptacle	5	250	1.079	.715	.750	.634	.918	WM1218-ND	2.09	19.74	121.26	03-06-1241

.062" TERMINALS

Use with .062" housings. **Temp. Range:** -40°C to 105°C • .008" stock 70/30 brass. **High Volt. Test:** Withstands 1500 volts RMS for 60 seconds. **Current Rating:** Amperage rating 5 amps. **Storage Temp. Range:** -40°C to 125°C. **Plating:** 200-300m Inch Hot-Tin Dip tin plating.



Description	Wire Size	Insulation Diameter	Digi-Key Part No.	Pricing 10	Pricing 100	Pricing 500	Molex Part No.
Male, Crimp Type	18-24	.060/.120	WM1000-ND	1.26	10.50	42.00	02-06-2103
Female, Crimp Type	18-24	.060/.120	WM1001-ND	1.26	10.50	42.00	02-06-1103
Male, Crimp Type	24-30	.040/.090	WM1002-ND	1.26	10.50	42.00	02-06-2132
Female, Crimp Type	24-30	.040/.090	WM1003-ND	1.26	10.50	42.00	02-06-1132
Male, Solder-Tail	—	—	WM1004-ND	1.89	15.75	63.00	02-06-8103
Female, Solder-Tail	—	—	WM1005-ND	1.89	15.75	63.00	02-06-7103
Male, Crimp Type	18-24	.060/.120	WM1006-ND*	4.47	37.25	149.00	02-06-6103
Male, Crimp Type	24-30	.040/.090	WM1007-ND*	4.02	33.50	134.00	02-06-6135
Female, Crimp Type	18-24	.060/.120	WM1008-ND*	4.47	37.25	149.00	02-06-5103
Female, Crimp Type	24-30	.040/.090	WM1009-ND*	4.02	33.50	134.00	02-06-5135
Male, Solder-Tail	—	—	WM1010-ND*	6.65	55.44	221.76	02-06-6122
Female, Solder-Tail	—	—	WM1011-ND*	6.65	55.44	221.76	02-06-7104
Hand Tool (Waldom)	—	—	WM9900-ND	13.57 each			W-HT-1921
Extractor Tool (Waldom)	—	—	WM9902-ND	12.96 each			W-HT-2285
Production Tool (Molex)	—	—	WM9922-ND	223.17 each			11-01-0008
Extraction Tool (Molex)	—	—	WM9929-ND	18.42 each			11-03-0002

★ 15µ Select Gold Finish

Cable Connector Designer Kit **WM9800-ND** — Contains all parts needed to assemble male and female connectors from single-circuit to 36-circuit designs (250V and up to 5A/circuit); totals 56 connectors. All have pin terminal size .062" dia. with crimping tool, pin terminal ejector and case **$54.30**

.084 Power Connectors

Features: • Intermateable, intermountable, and interchangeable with industry standard versions. • Cross tested to assure industry compatibility. • UL recognized, CSA certified. • Up to 13.5 amperes per circuit (30°C rise)*. • 600 Volt rating*. • Positive locks. • Fully isolated contacts. • Circuit I.D. grooves to reduce assembly errors. • Anti-stress positioning tabs to reduce breakage.

Grid Pattern

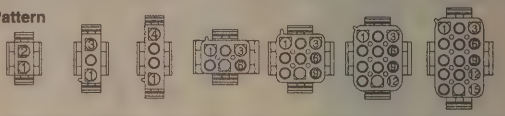


Fig. A - Plug

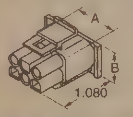


Fig. B - Cap

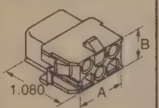
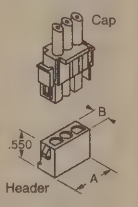
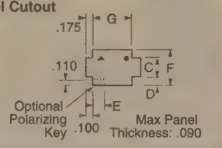


Fig. C - Vertical Header

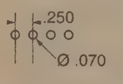


Cap Panel Cutout

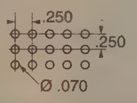


▲ - Circuit #1 location when using polarizing key option with 2, 3, and 4 circuit housing.
● - Circuit #1 location when using polarizing key option with 6, 9, 12 and 15 circuit housing.

Vertical Header P.C. Board Layout Dim.



6, 9, 12, & 15 Position Header Assemblies

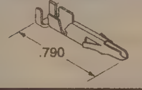


Pos.	Des.	Ampress/ Circuit (Max.)*	Voltage Rating (Max.)*	A	B	C††	D	E	F	G	Digi-Key Part No.	1	10	100	500	Molex Part No.
Fig. A – Plug																
2	Plug	13.5	600	.300	.550	—	—	—	—	—	WM1242-ND	.41	3.57	22.76	87.95	50-84-1020
3	Plug	13.5	600	.300	.800	—	—	—	—	—	WM1244-ND	.48	4.18	26.64	102.96	50-84-1030
4	Plug	13.5	600	.300	1.050	—	—	—	—	—	WM1246-ND	.54	4.76	30.34	117.26	50-84-1040
6	Plug	11.0	600	.800	.550	—	—	—	—	—	WM1248-ND	.61	5.37	34.23	132.28	50-84-1060
9	Plug	11.0	600	.800	.800	—	—	—	—	—	WM1250-ND	.69	6.06	38.67	149.44	50-84-1090
12	Plug	—	600	.800	.800	—	—	—	—	—	WM1252-ND	.89	7.86	50.14	193.77	50-84-1120
15	Plug	—	600	.800	1.050	—	—	—	—	—	WM1254-ND	1.12	9.80	62.53	241.67	50-84-1150
Fig. B – Cap																
2	Cap	13.5	600	.300	.550	.340	.095	.250	.530	.565	WM1243-ND	.41	3.57	22.76	87.95	50-84-2020
3	Cap	13.5	600	.300	.800	.340	.095	.250	.530	.815	WM1245-ND	.48	4.18	26.64	102.96	50-84-2030
4	Cap	13.5	600	.300	1.050	.340	.095	.250	.530	1.065	WM1247-ND	.54	4.76	30.34	117.26	50-84-2040
6	Cap	11.0	600	.800	.550	.480	.275	.250	1.030	.565	WM1249-ND	.61	5.37	34.23	132.28	50-84-2060
9	Cap	11.0	600	.800	.800	.480	.275	.250	1.030	.815	WM1251-ND	.69	6.06	38.67	149.44	50-84-2090
12	Cap	—	600	.800	1.050	.480	.275	.350	1.030	1.065	WM1253-ND	.89	7.86	50.14	193.77	50-84-2120
15	Cap	—	600	.800	1.300	.480	.275	.350	1.030	1.315	WM1255-ND	1.12	9.80	62.53	241.67	50-84-2150
Fig. C – Vertical Header																
2	Male	—	—	.300	.550	—	—	—	—	—	WM1256-ND	1.09	9.64	62.20	222.37	10-84-4020
2	Female	—	—	.300	.550	—	—	—	—	—	WM1263-ND	1.02	9.05	58.40	208.78	10-84-4022
3	Male	—	—	.300	.800	—	—	—	—	—	WM1257-ND	1.26	11.13	71.80	256.69	10-84-4030
3	Female	—	—	.300	.800	—	—	—	—	—	WM1264-ND	1.20	10.66	68.80	245.96	10-84-4032
4	Male	—	—	300	1.050	—	—	—	—	—	WM1258-ND	1.51	13.33	86.00	307.45	10-84-4040
4	Female	—	—	.300	1.050	—	—	—	—	—	WM1265-ND	1.46	12.90	83.20	297.44	10-84-4042
6	Male	—	—	.800	.550	—	—	—	—	—	WM1259-ND	2.01	17.79	114.80	410.41	10-84-4060
6	Female	—	—	.800	.550	—	—	—	—	—	WM1266-ND	2.09	18.48	119.20	426.14	10-84-4062
9	Male	—	—	.800	.800	—	—	—	—	—	WM1260-ND	2.59	22.97	148.20	529.82	10-84-4090
9	Female	—	—	.800	.800	—	—	—	—	—	WM1267-ND	3.01	26.66	172.00	614.90	10-84-4092
12	Male	—	—	.800	1.050	—	—	—	—	—	WM1261-ND	3.09	27.40	176.80	632.06	10-84-4120
12	Female	—	—	.800	1.050	—	—	—	—	—	WM1268-ND	3.85	34.07	219.80	785.79	10-84-4122
15	Male	—	—	.800	1.300	—	—	—	—	—	WM1262-ND	3.85	34.07	219.80	785.79	10-84-4150
15	Female	—	—	.800	1.300	—	—	—	—	—	WM1269-ND	4.35	38.53	248.60	888.75	10-84-4152

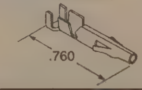
* Ratings are per circuit, based on fully loaded housings.
†† Cap housing should be installed into panel in the same direction as the panel cutout is punched.

.084" TERMINALS

Split Pin (Male)



Socket (Female)



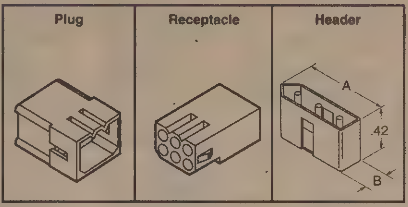
Description	Wire Size AWG Tin Plated	Insulation Dia. Min	Insulation Dia. .Max.	Digi-Key Part No.	Pricing 10	Pricing 100	Pricing 500	Pricing 1000	Molex Part No.
Male Crimp	#14 to 20	.060	.130	WM1270-ND	1.02	8.50	34.00	51.00	02-08-2004
Female Crimp	#14 to 20	.060	.130	WM1271-ND	1.02	8.50	34.00	51.00	02-08-1002
Hand Tool	#14 to 20	—	—	WM9920-ND	204.82 each				11-01-0167
Extraction Tool	#14 to 20	—	—	WM9921-ND	58.21 each				11-01-0168

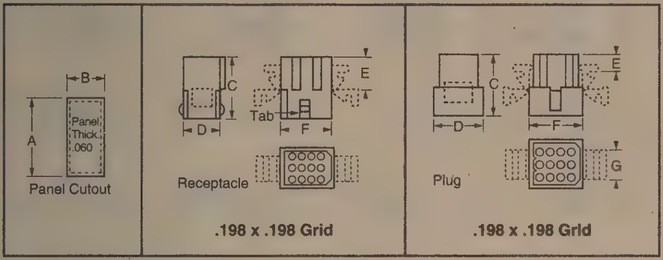
Power Connectors

.093" Diameter Connectors

- UL File Number E-29179; CSA File Number LR-19980.
- Up to 12 amperes per circuit.*
- 250 Volt rating for 03-09 series; 600 Volt rating for 19-09 series
- Friction lock for 03-09 series; Positive lock for 19-09 series

(* Ratings based on fully loaded housings.)





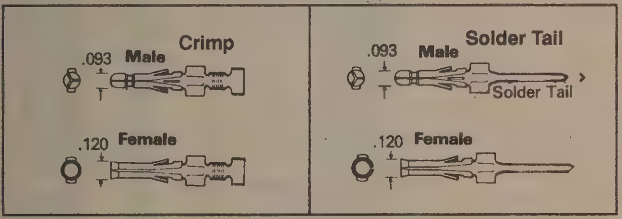
(a) Electrical ratings are per circuit. (b) Center spacing .248" will accommodate: 14, 16 and 18 AWG with 1/32" insulation — 16 with 18 AWG (double crimp), each with 1/32" insulation. WM1400-WM1405 housings have positive locking rather than detent lock. (c) 4 circuits in square grid pattern. (d) Has positive lock rather than detent lock. (e) Mounting ears are molded flush with back edge of wire end. Not centered on side.

Cable Connector Designer Kits

WM9801-ND — Contains same as WM9800-ND but covers from single to 15-circuit designs (250V and up to 12A/circuit. 45 complete connectors with .093" dia. pin size. Crimping tool, pin terminal ejector and case included **$51.57**

.093" TERMINALS

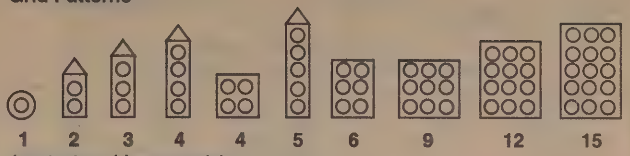
- Use with .093" housing
- **Temperature Range:** 40°C to 105°C • .010" stock 70/30 brass
- **High Voltage Test:** Withstands 1500 volts RMS for 60 seconds min. applied between adjacent terminals.
- **Current Rating:** Amperage rating up to 12 amps on some sizes.
- **Storage Temperature Range:** -40°C to 125°C.
- **Plating:** 200-300m Inch Hot-Tin Dip tin plating.



Description	Wire Size	Insulation Diameter	Digi-Key Part No.	Pricing 10	100	500	Molex Part No.
Male, Crimp Type	14-20	.065/.160	WM1100-ND	1.32	11.00	44.00	02-09-2103
Female, Crimp Type	14-20	.065/.160	WM1101-ND	1.32	11.00	44.00	02-09-1104
Male, Crimp Type	18-22	.060/.120	WM1102-ND	1.29	10.75	43.00	02-09-2118
Female, Crimp Type	18-22	.060/.120	WM1103-ND	1.32	11.00	44.00	02-09-1119
Male, Solder-Tail	—	—	WM1104-ND	1.98	16.50	66.00	02-09-2133
Female, Solder-Tail	—	—	WM1105-ND	1.98	16.50	66.00	02-09-1134
Male, Crimp Type	18-22	.060/.120	WM1106-ND*	5.52	46.00	184.00	02-09-6123
Female, Crimp Type	18-22	.060/.120	WM1107-ND*	14.04	117.00	468.00	02-09-5142
Male, Crimp Type	24-30	.030/.060	WM1108-ND*	11.76	98.00	392.00	02-09-6145
Female, Crimp Type	24-30	.030/.060	WM1109-ND*	11.76	98.00	392.00	02-09-5147
Male, Solder-Tail	—	—	WM1110-ND*	9.27	77.25	309.00	02-09-6132
Female, Solder-Tail	—	—	WM1111-ND*	18.63	155.25	621.00	02-09-5132
Hand Tool (Waldom)	—	—	WM9903-ND		13.57 each		W-HT-1919
Production Tool (Waldom)	—	—	WM9904-ND		128.68 each		W-HTR-1031-E
Extractor Tool (Waldom)	—	—	WM9905-ND		9.93 each		W-HT-2038
Hand Tool (Molex)	—	—	WM9926-ND		36.83 each		11-01-0014MLX
Production Tool (18-22 AWG) (Molex)	—	—	WM9923-ND		223.17 each		11-01-0084
Production Tool (24-30 AWG) (Molex)	—	—	WM9924-ND		179.55 each		11-01-0006
Extraction Tool (Molex)	—	—	WM9930-ND		18.42 each		11-03-0006

★ 15μ Select Gold Finish

Grid Patterns



(contacts sold separately)

Grid Space	Circ. (a)	Type	Max. Amps	Volts	Dimensions (In.) A	B	C	D	F	Digi-Key Part No.	Pricing 1	10	100	Molex Part No.
.093" Diameter Connector Housings — With Detent Only, Free Hanging														
.198"	1	Plug	12	5000	—	—	2.250	.437	—	WM1301-ND	.41	3.89	23.87	03-09-2014
		Receptacle	12	5000	—	—	1.859	.312	—	WM1300-ND	.40	3.82	23.44	03-09-1014
	1	Plug	12	250	—	—	1.000	.358	—	WM1303-ND	.20	1.93	11.83	03-09-2011
		Receptacle	12	250	—	—	1.000	.234	—	WM1302-ND	.20	1.93	11.83	03-09-1011
	2	Plug	12	250	.800	.375	1.000	.352	.639	WM1324-ND	.38	3.61	22.15	03-09-2022
		Receptacle	12	250	.725	.312	1.030	.250	.536	WM1331-ND	.38	3.61	22.15	03-09-1022
	3	Plug	12	250	.933	.375	.970	.340	.770	WM1325-ND	.48	4.52	27.74	03-09-2032
		Receptacle	12	250	.840	.312	1.015	.236	.670	WM1332-ND	.51	4.80	29.46	03-09-1032
	4	Plug	12	250	1.131	.375	1.000	.338	.971	WM1326-ND	.49	4.66	28.60	03-09-2042
		Receptacle	12	250	1.038	.312	1.000	.236	.868	WM1333-ND	.49	4.66	28.60	03-09-1042
	4(c)	Plug	12	250	.555	.695	1.024	.538	.538	WM1327-ND	.92	8.72	53.54	03-09-2049
		Receptacle	12	250	.500	.600	1.000	.434	.434	WM1334-ND	.94	8.93	54.83	03-09-1049
	5	Receptacle	12	250	1.238	.312	1.000	.243	1.966	WM1312-ND	.70	6.58	40.42	03-09-1052
	5(d)	Plug	12	250	—	—	.969	.350	1.170	WM1315-ND	.66	6.23	38.27	03-09-2057
		Receptacle	12	250	—	—	1.000	.240	1.070	WM1314-ND	.66	6.23	38.27	03-09-1057
	6	Plug	9	250	.750	.695	1.000	.733	.536	WM1328-ND	.57	5.39	33.11	03-09-2062
		Receptacle	9	250	.718	.600	1.015	.632	.434	WM1335-ND	.57	5.39	33.11	03-09-1064
	9(e)	Plug	9	250	.937	.660	.970	.730	.770	WM1329-ND	.71	6,69	41.07	03-09-2092
		Receptacle	9	250	.828	.725	1.015	.625	.666	WM1336-ND	.71	6.69	41.07	03-09-1094
	12	Plug	7.5	250	1.155	.760	1.000	.737	.770	WM1330-ND	.79	7.46	45.80	03-09-2121
		Receptacle	7.5	250	1.050	.655	1.015	.633	.871	WM1337-ND	.77	7.32	44.94	03-09-1126
.248"	2(b)	Plug	12	600	—	—	1.031	.359	.656	WM1401-ND	.62	5.88	36.12	03-09-2028
		Receptacle	12	600	—	—	1.063	.265	.531	WM1400-ND	.62	5.88	36.12	03-09-1028
	3(b)	Plug	9	600	—	—	1.031	.359	.921	WM1403-ND	.74	6.97	42.79	03-09-2038
		Receptacle	9	600	—	—	1.063	.265	.784	WM1402-ND	.74	6.97	42.79	03-09-1038
	4(b)	Plug	9	600	—	—	1.031	.359	1.156	WM1405-ND	.77	7.25	44.51	03-09-2048
		Receptacle	9	600	—	—	1.063	.265	1.032	WM1404-ND	.77	7.25	44.51	03-09-1047
.093" Diameter Connector Housings — With Mounting Ears & Detent, Panel Mount														
.198"	3	Plug	12	250	.933	.375	.970	.340	.770	WM1307-ND	.48	4.52	27.74	03-09-2031
		Receptacle	12	250	.840	.312	1.015	.236	.670	WM1338-ND	.52	4.90	30.10	03-09-1081
	4	Plug	12	250	1.131	.375	.969	.338	.971	WM1309-ND	.49	4.66	28.60	03-09-2041
		Receptacle	12	250	1.038	.312	1.000	.236	.868	WM1308-ND	.49	4.66	28.60	03-09-1043
	4(c)	Plug	12	250	.555	.695	.969	.538	.538	WM1311-ND	.77	7.32	44.94	03-09-2040
		Receptacle	12	250	.500	.600	1.000	.434	.434	WM1310-ND	.77	7.32	44.94	03-09-1040
	6	Plug	9	250	.750	.695	.969	.733	.536	WM1317-ND	.57	5.39	33.11	03-09-2061
		Receptacle	9	250	.718	.600	1.015	.632	.434	WM1316-ND	.57	5.39	33.11	03-09-1061
	9(e)	Plug	9	250	.937	.660	.970	.730	.770	WM1319-ND	.72	6.79	41.71	03-09-2091
		Receptacle	9	250	.828	.725	1.015	.625	.666	WM1318-ND	.71	6.69	41.07	03-09-1091
	12	Plug	7.5	250	1.155	.760	.969	.737	.975	WM1321-ND	.79	7.46	45.80	03-09-2122
		Receptacle	7.5	250	1.050	.665	1.015	.633	.871	WM1320-ND	.77	7.32	44.94	03-09-1125
	15	Plug	7.5	250	1.343	.760	.969	.734	1.169	WM1323-ND	1.06	10.05	61.71	03-09-2152
		Receptacle	7.5	250	1.240	.655	1.015	.632	1.066	WM1322-ND	1.15	10.92	67.08	03-09-1154
.248"	2(b)	Plug	12	250	.800	.375	.968	.352	.639	WM1305-ND	.40	3.75	23.01	03-09-2021
		Receptacle	12	250	.725	.312	1.000	.250	.536	WM1304-ND	.38	3.61	22.15	03-09-1027
.250"	3	Plug	11	600	1.022	.365	1.100	.350	.862	WM1501-ND	.71	6.27	44.41	19-09-2031
		Receptacle	11	600	.920	.310	1.140	.250	.760	WM1500-ND	.71	6.27	44.41	19-09-1031
	4	Plug	9	600	1.270	.365	.350	.350	1.110	WM1503-ND	.97	8.55	60.56	19-09-2041
		Receptacle	9	600	1.168	.311	1.140	.250	.760	WM1502-ND	1.00	8.85	62.69	19-09-1041
	6	Plug	9	600	1.048	.658	1.100	.640	.886	WM1505-ND	1.02	9 03	63.96	19-09-2061
		Receptacle	9	600	.946	.608	1.140	.540	.790	WM1504-ND	1.02	9.03	63.96	19-09-1061
	9	Plug	8	600	1.048	.910	1.100	.890	.890	WM1507-ND	1.14	10.02	70.98	19-09-2091
		Receptacle	8	600	.948	.850	1.140	.790	.790	WM1506-ND	1.14	10.02	70.98	19-09-1091
	12	Plug	6	600	1.300	.910	1.100	.890	1.140	WM1509-ND	1.77	15.63	110.71	19-09-2122
		Receptacle	6	600	1.094	.850	1.140	.790	1.034	WM1508-ND	1.77	15.63	110.71	19-09-1121
	15	Plug	6	600	1.552	.910	1.100	.890	1.388	WM1511-ND	2.27	20.04	141.95	19-09-2153
		Receptacle	6	600	1.422	.850	1.140	.790	1.282	WM1510-ND	2.27	20.04	141.95	19-09-1151
.264"	1	Plug	12	600	.485	.343	.320	.320	.320	WM1601-ND	.33	3.15	19.35	19-09-2018
		Receptacle	12	600	—	—	—	.300	.400	WM1600-ND	.33	3.15	19.35	19-09-1019
	2	Plug	12	600	.800	.365	.635	.320	.580	WM1603-ND	.54	5.11	31.39	19-09-2028
		Receptacle	12	600	—	—	—	.300	.560	WM1602-ND	.54	5.11	31.39	19-09-1029
	3	Plug	11	600	1.022	.365	.862	.320	.848	WM1605-ND	.60	5.67	34.83	19-09-2038
		Receptacle	11	600	—	—	—	.300	.830	WM1604-ND	.60	5.67	34.83	19-09-1039
	4	Plug	9	600	1.270	.365	1.109	.321	1.110	WM1607-ND	.62	5.88	36.12	19-09-2048
		Receptacle	9	600	—	—	—	.300	1.090	WM1606-ND	.62	5.88	36.12	19-09-1049
	6	Plug	9	600	1.048	.658	.888	.604	.850	WM1609-ND	.70	6.62	40.64	19-09-2068
		Receptacle	9	600	—	—	—	.560	.830	WM1608-ND	.73	6.90	42.36	19-09-1069
	9	Plug	8	600	1.048	.909	.883	.868	.850	WM1611-ND	.80	7.53	46.23	19-09-2098
		Receptacle	8	600	—	—	—	.560	.830	WM1610-ND	.81	7.67	47.09	19-09-1099
	12	Plug	7	600	1.100	.910	1.140	.668	1.112	WM1613-ND	.91	8.61	52.89	19-09-2128
		Receptacle	7	600	—	—	—	.830	.900	WM1612-ND	.95	8.96	55.04	19-09-1129
	15	Plug	6	600	1.552	.910	1.392	.868	1.380	WM1615-ND	1.32	12.50	76.76	19-09-2158
		Receptacle	6	600	—	—	—	.868	1.380	WM1614-ND	1.40	13.27	81.49	19-09-1159
NEW! .093" Diameter Shrouded Male Pin Header NEW!														
.198"	3	Header	5	250	.770	.330	—	—	—	WM1625-ND	2.40	19.92	127.10	10-18-1032
	4	Header	5	250	.970	.330	—	—	—	WM1626-ND	2.40	19.92	127.10	10-18-1041
	6	Header	5	250	.740	.540	—	—	—	WM1627-ND	2.71	22.48	143.38	10-18-1061
	9	Header	5	250	.770	.730	—	—	—	WM1628-ND	3.87	32.10	204.80	10-18-1090
	12	Header	5	250	.980	.740	—	—	—	WM1629-ND	5.17	42.80	273.06	10-18-1120

molex Waldom

P.C. Board Connectors

.100 P.C. Board Connectors

94V-O Material, Mates with .025" square pins, end-to-end stackable.

.156 P.C. Board Connectors

94V-2 Nylon Housing. Mates with .045" pins.

Fig. A – Side Entry

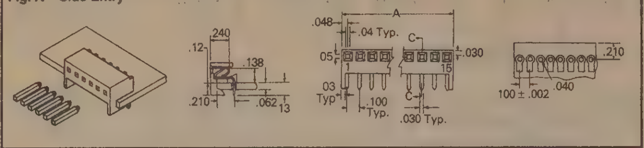


Fig. B – Bottom Entry

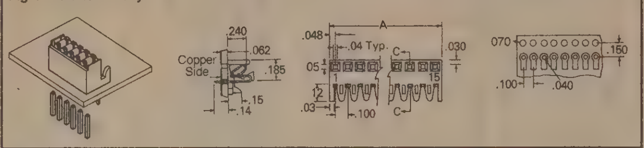


Fig. C – Top Entry

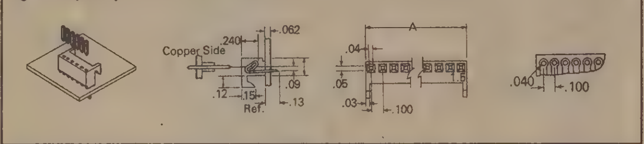


Fig. D – Side Entry

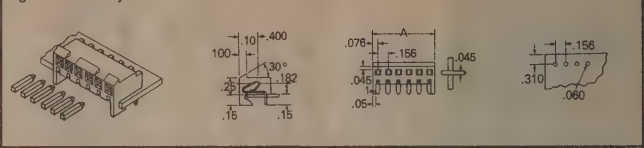


Fig. E – Bottom Entry

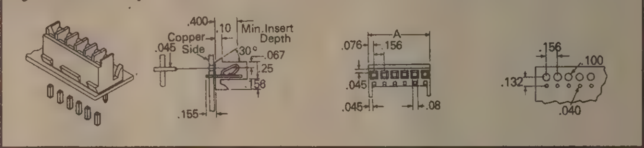


Fig. F – Top Entry

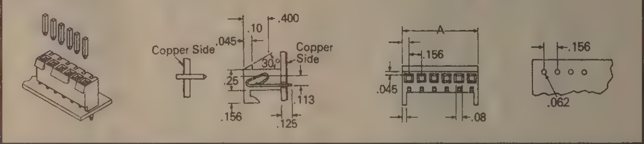


Fig. No.	Cir-cuits	Dimension "A"	Digi-Key Part No.	Pricing			Molex Part No.
				1	10	100	
			.100 P.C. Board Connectors				
A	2	.196	WM3000-ND	.26	2.32	18.00	22-15-2026
	3	.296	WM3001-ND	.39	3.45	26.78	22-15-2036
	4	.396	WM3002-ND	.53	4.64	36.00	22-15-2046
	5	.496	WM3003-ND	.66	5.77	44.78	22-15-2056
	6	.596	WM3004-ND	.79	6.96	54.00	22-15-2066
	7	.696	WM3005-ND	.92	8.09	62.78	22-15-2076
	8	.796	WM3006-ND	1.06	9.28	72.00	22-15-2086
	9	.896	WM3007-ND	1.18	10.41	80.78	22-15-2096
	10	.996	WM3008-ND	1.32	11.60	90.00	22-15-2106
	11	1.096	WM3009-ND	1.45	12.73	98.78	22-15-2116
	12	1.196	WM3010-ND	1.58	13.92	108.00	22-15-2126
B	2	.196	WM3100-ND	.29	2.60	16.80	22-14-2024
	3	.296	WM3101-ND	.44	3.94	25.40	22-14-2034
	4	.396	WM3102-ND	.59	5.21	33.60	22-14-2044
	5	.496	WM3103-ND	.75	6.60	42.60	22-14-2054
	6	.596	WM3104-ND	.88	7.81	50.40	22-14-2064
	7	.696	WM3105-ND	1.05	9.27	59.80	22-14-2074
	8	.796	WM3106-ND	1.18	10.42	67.20	22-14-2084
	9	.896	WM3107-ND	1.32	11.69	75.40	22-14-2094
	10	.996	WM3108-ND	1.47	13.02	84.00	22-14-2104
	11	1.096	WM3109-ND	1.61	14.29	92.20	22-14-2114
	12	1.196	WM3110-ND	1.76	15.62	100.80	22-14-2124
C	2	.196	WM3200-ND	.28	2.48	16.00	22-02-2025
	3	.296	WM3201-ND	.42	3.69	23.80	22-02-2035
	4	.396	WM3202-ND	.56	4.96	32.00	22-02-2045
	5	.496	WM3203-ND	.71	6.29	40.60	22-02-2055
	6	.596	WM3204-ND	.84	7.44	48.00	22-02-2065
	7	.696	WM3205-ND	.98	8.65	55.80	22-02-2075
	8	.796	WM3206-ND	1.12	9.92	64.00	22-02-2085
	9	.896	WM3207-ND	1.28	11.35	73.20	22-02-2095
	10	.996	WM3208-ND	1.40	12.40	80.00	22-02-2105
	11	1.096	WM3209-ND	1.56	13.86	89.40	22-02-2115
	12	1.196	WM3210-ND	1.68	14.88	96.00	22-02-2125
			.100 P.C. Board Connectors - Gold				
A	2	.196	WM3211-ND	.29	2.60	16.80	22-16-2020
	3	.296	WM3212-ND	.44	3.89	25.09	22-16-2030
	4	.396	WM3213-ND	.58	5.17	33.38	22-16-2040
	5	.496	WM3214-ND	.73	6.46	41.66	22-16-2050
	6	.596	WM3215-ND	.88	7.81	50.40	22-16-2060
	7	.696	WM3216-ND	1.03	9.10	58.69	22-16-2070
	8	.796	WM3217-ND	1.17	10.38	66.98	22-16-2080
	9	.896	WM3218-ND	1.31	11.63	75.04	22-16-2090
	10	.996	WM3219-ND	1.47	12.99	83.78	22-16-2100
	11	1.096	WM3220-ND	1.61	14.27	92.06	22-16-2110
	12	1.196	WM3221-ND	1.76	15.55	100.35	22-16-2120
B	2	.196	WM3222-ND	.31	2.74	17.70	22-17-3022
	3	.296	WM3223-ND	.46	4.06	26.21	22-17-3032
	4	.396	WM3224-ND	.62	5.45	35.17	22-17-3042
	5	.496	WM3225-ND	.76	6.77	43.68	22-17-3052
	6	.596	WM3226-ND	.92	8.16	52.64	22-17-3062
	7	.696	WM3227-ND	1.07	9.51	61.38	22-17-3072
	8	.796	WM3228-ND	1.23	10.90	70.34	22-17-3082
	9	.896	WM3229-ND	1.38	12.22	78.85	22-17-3092
	10	.996	WM3230-ND	1.54	13.61	87.81	22-17-3102
	11	1.096	WM3231-ND	1.69	14.96	96.54	22-17-3112
	12	1.196	WM3232-ND	1.85	16.35	105.50	22-17-3122
C	2	.196	WM3233-ND	.29	2.60	16.80	22-18-2021
	3	.296	WM3234-ND	.44	3.89	25.09	22-18-2031
	4	.396	WM3235-ND	.58	5.17	33.38	22-18-2041
	5	.496	WM3236-ND	.73	6.46	41.66	22-18-2051
	6	.596	WM3237-ND	.88	7.81	50.40	22-18-2061
	7	.696	WM3238-ND	1.03	9.10	58.69	22-18-2071
	8	.796	WM3239-ND	1.17	10.38	66.98	22-18-2081
	9	.896	WM3240-ND	1.31	11.63	75.04	22-18-2091
	10	.996	WM3241-ND	1.47	12.99	83.78	22-18-2101
	11	1.096	WM3242-ND	1.61	14.27	92.06	22-18-2111
	12	1.196	WM3243-ND	1.76	15.55	100.35	22-18-2121
			.156 P.C. Board Connectors				
D	3	.46	WM3300-ND	.50	4.46	28.80	09-52-3031
	4	.62	WM3301-ND	.68	5.98	38.60	09-52-3041
	5	.78	WM3302-ND	.83	7.38	47.60	09-52-3051
	6	.93	WM3303-ND	1.00	8.84	57.00	09-52-3061
	7	1.09	WM3304-ND	1.17	10.35	66.80	09-52-3071
	8	1.24	WM3305-ND	1.33	11.81	76.20	09-52-3081
	9	1.40	WM3306-ND	1.51	13.33	86.00	09-52-3091
	10	1.56	WM3307-ND	1.67	14.82	95.60	09-52-3101
	11	1.71	WM3308-ND	1.84	16.28	105.00	09-52-3111
	12	1.87	WM3309-ND	2.01	17.79	114.80	09-52-3121
E	3	.46	WM3400-ND	.53	4.65	30.00	09-52-3032
	4	.62	WM3401-ND	.70	6.23	40.20	09-52-3042
	5	.78	WM3402-ND	.88	7.75	50.00	09-52-3052
	6	.93	WM3403-ND	1.05	9.27	59.80	09-52-3062
	7	1.09	WM3404-ND	1.37	12.09	78.00	09-52-3072
	8	1.24	WM3405-ND	1.41	12.46	80.40	09-52-3082
	9	1.40	WM3406-ND	1.58	13.98	90.20	09-52-3092
	10	1.56	WM3407-ND	1.76	15.56	100.40	09-52-3102
	11	1.71	WM3408-ND	1.93	17.08	110.20	09-52-3112
	12	1.87	WM3409-ND	2.11	18.69	120.60	09-52-3122
F	3	.46	WM3500-ND	.50	4.46	28.80	09-52-3033
	4	.62	WM3501-ND	.68	5.98	38.60	09-52-3043
	5	.78	WM3502-ND	.83	7.38	47.60	09-52-3053
	6	.93	WM3503-ND	1.00	8.84	57.00	09-52-3063
	7	1.09	WM3504-ND	1.17	10.35	66.80	09-52-3073
	8	1.24	WM3505-ND	1.33	11.81	76.20	09-52-3083
	9	1.40	WM3506-ND	1.51	13.33	86.00	09-52-3093
	10	1.56	WM3507-ND	1.67	14.82	95.60	09-52-3103
	11	1.71	WM3508-ND	1.84	16.28	105.00	09-52-3113
	12	1.87	WM3509-ND	2.01	17.79	114.80	09-52-3123
			.156 P.C. Board Connectors - Gold				
D	3	.46	WM3510-ND	.82	7.25	46.80	09-62-3031
	4	.62	WM3511-ND	1.09	9.67	62.40	09-62-3041
	5	.78	WM3512-ND	1.37	12.15	78.40	09-62-3051
	6	.93	WM3513-ND	1.64	14.54	93.80	09-62-3061
	7	1.09	WM3514-ND	1.60	14.20	91.62	09-62-3071
	8	1.24	WM3515-ND	2.19	19.38	125.00	09-62-3081
	9	1.40	WM3516-ND	2.46	21.79	140.60	09-62-3091
	10	1.56	WM3517-ND	2.74	24.27	156.60	09-62-3101
	11	1.71	WM3518-ND	2.53	22.39	144.48	09-62-3111
	12	1.87	WM3519-ND	3.28	29.05	187.40	09-62-3121
E	3	.46	WM3520-ND	.73	6.42	41.44	09-62-3032
	4	.62	WM3521-ND	.96	8.54	55.10	09-62-3042
	5	.78	WM3522-ND	1.21	10.69	68.99	09-62-3052
	6	.93	WM3523-ND	1.45	12.81	82.66	09-62-3062
	7	1.09	WM3524-ND	1.69	14.96	96.54	09-62-3072
	8	1.24	WM3525-ND	1.93	17.08	110.21	09-62-3082
	9	1.40	WM3526-ND	2.17	19.23	124.10	09-62-3092
	10	1.56	WM3527-ND	2.42	21.42	138.21	09-62-3102
	11	1.71	WM3528-ND	2.65	23.51	151.65	09-62-3112
	12	1.87	WM3529-ND	2.90	25.66	165.54	09-62-3122
F	3	.46	WM3530-ND	.69	6.08	39.20	09-62-3033
	4	.62	WM3531-ND	.92	8.12	52.42	09-62-3043
	5	.78	WM3532-ND	1.15	10.21	65.86	09-62-3053
	6	.93	WM3533-ND	1.38	12.22	78.85	09-62-3063
	7	1.09	WM3534-ND	1.60	14.20	91.62	09-62-3073
	8	1.24	WM3535-ND	1.84	16.28	105.06	09-62-3083
	9	1.40	WM3536-ND	2.07	18.33	118.27	09-62-3093
	10	1.56	WM3537-ND	2.30	20.42	131.71	09-62-3103
	11	1.71	WM3538-ND	2.53	22.39	144.48	09-62-3113
	12	1.87	WM3539-ND	2.76	24.41	157.47	09-62-3123

NEW! 1.25mm Connectors

1.25mm Connectors

Physical Specifications: • Housing: PBTP, UL 94V-0 • Temperature: -40° to +85°C
UL File No.: E29179 CSA File No.: LR19980

1.25mm Crimp Terminal

Electrical Specifications: • Voltage: 125V • Current: 1.0A (0.8A for 32AWG) • Contact Resistance: 20mΩ max. • Dielectric Withstanding Voltage: 250V AC/1 min. • Insulation Resistance: 100MΩ min.
Physical Specifications: • Contact: Phosphor Bronze • Plating: Tin • Wire Range: 28 to 32 AWG • Insulation Range: 1.00mm dia. max. • Strip Length: 1.40 to 1.90mm

Fig. 1 — 1.25mm Receptacle Housing

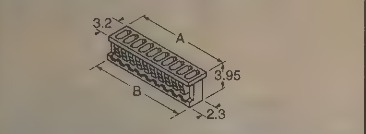


Fig. 2 — 1.25mm Straight Header

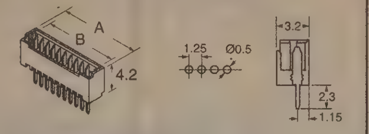


Fig. 3 — 1.25mm Right Angle Header

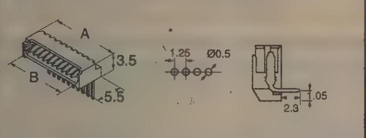


Fig. 4 — 1.25mm SMT Straight Header

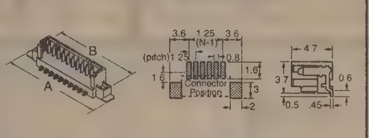


Fig. 5 — 1.25mm SMT Right Angle Header

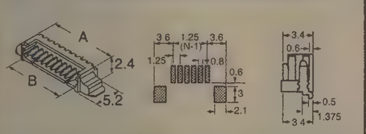
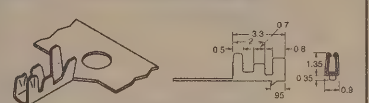


Fig. 6 — Crimp Terminal (Female)



Supplied on Strip

Fig. No.	Circuits	Dimension A	Dimension B	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 500	Mfg. Part No.
				Receptacle Housing					
1	2	4.25	2.95	WM1720-ND	.34	2.78	17.76	68.64	51021-0200
1	3	5.50	4.20	WM1721-ND	.40	3.28	20.91	80.80	51021-0300
1	4	6.75	5.45	WM1722-ND	.45	3.74	23.87	92.24	51021-0400
1	5	8.00	6.70	WM1723-ND	.53	4.35	27.75	107.25	51021-0500
1	6	9.25	7.95	WM1724-ND	.58	4.81	30.71	118.69	51021-0600
1	7	10.50	9.20	WM1725-ND	.61	5.05	32.19	124.41	51021-0700
1	8	11.75	10.45	WM1726-ND	.70	5.83	37.19	143.72	51021-0800
1	9	13.00	11.70	WM1727-ND	.76	6.29	40.15	155.16	51021-0900
1	10	14.25	12.95	WM1728-ND	.81	6.73	42.92	165.88	51021-1000
1	11	15.50	14.20	WM1729-ND	.88	7.25	46.25	178.75	51021-1100
1	12	16.75	15.45	WM1730-ND	.94	7.80	49.77	192.34	51021-1200
				Straight Header					
2	2	4.25	3.05	WM1731-ND	.60	4.99	31.82	122.98	53047-0210
2	3	5.50	4.30	WM1732-ND	.72	6.00	38.30	148.01	53047-0310
2	4	6.75	5.55	WM1733-ND	.86	7.13	45.51	175.89	53047-0410
2	5	8.00	6.80	WM1734-ND	1.02	8.44	53.84	208.07	53047-0510
2	6	9.25	8.05	WM1735-ND	1.16	9.57	61.05	235.95	53047-0610
2	7	10.50	9.30	WM1736-ND	1.31	10.88	69.38	268.13	53047-0710
2	8	11.75	10.55	WM1737-ND	1.46	12.12	77.33	298.87	53047-0810
2	9	13.00	11.80	WM1738-ND	1.60	13.22	84.36	326.04	53047-0910
2	10	14.25	13.05	WM1739-ND	1.75	14.50	92.50	357.50	53047-1010
2	11	15.50	14.30	WM1740-ND	1.89	15.69	100.09	386.82	53047-1110
2	12	16.75	15.55	WM1741-ND	2.03	16.82	107.30	414.70	53047-1210
				Right Angle Header					
3	2	4.25	3.05	WM1742-ND	.63	5.22	33.30	128.70	53048-0210
3	3	5.50	4.30	WM1743-ND	.77	6.35	40.52	156.59	53048-0310
3	4	6.75	5.55	WM1744-ND	.94	7.80	49.77	192.34	53048-0410
3	5	8.00	6.80	WM1745-ND	1.09	9.05	57.72	223.08	53048-0510
3	6	9.25	8.05	WM1746-ND	1.26	10.47	66.79	258.12	53048-0610
3	7	10.50	9.30	WM1747-ND	1.41	11.66	74.37	287.43	53048-0710
3	8	11.75	10.55	WM1748-ND	1.56	12.91	82.33	318.18	53048-0810
3	9	13.00	11.80	WM1749-ND	1.72	14.27	91.02	351.78	53048-0910
3	10	14.25	13.05	WM1750-ND	1.86	15.40	98.24	379.67	53048-1010
3	11	15.50	14.30	WM1751-ND	2.02	16.76	106.93	413.27	53048-1110
3	12	16.75	15.55	WM1752-ND	2.18	18.07	115.26	445.45	53048-1210
				SMT Straight Header					
4	2	7.25	7.65	WM1764-ND	2.35	19.49	124.32	480.48	53398-0290
4	3	8.50	8.90	WM1765-ND	2.52	20.88	133.20	514.80	53398-0390
4	4	9.75	10.15	WM1766-ND	2.74	22.71	144.86	559.85	53398-0490
4	5	11.00	11.40	WM1767-ND	2.77	22.94	146.34	565.57	53398-0590
4	6	12.25	12.65	WM1768-ND	3.02	25.03	159.66	617.05	53398-0690
4	7	13.50	13.90	WM1769-ND	3.18	26.33	167.98	649.22	53398-0790
4	8	14.75	15.15	WM1770-ND	3.62	30.02	191.48	740.03	53398-0890
4	9	16.00	16.40	WM1771-ND	3.80	31.52	201.10	777.21	53398-0990
4	10	17.25	17.65	WM1772-ND	3.98	32.94	210.16	812.24	53398-1090
4	11	18.50	18.90	WM1773-ND	4.84	40.08	255.67	988.13	53398-1190
4	12	19.75	20.15	WM1774-ND	4.95	41.04	261.78	1011.73	53398-1290
				SMT Right Angle Header					
5	2	7.25	3.05	WM1753-ND	1.74	14.38	91.76	354.64	53261-0290
5	3	8.50	4.30	WM1754-ND	1.94	16.07	102.49	396.11	53261-0390
5	4	9.75	5.55	WM1755-ND	2.12	17.55	111.93	432.58	53261-0490
5	5	11.00	6.80	WM1756-ND	2.33	19.31	123.21	476.19	53261-0590
5	6	12.25	8.05	WM1757-ND	2.51	20.82	132.83	513.37	53261-0690
5	7	13.50	9.30	WM1758-ND	2.71	22.42	143.01	552.70	53261-0790
5	8	14.75	10.55	WM1759-ND	2.89	23.95	152.81	590.59	53261-0890
5	9	16.00	11.80	WM1760-ND	3.10	25.69	163.91	633.49	53261-0990
5	10	17.25	13.05	WM1761-ND	3.29	27.23	173.72	671.39	53261-1090
5	11	18.50	14.30	WM1762-ND	3.48	28.83	183.89	710.71	53261-1190
5	12	19.75	15.55	WM1763-ND	3.68	30.51	194.62	752.18	53261-1290
6	Crimp Terminal, 28 to 32 AWG			WM1775-ND	.10	.84	5.37	20.74	50058-8000
Prototype Crimp Tool (Molex)				WM9931-ND	201.37/each				63811-0200
Production Crimp Tool (Molex)				WM9932-ND	530.87/each				63811-0000
Contact Extraction Tool (Molex)				WM9933-ND	155.60/each				57072-6000
Housing Extraction Tool (Molex)				WM9934-ND	137.32/each				11-03-0045

Mini-Fit, Jr. Series

Positive Locking Hi-Density Power Connector

Fig. A – Receptacle Housing

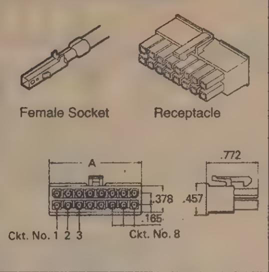


Fig. B – Plug Housing

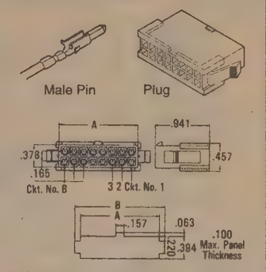


Fig. C – Vertical Header Assembly

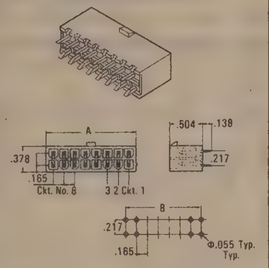
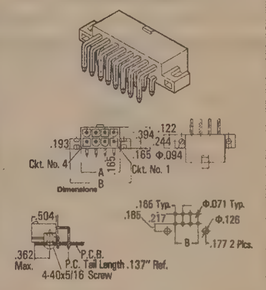


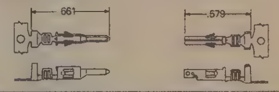
Fig. D – Right Angle Header



Current Carrying Capabilities: The Mini-Fit, Jr. can handle standard equipment I/O currents despite its small size. For example, the 2 circuit PCB connector can handle up to 9 amps at 250 volts. **Features:** • UL recognized, CSA certified, and TUV licensed • Up to 9 amperes/circuit • 250 volt rating. **Specifications:** **Material:** *Terminal*–Brass; *Plating*–Tin; *Housing*–UL 94V-2 nylon 6/6. **Electrical:** *Voltage Current*–250V; *Current Rating*–9 amps for 2 circuits, 8 amps for 4 & 6 circuits, 7 amps for 8 & 10 circuits, 6 amps for 12,14,16 circuits. *Contact Resistance*–10mΩ max. *Insulation Resistance*–1,000MΩ min. *Dialectic Strength*–1,500V AC.

Fig. No.	Circuits	Dim. (In.) A	Dim. (In.) B	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Molex Part No.
A	2	.228	—	WM3700-ND	.44	4.12	26.45	39-01-2020
	4	.394	—	WM3701-ND	.52	4.82	30.96	39-01-2040
	6	.559	—	WM3702-ND	.62	5.76	36.98	39-01-2060
	8	.724	—	WM3703-ND	.71	6.60	42.36	39-01-2080
	10	.890	—	WM3704-ND	.79	7.34	47.09	39-01-2100
	12	1.055	—	WM3705-ND	.84	7.84	50.31	39-01-2120
	14	1.224	—	WM3706-ND	1.08	10.08	64.72	39-01-2140
	16	1.390	—	WM3707-ND	1.32	12.29	78.91	39-01-2160
B	2	.228	.425	WM3600-ND	.46	4.25	27.31	39-01-2021
	4	.394	.591	WM3601-ND	.51	4.72	30.32	39-01-2041
	6	.559	.756	WM3602-ND	.59	5.49	35.26	39-01-2061
	8	.724	.921	WM3603-ND	.64	5.96	38.27	39-01-2081
	10	.890	1.087	WM3604-ND	.71	6.60	42.36	39-01-2101
	12	1.055	1.252	WM3605-ND	.75	6.93	44.51	39-01-2121
	14	1.224	1.417	WM3606-ND	1.01	9.41	60.42	39-01-2141
	16	1.390	1.583	WM3607-ND	1 31	12.23	78.48	39-01-2161
C	2	.228	—	WM3800-ND	.89	8.24	52.89	39-28-1023
	4	.394	.165	WM3801-ND	1.22	11.39	73.10	39-28-1043
	6	.559	.330	WM3802-ND	1.56	14.51	93.10	39-28-1063
	8	.724	.495	WM3803-ND	1.89	17.59	112.88	39-28-1083
	10	.890	.660	WM3804-ND	2.21	20.60	132.23	39-28-1103
	12	1.055	.825	WM3805-ND	2.54	23.62	151.58	39-28-1123
	14	1.224	.990	WM3806-ND	2.88	26.80	172.00	39-28-1143
	16	1.390	1.155	WM3807-ND	3.20	29.82	191.35	39-28-1163
D	2	.213	.606	WM3900-ND	1.08	10.02	64.29	39-29-1028
	4	.378	.772	WM3901-ND	1.48	13.80	88.58	39-29-1048
	6	.543	.937	WM3902-ND	1.88	17.45	112.02	39-29-1068
	8	.709	1.102	WM3903-ND	2.29	21.31	136.74	39-29-1088
	10	.887	1.268	WM3904-ND	2.68	24.92	159.96	39-29-1108
	12	1.039	1.433	WM3905-ND	3.08	28.64	183.83	39-29-1128
	14	1.205	1.598	WM3906-ND	3.48	32.36	207.69	39-29-1148
	16	1.370	1.764	WM3907-ND	3.87	36.05	231.34	39-29-1168

MINI-FIT JR. TERMINALS



Plating: Tin Plated Brass

Description	Wire Size	Insulation Diameter	Digi-Key Part No.	Pricing 25	Pricing 100	Pricing 500	Molex Part No.
Male	AWG # 18-24	.051" - .118"	WM2500-ND	3.88	12.40	51.15	39-00-0041
Female	AWG # 18-24	.051" - .118"	WM2501-ND	3.88	12.40	51.15	39-00-0039
Male	AWG # 22-28	.035" - .071"	WM2502-ND	3.88	12.40	51.15	39-00-0049
Female	AWG # 22-28	.035" - .071"	WM2503-ND	3.88	12.40	51.15	39-00-0047
Mini-Fit Jr Crimp Tool, 18-24 AWG......			WM9912-ND	234.93 each			11-01-0197
Mini-Fit Jr. Crimp Tool, 22-28 AWG......			WM9913-ND	234.93 each			11-01-0198
Extraction Tool			WM9918-ND	30.40 each			11-03-0044

"Toy Car" Battery Connector

Fig. 1 – Plug

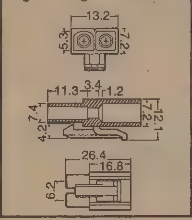


Fig. 2 – Socket

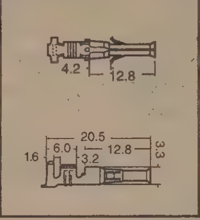


Fig. 3 – Receptacle

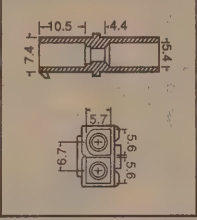
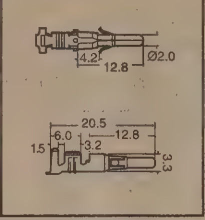


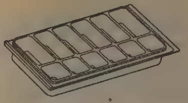
Fig. 4 – Pin



- 15 Amp current rating per circuit
- 300V voltage rating
- 14-20 AWG wire range
- Nylon 6/6 housing 94V-2
- Industry standard product for radio controlled toy cars

Fig. No.	Digi-Key Part No.	Pricing 1	10	25	100	Molex Part No.
1	WM2308-ND	.34	2.98	—	19.20	351-43-0201
2	WM2311-ND	—	—	4.81	15.50	357-28-0201
3	WM2309-ND	.32	2.85	—	18.40	351-41-0201
4	WM2310-ND	—	—	4.81	15.50	357-27-0201

Crimp Terminal Connector Kits



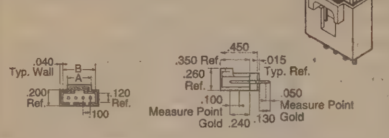
WM9803 Kit Qty.	Item	WM9804 Kit Qty.
36	Crimp Terminal Housings	48
18	Straight Headers	24
18	Right Angle Headers	24
10	Shunts	—
100	Crimp Term (22-30 AWG)	—
—	Crimp Term (18-24 AWG)	100
—	Crimping Tool HT-1919	1
1	Crimping Tool HT-1921	—
1	Extractor Tool HT-1884	1

Description	Digi-Key Part No.	Price	Molex Part No.
.100 Connector Kit	WM9803-ND	52.14	KK-100
.156 Connector Kit	WM9804-ND	52.58	KK-156

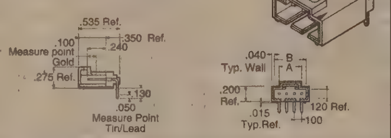
Single Row .120" Pocket Headers

Plating: 15 microinches min. gold, **MATERIAL**: Pins-.025" square, phosphor bronze, Insulator-UL 94V-0 glass filled PCT, black; Vapor phase and infrared process compatible. **ELECTRICAL**: Current Rating-3 amps, Insulation Resistance-1,000 megaohms, Dialectic Strength-600 VAC r.m.s for 1 minute. **ENVIRONMENTAL**: Operating Temperature- -40°C to +125°C, UL Listed & CSA Certified.

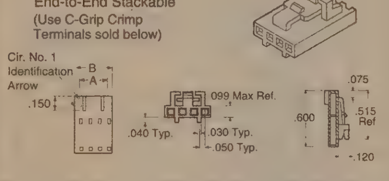
A – Straight Header, Mates with "G" Version



B – Right Angle Header, Mates with "G" Version.



C – "G" Version, End-to-End Stackable (Use C-Grip Crimp Terminals sold below)



D – "A" Version (Use C-Grip Crimp Terminals sold below)

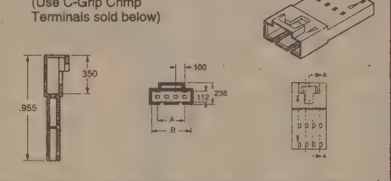


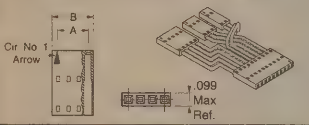
Fig.	Circuits	Dim. "A"	Dim. "B"	Digi-Key Part No.	Pricing 1	10	100	500	Molex Part. No.
A	2	.100	.210	WM4800-ND	1.02	8.50	61.20	246.50	705-43-0001
	3	.200	.320	WM4801-ND	1.13	9.38	67.50	271.88	705-43-0002
	4	.300	.420	WM4802-ND	1.25	10.45	75.24	303.05	705-43-0003
	5	.400	.520	WM4803-ND	1.35	11.28	81.18	326.98	705-43-0004
	6	.500	.620	WM4804-ND	1.46	12.20	87.84	353.80	705-43-0005
	7	.600	.720	WM4805-ND	1.57	13.08	94.14	379.18	705-43-0006
	8	.700	.820	WM4806-ND	1.68	14.00	100.80	406.00	705-43-0007
	9	.800	.920	WM4807-ND	1.79	14.93	107.46	432.83	705-43-0008
	10	.900	1 020	WM4808-ND	1.90	15.83	113.94	458.93	705-43-0009
B	2	.100	.210	WM4900-ND	1.02	8.50	61.20	246.50	705-53-0001
	3	.200	.320	WM4901-ND	1.13	9.38	67.50	271.88	705-53-0002
	4	.300	.420	WM4902-ND	1.25	10.45	75.24	303.05	705-53-0003
	5	.400	.520	WM4903-ND	1.35	11.28	81.18	326.98	705-53-0004
	6	.500	.620	WM4904-ND	1.46	12.20	87.84	353.80	705-53-0005
	7	.600	.720	WM4905-ND	1.57	13.08	94.14	379.18	705-53-0006
	8	.700	.820	WM4906-ND	1.74	14.50	104.40	420.50	705-53-0007
	9	.800	.920	WM4907-ND	1.76	14.68	105.66	425.58	705-53-0008
	10	.900	1.020	WM4908-ND	1.90	15.83	113.94	458.93	705-53-0009
C	2	.100	.199	WM2900-ND	.50	4.41	28.12	108.68	50-57-9402
	3	.200	.299	WM2901-ND	.76	6.64	42.37	163.74	50-57-9403
	4	.300	.399	WM2902-ND	.79	6.93	44.22	170.89	50-57-9404
	5	.400	.499	WM2903-ND	.82	7.22	46.07	178.04	50-57-9405
	6	.500	.599	WM2904-ND	.87	7.69	49.03	189.48	50-57-9406
	7	.600	.699	WM2905-ND	.93	8.18	52.17	201.63	50-57-9407
	8	.700	.799	WM2906-ND	.99	8.67	55.32	213.79	50-57-9408
	9	.800	.899	WM2907-ND	1.06	9.28	59.20	228.80	50-57-9409
	10	.900	.999	WM2908-ND	1.11	9.77	62.35	240.96	50-57-9410
D	2	.100	.220	WM2533-ND	.95	8.38	53.47	206.64	70107-0001
	3	.200	.320	WM2534-ND	.97	8.50	54.21	209.50	70107-0002
	4	.300	.420	WM2535-ND	.99	8.73	55.69	215.22	70107-0003
	5	.400	.520	WM2536-ND	1.24	10.91	69.62	269.07	70107-0004
	6	.500	.620	WM2537-ND	1.28	11.24	71.69	277.08	70107-0005
	7	.600	.720	WM2538-ND	1.30	11.40	72.73	281.08	70107-0006
	8	.700	.820	WM2539-ND	1.33	11.69	74.59	288.29	70107-0007
	9	.800	.920	WM2540-ND	1.36	11.95	76.25	294.69	70107-0008
	10	.900	1.020	WM2541-ND	1.42	12.44	79.36	306.71	70107-0009

* Use Box Crimp Terminals sold below.

C-Grid™ Crimp Connector Housings

A – "A" Version

"A" Version, Non-Polarized, End-to-End & Side-by-Side Stackable. Mates w/ Unshrouded Headers.



B – "A" Version

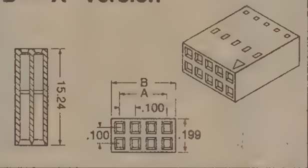
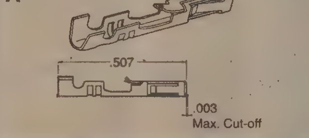


Fig.	Circuits	Dim. "A"	Dim. "B"	Digi-Key Part No.	Pricing 1	10	100	500	Molex Part. No.
A	2	.100	.199	WM2800-ND	.58	5.13	32.75	126.56	50-57-9002
	3	.200	.299	WM2801-ND	.76	6.64	42.37	163.74	50-57-9003
	4	.300	.399	WM2802-ND	.79	6.93	44.22	170.89	50-57-9004
	5	.400	.499	WM2803-ND	.82	7.22	46.07	178.04	50-57-9005
	6	.500	.599	WM2804-ND	.87	7.69	49.03	189.48	50-57-9006
	7	.600	.699	WM2805-ND	.81	7.08	45.14	174.46	50-57-9007
	8	.700	.799	WM2806-ND	.84	7.42	47.36	183.04	50-57-9008
	9	.800	.899	WM2807-ND	1.06	9.28	59.20	228.80	50-57-9009
	10	.900	.999	WM2808-ND	.95	8.38	53.47	206.64	50-57-9010
B	4	.100	.199	WM2519-ND	2.75	24.13	153.92	594.88	22-55-2041
	6	.200	.299	WM2520-ND	2.89	25.38	161.88	625.63	22-55-2061
	8	.300	.399	WM2521-ND	3.02	26.54	169.28	654.23	22-55-2081
	10	.400	.499	WM2522-ND	3.16	27.78	177.23	684.97	22-55-2101
	12	.500	.599	WM2523-ND	3.29	28.94	184.63	713.57	22-55-2121
	14	.600	.699	WM2524-ND	3.44	30.19	192.59	744.32	22-55-2141
	16	.700	.799	WM2525-ND	3.56	31.26	199.43	770.77	22-55-2161
	18	.800	.899	WM2526-ND	2.65	23.26	148.37	573.43	22-55-2181
	20	.900	.999	WM2527-ND	3.83	33.67	214.79	830.12	22-55-2201
	22	1.000	1.999	WM2528-ND	3.96	34.83	222.19	858.72	22-55-2221
	24	1.100	1.199	WM2529-ND	2.94	25.87	165.02	637.78	22-55-2241
	30	1.400	1.499	WM2530-ND	3.23	28.42	181.30	700.70	22-55-2301
	40	1.900	1.999	WM2531-ND	5.18	45.53	290.45	1122.55	22-55-2401
	50	2.400	2.499	WM2532-ND	4.19	36.86	235.14	908.77	22-55-2501

C-Grid™ Box Crimp Terminals

Loose Form, **Terminal Material:** Phosphor Bronze, **Current Rating:** 3.0 Amps (24AWG) 30°C Rise Over Ambient, UL Listed & CSA Certified.

A



B

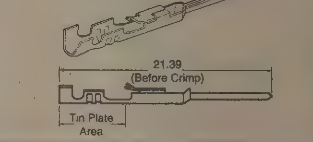
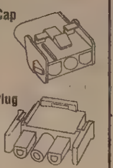


Fig.	Wire Range	Insul. Dia.	Plating	Digi-Key Part No.	Pricing 10	100	500	1000	Molex Part No.
A	22-24	.064	Tin‡	WM2510-ND	.98	7.80	32.18	51.99	16-02-0102
	24-30	.060	Tin‡	WM2511-ND	.98	7.80	32.18	51.99	16-02-0096
	22-24	.064	Gold†	WM2512-ND	1.53	12.20	50.33	81.31	16-02-0103
	24-30	.060	Gold†	WM2513-ND	1.53	12.20	50.33	81.31	16-02-0097
	22-24	.064	Tin‡	WM2556-ND*	1.35	10.80	44.55	71.98	16-02-1114
	24-30	.060	Tin‡	WM2557-ND*	1.35	10.80	44.55	71.98	16-02-1116
	22-24	.064	Gold†	WM2554-ND*	2.20	17.60	72.60	117.30	16-02-1125
	24-30	.060	Gold†	WM2555-ND*	2.20	17.60	72.60	117.30	16-02-1109
B	22-24	.064	Tin‡	WM2517-ND	.98	7.80	32.18	51.99	16-02-0114
	24-30	.060	Tin‡	WM2518-ND	.98	7.80	32.18	51.99	16-02-0108
	22-24	.064	Gold†	WM2515-ND	1.65	13.20	54.45	87.98	16-02-0115
	24-30	.060	Gold†	WM2516-ND	1.65	13.20	54.45	87.98	16-02-0109
C-Grid Hand Crimper 22-24 & 32-36 AWG				WM9917-ND	218.15 each				11-01-0208
C-Grid Hand Crimper 24 - 30 AWG				WM9919-ND	218.15 each				11-01-0209
Multi-Purpose Extraction Tool				WM9909-ND	32.38 each				11-03-0036
Insertion Tool				WM9911-ND	15.26 each				11-02-0022

‡ 150 μ in. tin/lead over 50 μ in. nickel overall.
† 15 μ in. min. gold in select area over 50 μ in. min. nickel overall with 75 μ in. min. tin/lead in select area.
* High pressure type for low pin count.

AMP Soft Shell Connectors

Universal MATE-N-LOK® Connectors



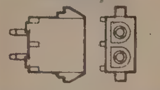
- Pins and sockets can be intermixed in the same housing. • Positive polarization. • Pin or socket contact can be hot. • Positive locking housings. • Removable, crimp snap-in contacts. • Low contact mating force. • Dual locking lances provide optimum contact stability. • Panel-mount or free-hanging.• Harness to PC board capability using pin or socket header assemblies:

Features: • Rated to 600 volts. • Insulation capacity to .200" (5.08 mm) diameter. • Contacts are on .250" (6.35 mm) centerline spacing. • Housing Material: UL rated 94V-2, natural nylon.

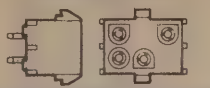
Printed Circuit Board Pin Header Assemblies

Housing Material: 94V-2 rating, natural color. **Contact Material:** Phosphor bronze pre-tin plated or .000030 (0.0008 mm) min. gold over .000050 (0.0013 mm) min. nickel.

2, 3, 4
In-Line Circuits

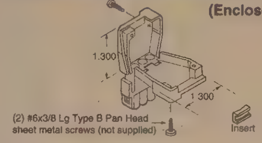


6, 9, 12 & 15
Multiple Row Circuits



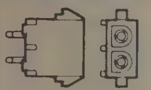
Plug Housing Strain Relief

(Enclosed)

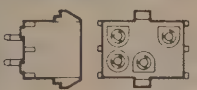

1.300
1 300
(2) #6x3/8 Lg Type B Pan Head sheet metal screws (not supplied)
Insert

Printed Circuit Board Socket Header Assemblies

2, 3, 4 In-Line Circuits

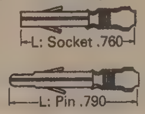


6, 9, 12, & 15 Multiple Row Circuits



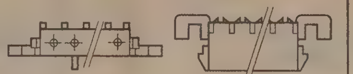
Contacts

(Pins & Sockets)



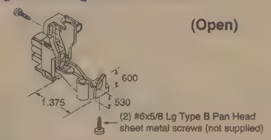
Right-Angle Pin Header Assemblies

Contact Material: Phosphor bronze. **Housing Material:** 94V-2 rated, natural nylon.



Plug Housing Strain Relief

(Open)


600
1.375
530
(2) #6x5/8 Lg Type B Pan Head sheet metal screws (not supplied)

No. of Circuits	Description	Mates With	Digi-Key Part No.		Pricing		AMP Part No.
				1	100	1,000	
Universal MATE-N-LOK® UL 94V-2 Connectors (Contacts Sold Separately)							
1	Plug In-Line	A14271-ND	A14270-ND	.13	10 68	91.12	1-350867-0
1	Cap In-Line	A14270-ND	A14271-ND	.13	10.68	91.12	770421-1
2	Plug In-Line	A1449-ND	A1448-ND	.25	20.26	172.77	1-480698-0
2	Cap In-Line	A1448-ND	A1449-ND	.26	20.98	178.92	1-480699-0
3	Plug In-Line	A1451-ND	A1450-ND	.27	21.94	187.15	1-480700-0
3	Cap In-Line	A1450-ND	A1451-ND	.28	23.00	196.20	1-480701-0
4	Plug In-Line	A1453-ND	A1452-ND	.29	23.58	201.10	1-480702-0
4	Cap In-Line	A1452-ND	A1453-ND	.29	23.34	199.11	1-480703-0
5	Plug In-Line	A1455-ND	A1454-ND	.30	24.26	206 92	1-480763-0
5	Cap In-Line	A1454-ND	A1455-ND	.29	23.51	200.52	1-480764-0
6	Plug Matrix	A1457-ND	A1456-ND	.35	28.56	243.63	1-480704-0
6	Cap Matrix	A1456-ND	A1457-ND	.34	27.23	232.26	1-480705-0
6	Plug In-Line	A14273-ND	A14272-ND	.55	44.13	376.39	640585-1
6	Cap In-Line	A14272-ND	A14273-ND	1.55	125.53	1070.69	926307-1
8	Plug In-Line	A14275-ND	A14274-ND	.62	50.54	431.09	640586-1
8	Cap In-Line	A14274-ND	A14275-ND	1.22	98.98	844.26	926308-1
9	Plug Matrix	A1459-ND	A1458-ND	.40	32.41	276.47	1-480706-0
9	Cap Matrix	A1458-ND	A1459-ND	.36	29.17	248.81	1-480707-0
12	Plug Matrix	A1461-ND	A1460-ND	.46	37.49	319.75	1-480708-0
12	Cap Matrix	A1460-ND	A1461-ND	.41	33.05	281.92	1-480709-0
15	Plug Matrix	A1463-ND	A1462-ND	.67	54.42	464.19	1-480710-0
15	Cap Matrix	A1462-ND	A1463-ND	.60	48.55	414.12	1-480711-0
Universal MATE-N-LOK® UL 94V-0 Connectors (Contacts Sold Separately)							
1	Plug In-Line	A14277-ND	A14276-ND	.23	18.84	160.73	350865-1
1	Cap In-Line	A14276-ND	A14277-ND	.23	18.84	160.73	350866-1
2	Plug In-Line	A14279-ND	A14278-ND	.42	34.36	293.05	350777-1
2	Cap In-Line	A14278-ND	A14279-ND	.43	35.08	299.24	350778-1
3	Plug In-Line	A14281-ND	A14280-ND	.47	38.06	324.63	350766-1
3	Cap In-Line	A14280-ND	A14281-ND	.48	39.12	333.70	350767-1
4	Plug In-Line	A14283-ND	A14282-ND	.49	39.70	338.62	350779-1
4	Cap In-Line	A14282-ND	A14283-ND	.51	41.47	353.68	350780-1
5	Plug In-Line	A14285-ND	A14284-ND	.47	38.38	327.32	350809-1
5	Cap In-Line	A14284-ND	A14285-ND	.51	41.64	355.21	350810-1
6	Plug In-Line	A14287-ND	A14286-ND	.74	59.77	509.79	640581-1
6	Cap In-Line	A14286-ND	A14287-ND	1.71	138.08	1177.76	926307-3
6	Plug Matrix	A14289-ND	A14288-ND	.58	47.09	401.66	350715-1
6	Cap Matrix	A14288-ND	A14289-ND	.59	48.08	410.09	350781-1
8	Plug In-Line	A14291-ND	A14290-ND	.79	63.72	543.49	640582-1
8	Cap In-Line	A14290-ND	A14291-ND	1.74	141.03	1202.93	926308-3
9	Plug Matrix	A14293-ND	A14292-ND	.63	50.95	434.55	350720-1
9	Cap Matrix	A14292-ND	A14293-ND	.62	50.02	426.63	350782-1
12	Plug Matrix	A14295-ND	A14294-ND	.72	58.35	497.67	350735-1
12	Cap Matrix	A14294-ND	A14295-ND	.69	56.22	479.53	350783-1
15	Plug Matrix	A14297-ND	A14296-ND	.93	75.27	641.99	350736-1
15	Cap Matrix	A14296-ND	A14297-ND	.89	71.72	611.71	350784-1
Keying Plug 94V-2			A14304-ND	.19	15.05	128.37	1-640415-1
Keying Plug 94V-0			A14305-ND	.19	15.67	133.69	1-640415-0

No. of Circuits	Description	Insert Supplied	Digi-Key Part No.		Pricing		AMP Part No.
				1	100	1,000	
Enclosed Plug Housing Strain Relief UL94V-2							
2	Nylon, Natural	Yes	A14348-ND•	.80	64.56	550.68	1-640719-0
3	Nylon, Natural	Yes	A14349-ND•	.81	65.34	557.32	1-640720-0
3	Nylon, Natural	No	A14350-ND•	.81	65.34	557.32	641763-1
4	Nylon, Natural	No	A14351-ND•	.82	66.12	563.96	641775-2
5	Nylon, Natural	No	A14352-ND•	.83	66.90	570.62	643030-2
6	Nylon, Natural	Yes	A14353-ND•	.84	67.67	577.20	1-640721-0
9	Nylon, Natural	Yes	A14354-ND•	.86	70.00	597.07	1-640722-0
12	Nylon, Natural	Yes	A14355-ND•	.89	72.33	616.96	1-640723-0
15	Nylon, Natural	Yes	A14356-ND•	.92	74.67	636.87	1-640724-0
Enclosed Plug Housing Strain Relief UL94V-0							
2	Nylon	Yes	A14338-ND•	.89	71.67	611.26	640713-1
3	Nylon	Yes	A14339-ND•	.90	72.53	618.63	640714-1
4	Nylon	Yes	A14340-ND•	.91	73.39	625.99	641776-1
5	Nylon	Yes	A14341-ND•	.92	74.26	633.39	643030-1
6	Nylon	Yes	A14342-ND•	.93	75.11	640.68	643313-1
8	Nylon	Yes	A14343-ND•	.95	76.73	654.44	643314-1
6	Nylon	Yes	A14344-ND•	.93	75.11	640.68	640715-1
9	Nylon	Yes	A14345-ND•	.96	77.70	662.74	640716-1
12	Nylon	Yes	A14346-ND•	.99	80.29	684.82	640717-1
15	Nylon	Yes	A14347-ND•	1.02	82.88	706.92	640718-1
Open Plug Housing Strain Reliefs							
2, 3, 4, 5, 6 and 8 Circuit, In-Line			A14336-ND•	.49	39.64	338.14	350811-1
6, 9, 12 and 15 Circuit, Matrix			A14337-ND•	.56	45.59	388.88	350812-1
Contact Insertion Tool			A1444-ND		22.43 each		455830-1
Contact Extraction Tool			A1445-ND		40.67 each		458994-2

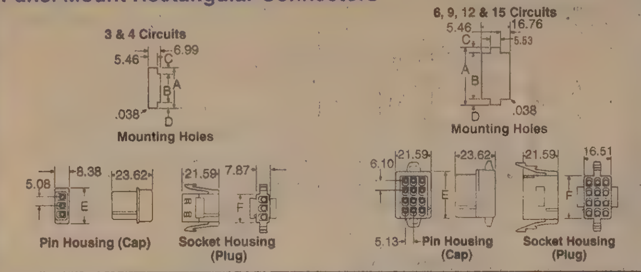
• Note: Two strain reliefs required per housing.

No. of Circuits	Description	Material	Digi-Key Part No.		Pricing		AMP Part No.
				1	100	1,000	
Pin Header Assemblies — PCB Mount							
2	Pre-Tin Pin Finish	UL94V-2	A1466-ND	.39	31.42	268.00	350428-1
2	Gold Pin Finish	UL94V-2	A1467-ND	1.12	90.35	770.65	350428-2
2	Pre-Tin Pin Finish	UL94V-0	A14314-ND	.61	49.42	421.49	350786-1
3	Pre-Tin Pin Finish	UL94V-2	A1468-ND	.45	36 36	310.16	350429-1
3	Pre-Tin Pin Finish	UL94V-0	A14315-ND	.67	54.36	463.70	350789-1
4	Pre-Tin Pin Finish	UL94V-2	A1470-ND	.57	46.09	393.15	350430-1
4	Gold Pin Finish	UL94V-2	A1471-ND	1.95	157.94	1347.15	350430-2
4	Pre-Tin Pin Finish	UL94V-0	A14316-ND	.79	64.10	546.74	350792-1
5	Pre-Tin Pin Finish	UL94V-2	A14317-ND	.83	67.15	572.74	640466-1
5	Pre-Tin Pin Finish	UL94V-0	A14318-ND	1.05	85.24	727.07	640900-1
6	Pre-Tin Pin Finish	UL94V-2	A1472-ND	.74	59.61	508.46	350431-1
6	Gold Pin Finish	UL94V-2	A1473-ND	2.76	223.18	1903.63	350431-2
6	Pre-Tin Pin Finish	UL94V-2	A14319-ND	1.08	87.07	742.69	641832-1
6	Pre-Tin Pin Finish	UL94V-0	A14322-ND	.98	79.52	678.25	350711-1
6	Gold Pin Finish	UL94V-0	A14323-ND	3.09	250.28	2134.75	350711-2
8	Pre-Tin Pin Finish	UL94V-2	A14320-ND	1.26	102.17	871.45	641825-1
8	Pre-Tin Pin Finish	UL94V-0	A14321-ND	1.50	121.15	1033.36	641828-1
9	Pre-Tin Pin Finish	UL94V-2	A1474-ND	.91	73.40	626.02	350432-1
9	Gold Pin Finish	UL94V-2	A1475-ND	3.87	313.37	2672.90	350432-2
9	Pre-Tin Pin Finish	UL94V-0	A14324-ND	1.16	93.85	800.52	350712-1
12	Pre-Tin Pin Finish	UL94V-2	A1476-ND	1.12	91.01	776.24	350433-1
12	Gold Pin Finish	UL94V-2	A1477-ND	5.01	405.42	3458.03	350433-2
12	Pre-Tin Pin Finish	UL94V-0	A14325-ND	1.37	111.00	946 76	350713-1
12	Gold Pin Finish	UL94V-0	A14326-ND	5.10	412.69	3519.99	350713-2
15	Pre-Tin Pin Finish	UL94V-2	A1478-ND	1.36	110.21	940.01	350434-1
15	Gold Pin Finish	UL94V-2	A1479-ND	6.20	501.92	4281.05	350434-2
15	Pre-Tin Pin Finish	UL94V-0	A14327-ND	1.61	130.20	1110.51	350714-1
Socket Header Assemblies — PCB Mount							
2	Pre-Tin Pin Finish	UL94V-2	A1490-ND	.34	27.81	237.23	350759-4
2	Gold Pin Finish	UL94V-2	A1491-ND	.96	77.34	659.65	350759-3
3	Pre-Tin Pin Finish	UL94V-2	A1492-ND	.43	35.09	299.32	350760-4
3	Gold Pin Finish	UL94V-2	A1493-ND	1.33	107.59	917.72	350760-3
3	Pre-Tin Pin Finish	UL94V-0	A14328-ND	.68	55.09	469.89	350825-1
4	Pre-Tin Pin Finish	UL94V-2	A1494-ND	.52	42.33	361.06	350761-4
4	Gold Pin Finish	UL94V-2	A1495-ND	1.70	137.67	1174.28	350761-3
4	Pre-Tin Pin Finish	UL94V-0	A14329-ND	.77	62.32	531.57	350826-1
6	Pre-Tin Pin Finish	UL94V-2	A1496-ND	.78	62.81	535.73	350762-4
6	Gold Pin Finish	UL94V-2	A1497-ND	2.53	204.65	1745.57	350762-3
6	Pre-Tin Pin Finish	UL94V-0	A14330-ND	1.02	82.81	706.31	350827-1
9	Pre-Tin Pin Finish	UL94V-2	A1498-ND	1.04	83.93	715.88	350763-4
9	Gold Pin Finish	UL94V-2	A1499-ND	3.54	286.91	2447.17	350763-3
9	Pre-Tin Pin Finish	UL94V-0	A14331-ND	1.28	103.93	886.43	350828-1
12	Pre-Tin Pin Finish	UL94V-2	A1200-ND	1.29	104.30	889.65	350764-4
12	Gold Pin Finish	UL94V-2	A1201-ND	4.70	380.65	3246.75	350764-3
12	Pre-Tin Pin Finish	UL94V-0	A14332-ND	1.54	124.30	1060.20	350829-1
12	Gold Pin Finish	UL94V-0	A14333-ND	4.99	404.27	3448.20	350829-2
15	Pre-Tin Pin Finish	UL94V-2	A1202-ND	1.55	125.83	1073.26	350765-4
15	Gold Pin Finish	UL94V-2	A1203-ND	5.78	467.67	3988.96	350765-3
15	Pre-Tin Pin Finish	UL94V-0	A14334-ND	1.80	145.82	1243.78	350830-1
15	Gold Pin Finish	UL94V-0	A14335-ND	6.10	493.48	4209.09	350830-2
Pin Header Assemblies, Right-Angle — PCB Mount							
2	Pre-Tin Pin Finish	UL94V-0	A14306-ND	1.22	98.89	843.51	1-350942-0
2	Gold Pin Finish	UL94V-0	A1481-ND	2.30	186.22	1588.37	2-350942-0
3	Pre-Tin Pin Finish	UL94V-0	A14307-ND	1.39	112.34	958.23	1-350943-0
3	Gold Pin Finish	UL94V-0	A14308-ND	2.70	218.68	1865.24	2-350943-0
4	Pre-Tin Pin Finish	UL94V-0	A1484-ND	1.58	127.59	1088.24	1-350944-0
4	Gold Pin Finish	UL94V-0	A14309-ND	3.05	247.05	2107.20	2-350944-0
5	Pre-Tin Pin Finish	UL94V-0	A1486-ND	1.83	148.51	1266.68	1-350945-0
5	Gold Pin Finish	UL94V-0	A14310-ND	3.38	273.24	2330.57	2-350945-0
6	Pre-Tin Pin Finish	UL94V-0	A14311-ND	2.31	187.37	1598.18	640583-1
8	Pre-Tin Pin Finish	UL94V-0	A14312-ND	2.51	203.20	1733.17	640584-1
8	Gold Pin Finish	UL94V-0	A14313-ND	5.16	418.10	3566.17	640584-2
Contacts (Pins & Sockets) — For Use With Universal MATE-N-LOK® Connectors							
Pin, 24-18AWG, Brass - Pre-Tin			A1436-ND	1.00/10	6.72	58.14	350706-1
Socket, 24-18AWG, Brass - Pre-Tin			A1437-ND†	.93/10	6.25	54.10	350689-1
Pin, 24-18AWG, Brass - Gold			A1438-ND	6.98/10	46.94	405.97	350706-2
Socket, 24-18AWG, Brass - Gold			A1439-ND†	7.93/10	53.35	461.44	350689-2
Pin, 20-14AWG, Brass - Pre-Tin			A1440-ND	.93/10	6.25	54.10	350705-1
Socket, 20-14AWG, Brass - Pre-Tin			A1441-ND	.93/10	6.25	54.10	350550-1
Pin, 20-14AWG, Brass - Gold			A1442-ND	6.98/10	46.94	405.97	350705-2
Socket, 20-14AWG, Brass - Gold			A1443-ND	7.93/10	53.35	461.44	350550-2
Pin, 24-18AWG, Brass - Pre-Tin .79			A14298-ND	.93/10	6.25	54.10	350690-1
Pin, 24-18AWG, Brass - Gold .79			A14299-ND	7.79/10	52.40	453.15	350690-2
Pin, 20-14AWG, Brass - Pre-Tin .79			A14300-ND	.93/10	6.25	54.10	350547-1
Pin, 20-14AWG, Brass - Gold .79			A14301-ND	7.79/10	52.40	453.15	350547-2
Pin, 20-14AWG, Brass - Pre-Tin .81			A14303-ND	1.08/10	7.25	62.67	350552-1
Socket, 20-14AWG, Brass - Pre-Tin .78			A14302-ND	1.22/10	8.19	70.86	350551-1
Universal MATE-N-LOK® Crimp Tool for 24-18AWG			A9985-ND		403.66 each		90300-2
Universal MATE-N-LOK® Crimp Tool for 20-14AWG			A9984-ND		403.66 each		90296-2
PRO-CRIMPER II Hand Tool w/o Dies			A9996-ND		63.75 each		354940-1
Die Set 14-20 AWG			A9943-ND		99.00 each		90546-2
Die Set 18-24 AWG			A9944-ND		99.00 each		90548-2
Universal Crimp Tool			A9942-ND		43.50 each		90287-1

† Socket Contact - .010" stock thickness.

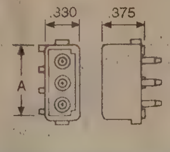
AMP Commercial MATE-N-LOK® Connectors

Panel Mount Rectangular Connectors



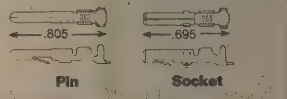
Printed Circuit Board Pin Header Assemblies

(Mate with Free Hanging Socket Connectors)
Housing Material: Natural nylon; **Pin Material:** Copper alloy; **Note:** Use standard pin for .062" (1.57 mm) thick PC board.

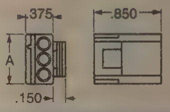


Contacts

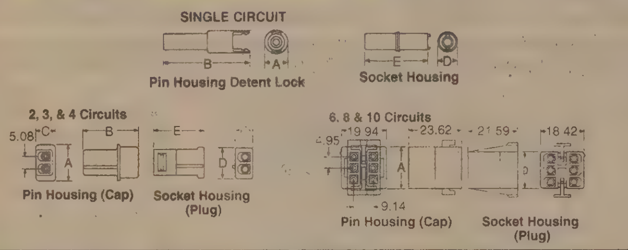
- Carries up to 15 amps maximum (based on 30°C temperature rise) • Low insertion/extraction forces • UL recognized for 250 volts, AC/DC • CSA certified



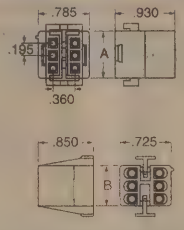
Positive Lock Socket Housing



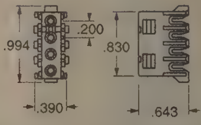
Free Hanging Rectangular Connectors



Motor Mount Pin/Socket Housing - 6, 16 Circuit Positive Lock



Insulation Displacement Connector, 4 Circuit



# of Cir.	Description	Dimensions (Inches)						Digi-Key Part No.	Pricing			AMP Part No.
		A	B	C	D	E	F		1	100	1,000	
MATE-N-LOK® Panel-Mount Rectangular Connectors (Contacts Sold Separately)												
3	Pin Housing	.890	.645	.123	.123	.810	—	A1400-ND	.24	19.22	163.89	1-480305-0
3	Socket Housing	.890	.645	.123	.123	—	.630	A1401-ND	.32	25.57	218.11	1-480304-0
4	Pin Housing	1.090	.845	.123	.123	1.010	—	A1402-ND	.34	27.81	237.21	1-480426-0
4	Socket Housing	1.090	.845	.123	.123	—	830	A1403-ND	.33	26.57	226.64	1-480425-0
6	Pin Housing	.850	.575	.138	.138	.655	—	A1404-ND	.36	28.95	246.96	1-480276-0
6	Socket Housing	.850	.575	.138	.138	—	.565	A1405-ND	.41	33.00	281.43	1-480273-0
9	Pin Housing	1 085	815	135	.135	.905	—	A1406-ND	.43	35.01	298.63	1-480277-0
9	Socket Housing	1.085	.815	.135	.135	—	.805	A1407-ND	.48	39.17	334.11	1-480274-0
12	Pin Housing	1.320	1.050	.135	.135	1.145	—	A1424-ND	.52	41.73	355.90	1-480278-0
12	Socket Housing	1.320	1.050	135	135	—	1.045	A1425-ND	.56	45.12	384.84	1-480275-0
15	Pin Housing	1.555	1.290	133	.133	1.382	-	A1426-ND	.74	60 30	514 34	1-480324-0
15	Socket Housing	1.555	1.290	.133	.133	—	1.280	A1427-ND	.84	67.82	578.43	1-480323-0
MATE-N-LOK® Free-Hanging Rectangular Connectors (Contacts Sold Separately)												
1	Pin Housing	.300	1.240	—	—	—	—	A1204-ND	.15	11.98	102.20	1-480350-0
1	Pin Housing	.300	1.240	—	—	—	—	A1408-ND	.14	11.57	98.67	1-480351-0
1	Socket Housing	—	—	—	260	870	—	A1409-ND	13	10 58	90 23	1-480349-0
2	Pin Housing	.610	.930	.330	—	—	—	A1410-ND	.20	16.27	138.74	1-480319-0
2	Socket Housing	—	—	—	.530	.860	.295	A1411-ND	.20	15.98	136.33	1-480318-0
3	Pin Housing	.810	.930	.325	—	—	—	A1400-ND	24	19 22	163 89	1-480305-0
3	Socket Housing	—	—	—	.825	.850	.310	A1429-ND	.26	21.24	181.18	1-480303-0
4	Pin Housing	1.090	.845	.123	.123	1 010	—	A1402-ND	34	27.81	237.21	1-480426-0
4	Socket Housing	—	—	—	—	—	—	A1431-ND	.29	23.42	199.80	1-480424-0
6	Pin Housing	.705	—	—	—	—	—	A1412-ND	36	28 95	246.96	1-480340-0
6	Socket Housing	—	—	—	.610	—	—	A1413-ND	.43	34.50	294.26	1-480270-0
8	Pin Housing	.900	—	—	—	—	—	A1206-ND	.40	32.63	278.34	1-480345-0
8	Socket Housing	—	—	—	—	.805	—	A1207-ND	47	38.26	326 29	1-480283-0
10	Pin Housing	1.095	—	—	—	—	—	A1414-ND	.46	37.42	319 20	1-480339-0
10	Socket Housing	—	—	—	1.00	—	—	A1415-ND	.52	42.10	359.11	1-480285-0

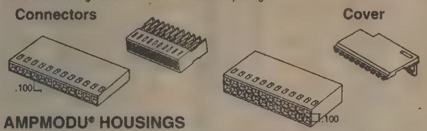
No. of Cir.	Description	Dim. (Inches)		Digi-Key Part No.	Pricing			AMP Part No.
		A	B		1	100	1,000	
Printed Circuit Board Pin Header Assemblies — Mate With Free Hanging Socket Connectors								
2	Tin Plated Contacts with Detent Lock	.515	—	A1208-ND	.34	27.73	236.51	350209-1
	Gold Plated Contacts with Detent Lock	.515	—	A1209-ND	.81	65.42	557.99	350209-2
	Pre-Tin Pin Finish Positive Lock	.515	—	A14364-ND	.51	41.22	351.60	350539-1
	Gold Pin Finish Positive Lock	.515	—	A14365-ND	.97	78.40	668.71	350539-2
	Pre-Tin Pin Finish Positive Lock Long Tail	.515	—	A14366-ND	.69	55.63	474.48	350540-1
	Pre-Tin Pin Finsh Detent Lock Long Tail	.515	—	A14367-ND	.42	33.82	288.45	350422-1
3	Tin Plated Contacts with Detent Lock	.715	—	A1210-ND	.53	43.05	367.15	350210-1
	Gold Plated Contacts with Detent Lock	.715	—	A1211-ND	1.23	99.38	847.63	350210-2
	Pre-Tin Pin Finish Positive Lock	.715	—	A14368-ND	.73	58.84	501.87	350541-1
	Gold Pin Finish Positive Lock	.715	—	A14369-ND	1.39	112.35	958.29	350541-2
	Pre-Tin Pin Finish Detent Lock Long Tail	.715	—	A14370-ND	.55	44.27	377.64	350423-1
4	Tin Plated Contacts with Detent Lock	.915	—	A1212-ND	.60	48.22	411.25	350211-1
	Gold Plated Contacts with Detent Lock	.915	—	A1213-ND	1.75	141.72	1208.81	350211-2
	Pre-Tin Pin Finish Positive Lock	.915	—	A14371-ND	1.09	88.22	752.51	350543-1
	Gold Pin Finish Positive Lock	.915	—	A14372-ND	1.91	154.70	1319.50	350543-2

No. of Cir.	Description	Dim. (Inches)		Digi-Key Part No.	Pricing			AMP Part No.
		A	B		1	100	1,000	
4	Pre-Tin Pin Finish Positive Lock Long Tail	.915	—	A14373-ND	1.21	97.65	97.65	350544-1
	Pre-Tin Pin Finish Detent Lock Long Tail	.915	—	A14374-ND	.64	51.79	51.79	350424-1
	Gold Pin Finish Detent Lock Long Tail	.915	—	A14375-ND	3.43	277 29	277.29	350424-2
6	Tin Plated Contacts Positive Lock Dual Row	.705	—	A1214-ND	.68	54.68	54.68	1-380999-0
	Gold Plated Contacts Positive Lock Dual Row	.705	—	A1215-ND	2.13	172.43	172.43	2-380999-0
	Pre-Tin Pin Finish Positive Lock Long Tail Dual Row	.705	—	A14376-ND	.77	62.13	62.13	350425-1
8	Tin Plated Contacts Positive Lock Dual Row	.900	—	A1216-ND	.82	66.67	66.67	350212-1
	Pre-Tin Pin Finish Positive Lock Long Tail	.900	—	A14377-ND	.87	70.30	70.30	350426-1
	Gold Plated Contacts Positive Lock Dual Row	.900	—	A1217-ND	2.38	192.39	192.39	350212-2
10	Tin Plated Contacts Positive Lock Dual Row	1.095	—	A1218-ND	.96	77.34	77.34	1-380991-0
	Gold Plated Contacts Positive Lock Dual Row	1.095	—	A1219-ND	3.23	261.55	261.55	2-380991-0
	Pre-Tin Pin Finish Positive Lock Long Tail	1.095	—	A14378-ND	1.25	100.95	100.95	350219-1
12	Pre-Tin Pin Finish Positive Lock	1.290	—	A14379-ND	1.26	102.17	102.17	350213-1
	Pre-Tin Pin Finish Positive Lock Long Tail	1.290	—	A14380-ND	1 32	106.59	106.59	350220-1
16	Pre-Tin Pin Finish Positive Lock	1.680	—	A14381-ND	1.56	125.95	125.95	350214-1
	Pre-Tin Pin Finish Positive Lock Long Tail	1.680	—	A14382-ND	2.14	172.87	172.87	350427-1
Positive Lock Socket Housing								
2	Socket Housing	.435	—	A14357-ND	.45	36.56	36.56	1-480720-0
3	Socket Housing	.630	—	A14358-ND	.47	38.09	38.09	1-480721-0
4	Socket Housing	.830	—	A14359-ND	.51	41.57	41.57	1-480722-0
Motor Mount Housing (Positive Lock)								
6	Pin Housing	.705	.610	A14361-ND	.37	30.27	30.27	1-480271-0
6	Socket Housing	.610	—	A1413-ND	.43	34.50	34.50	1-480270-0
16	Pin Housing	1.680	1.585	A14363-ND	.64	52.11	52.11	1-480439-0
16	Socket Housing	1.680	1.585	A14362-ND	.84	68.23	68.23	1-480438-0
MATE-N-LOK® Contacts (Pins & Sockets)								
	Pin, 24-18AWG, Tin Finish #			A1422-ND	1.48/10	9.96	86.16	60618-1
	Socket, 24-18AWG, Tin Finish #			A1423-ND	1.48/10	9.96	86.16	60617-1
	Pin, 24-18AWG, Gold Finish ‡			A1432-ND	11.61/10	78.10	675.49	60618-5
	Socket, 24-18AWG, Gold Finish ‡			A1433-ND	11.61/10	78.10	675.49	60617-5
	Pin, 20-14AWG, Tin Finish #			A1420-ND	1.48/10	9.96	86.16	60620-1
	Socket, 20-14AWG, Tin Finish #			A1421-ND	1.48/10	9.96	86.16	60619-1
	Pin, 20-14AWG, Gold Finish ‡			A1434-ND	11.61/10	78.10	675.49	60620-5
	Socket, 20-14AWG, Gold Finish ‡			A1435-ND	11.61/10	78.10	675.49	60619-5
Insulation Displacement Connector								
	Pre-Tin Pin Finish AWG 22, Red			A14383-ND	.72	58.22	496.57	770156-2
	Pre-Tin Pin Finish AWG 20, Yellow			A14384-ND	.72	58.22	496.57	770156-4
	Pre-Tin Pin Finish AWG 18, Orange			A14385-ND	.72	58.22	496.57	770156-3
Tools								
	MATE-N-LOK® Crimp Tool for 24-18 AWG			A9987-ND	337.82	—	—	90123-2
	MATE-N-LOK® Crimp Tool for 20-14 AWG			A9986-ND	337.82	—	—	90124-2
	PRO-CRIMPER II Hand Tool w/o Dies			A9996-ND	63.75	—	—	354940-1
	Die Set 18-24 AWG			A9940-ND	81.00	—	—	90574-2
	Die Set 14-20 AWG			A9939-ND	81 00	—	—	90575-2
	Universal Crimp Tool			A9999-ND	39 15	—	—	601884-1
	Pin Extraction Tool			A1419-ND	13.94	—	—	465644-1
	Pin Insertion Tool			A9998-ND	11 95	—	—	91002-1
	Contact Insertion Tool			A1444-ND	22.43	—	—	455830-1

* Detent Lock. # Tin: Brass - Tin Plated; ‡ Gold: Brass - Gold Over Nickel Plated.

AMP MT CONNECTORS

DOUBLE ROW MT RECEPTACLE CONNECTORS .100" (2.54 mm) CENTERS. Housings Preloaded with Standard Pressure Contacts. Insulation Diameter: .050" (1.27 mm) **Mating Post Length:** .222-.273" (5.64-6.94 mm) max. Housing and Cover: Black thermoplastic, flame retardant **Contacts:** Copper alloy **Housing Features:** • Capable of connecting up to 100 wires simultaneously. • Available in single and double row configurations in .100" centerline spacing.



AMPMODU® HOUSINGS

No. of Positions	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
AMPMODU® MT Connectors – IDC Crimp Type					
6	A3047-ND	1.83	41.40	117.30	102398-1
8	A3048-ND	2.15	48.60	137.70	102398-2
10	A3049-ND	2.49	56.40	159.80	102398-3
12	A3050-ND	2.97	67.20	190.40	102398-4
14	A3051-ND	3.47	78.60	222.70	102398-5
16	A3052-ND	3.98	90.00	255.00	102398-6
18	A3053-ND	4.45	100.80	285.60	102398-7
20	A3054-ND	4.96	112.20	317.90	102398-8
24	A3055-ND	7.39	167.40	474.30	1-102398-0
34	A3057-ND	8.43	190.80	540.60	1-102398-5
40	A3058-ND	7.37	166.80	472.60	1-102398-8
50	A3059-ND	8.98	203.40	576.30	2-102398-3
60	A3060-ND	10.57	239.40	678.30	2-102398-8
64	A3061-ND	15.87	359.40	1018.30	3-102398-0
A2031-ND	Man. Pistol GripTool for use with Head Assembly. . **55.50 each**				
A2040-ND	Head Assembly Tool for AMP MT Conn. . . . . **162.26 each**				

No. of Positions	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
AMPMODU® MT Covers – 2 Required for each Connector					
6	A3062-ND	1.55/2	35.00/50	49.58	102396-1
8	A3063-ND	1.82/2	41.14/50	58.28	102396-2
10	A3064-ND	.80/2	18.07/50	25.60	102396-3
12	A3065-ND	1.52/2	34.46/50	48.82	102396-4
14	A3066-ND	1.84/2	41.71/50	59.09	102396-5
16	A3067-ND	1.52/2	34.43/50	48.78	102396-6
18	A3068-ND	.74/2	16.85/50	23.87	102396-7
20	A3069-ND	1.65/2	37.44/50	53.04	102396-8
24	A3070-ND	.99/2	22.46/50	31.82	1-102396-0
34	A3072-ND	1.98/2	44.93/50	63.65	1-102396-5
40	A3073-ND	2.33/2	52.80/50	74.80	1-102396-8
50	A3074-ND	4.13/2	93.60/50	132.60	2-102396-3
64	A3076-ND	2.65/2	59.90/50	84.86	3-102396-0
A3077-ND	Keying Plug	$2.37/10; 10.74/50; 15.22/100			**86286-1**
AMPMODU® Housings – Single Row (Order Contacts Sep.)					
2	A3011-ND	1.01	22 80	64.60	87499-3
3	A3012-ND	.72	16.20	45.90	87499-5
4	A3013-ND	.61	13.80	39.10	87499-7
5	A3014-ND	.61	13.80	39.10	87499-9
6	A3015-ND	.61	13.80	39.10	1-87499-1
7	A3016-ND	.85	19.20	54.40	87499-1
8	A3017-ND	.66	15.00	42.50	1-87499-3
9	A3018-ND	1.06	24.00	68.00	1-87499-5
10	A3019-ND	.82	18.60	52.70	1-87499-7
11	A3020-ND	1.75	39.60	112.20	1-87499-9
12	A3021-ND	.87	19.80	56.10	2-87499-1
13	A3022-ND	1.30	29.40	83.30	2-87499-3
14	A3023-ND	1.03	23.40	66.30	2-87499-5
15	A3024-ND	1.22	27.60	78.20	2-87499-7
16	A3025-ND	2.25	51.00	144.50	2-87499-9
18	A3027-ND	1.19	27.00	76.50	3-87499-3
19	A3028-ND	1.25	28.20	79.90	3-87499-5
20	A3029-ND	1.30	29.40	83.30	3-87499-7

No. of Positions	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
AMPMODU® Housings – Double Row (Order Contacts Sep.)					
4	A3031-ND	1.06	24.00	68.00	4-87456-9
6	A3032-ND	1.14	25.80	73.10	87456-1
8	A3033-ND	1.19	27.00	76.50	87456-3
10	A3034-ND	1.33	30.00	85.00	87456-6
12	A3035-ND	1.33	30 00	85.00	87456-8
14	A3036-ND	1.38	31.20	88.40	1-87456-0
16	A3037-ND	1.43	32.40	91.80	1-87456-2
18	A3038-ND	2.52	57.00	161.50	1-87456-4
20	A3039-ND	1.70	38.40	108.80	1-87456-6
24	A3040-ND	2.54	57.60	163.20	2-87456-0
26	A3041-ND	2.01	45.60	129 20	2-87456-2
28	A3042-ND	2.33	52.80	149 60	2-87456-4
34	A3043-ND	2.44	55.20	156.40	3-87456-0
40	A3044-ND	2.81	63.60	180.20	3-87456-6
50	A3045-ND	3.34	75.60	214.20	4-87456-0
60	A3046-ND	3.68	83.40	236.30	5-87456-2

CONTACTS

SPECIFICATIONS: Contact Current Rating: 3 amperes. **Terminal Resistance:** 12 milliohms max. **Contact Material:** Be-Cu. **CONTACT FEATURES:** Available in a variety of platings and contact pressures; Dual cantilever contact beam with built-in overstress assures reliable connection.

Wire Size (AWG)	Insul. Dia. (Max.)	Plating	Con. Pres. Type	Digi-Key Part No.	Pricing 10	100	AMP Part No.
26-22	.061	Nickel	Stand.	A3000-ND	2.19	18.62	87667-3
		Gold	Stand.	A3001-ND	3.43	29.18	87667-2
		Nickel	High	A3003-ND	1.41	11.94	102128-2
		Gold	High	A3004-ND	2.64	22.41	102128-1
24-20	.069	Nickel	Intermed.	A3005-ND	2.62	22.26	87046-4
		Gold	Intermed.	A3006-ND	3.49	29.68	87046-3
		Nickel	High	A3007-ND	1.41	11.94	1-87309-3
		Gold	High	A3008-ND	2.74	23.31	1-87309-4
Crimp Tool MT Conn. 26-22 AWG				A9983-ND	464.17 each		90418-1
Crimp Tool MT Conn. 24-20 AWG				A9978-ND	464.17 each		90202-2
Keying Plug				A3077-ND	2.37	15.22	86286-1

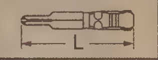
AMP Soft Shell Connectors

Universal MATE-N-LOK II® Connectors

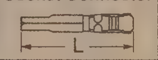
Product Facts: • Ultimate reliability • Pins and sockets can be intermixed in the same housing • Available in 2 thru 15 Circuit sizes for free hanging or panel-mount wire-to-wire connection • Polarized housings available in UL94V-0 flammability rated material • F-Crimp terminals accept 30-10 AWG wire sizes, 10 Amps • Tin or duplex gold plated contacts • Contacts are on .250 (6.35) centerline spacing • Recognized under the Component Program of Underwriters Laboratories, Inc. File No. E28476 • Certified by Canadian Standards Association File No. LR 16455-113 • Passed test by VDE under their Test Report No. 4751-1431-4016/A8E

Performance Characteristics: • **Dielectric Withstanding Voltage:** 5.0 KVAC or 10 KVDC between adjacent circuits • **Insulation Resistance:** 1000 megohms minimum between adjacent circuits • **Voltage Rating:** 600V AC or DC • **Connector Mating:** Split Pin — 1.5 lb. max. per circuit • **Connector Unmating:** Split Pin — .5 lb min. per circuit • **Contact Insertion Force:** 3.0 lb max. per contact unassembled • **Contact Retention:** 35 lb min. per contact • **Durability:** 50 cycles, mating and unmating

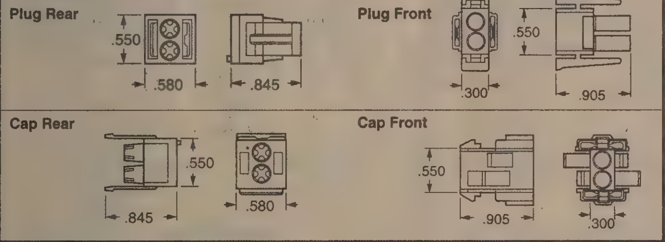
Pin Connector



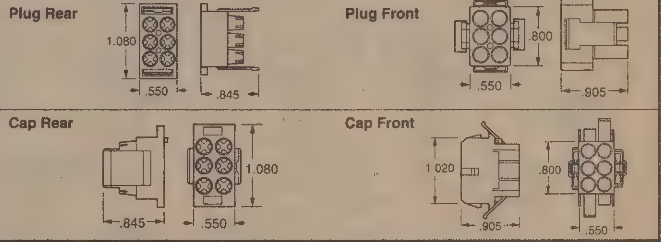
Socket Connector



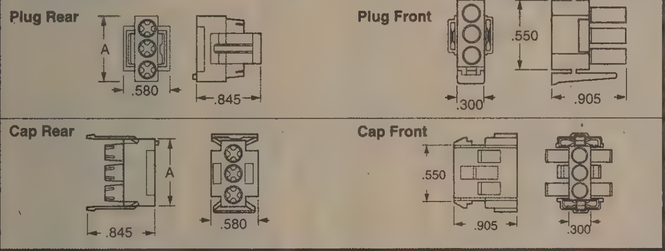
2 Circuit, In-Line



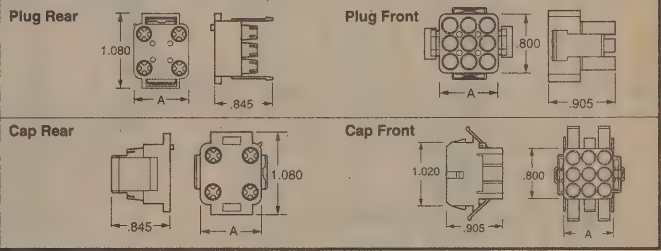
6 Circuit, In-Line



3, 4 Circuit, In-Line



9, 12 and 15 Circuit, Matrix

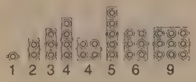


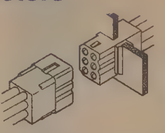
No. of Circuits	Description	Dim. A	Digi-Key Part No.	Pricing 1	100	1,000	5,000	AMP Part No.
Housing Kits								
2	Plug	—	A14240-ND	.70	56.32	480.34	440.59/M	770017-1
2	Cap	—	A14247-ND	.71	57.51	490.54	449.94/M	770024-1
3	Plug	.800	A14241-ND	.77	62.39	532.14	488.10/M	770018-1
3	Cap	.800	A14248-ND	.79	64.13	546.98	501.72/M	770025-1
4	Plug	1.050	A14242-ND	.80	65.08	555.07	509.14/M	770019-1
4	Cap	1.050	A14249-ND	.84	67.98	579.80	531.82/M	770026-1
6	Plug	—	A14243-ND	.95	77.20	658.46	603.97/M	770020-1
6	Cap	—	A14250-ND	.97	78.82	672.25	616.62/M	770027-1
9	Plug	.800	A14244-ND	1.03	83.51	712.31	653.37/M	770021-1
9	Cap	.800	A14251-ND	1.01	81.99	699.36	641.49/M	770028-1
12	Plug	1.050	A14245-ND	1.18	95.64	815.73	748.22/M	770022-1
12	Cap	1.050	A14252-ND	1.14	92.16	786.05	721.00/M	770029-1
15	Plug	1.300	A14246-ND	1.52	123.38	1052.35	965.26/M	770023-1
15	Cap	1.300	A14253-ND	1.45	117.57	1002.76	919.78/M	770030-1
Contact Insertion Tool			A1444-ND	22.43 each				455830-1
Contact Extraction Tool			A1445-ND	40.67 each				458994-2

Description	Ins. Dia. Range	Dim. L	Digi-Key Part No.	Pricing 10	100	1,000	5,000	AMP Part No.
Pin Connectors								
24-18AWG — Brass, Pre-Tin	.040-.100	1.005	A14254-ND	1.40	9.39	81.23	73.62/M	770252-1
24-18AWG — Brass, Gold	.040-.100	1.005	A14255-ND	6.40	43.07	372.46	337.55/M	770252-2
20-14AWG — Brass, Pre-Tin	.060-.130	1.005	A14256-ND	1.40	9.39	81.23	73.62/M	770250-1
20-14AWG — Brass, Gold	.060-.130	1.005	A14257-ND	6.40	43.07	372.46	337.55/M	770250-2
20-14AWG — Brass, Pre-Tin	.130-.200	995	A14258-ND	1.84	12.37	106.96	96.94/M	770248-1
20-14AWG — Brass, Gold	.130-.200	.995	A14259-ND	7.76	52.21	451.54	409.21/M	770248-2
12-10AWG — Brass, Pre-Tin	.200 max.	1.005	A14260-ND	2.94	17.66	171.20	155.15/M	770246-3
12-10AWG — Brass, Gold	.200 max.	1.005	A14261-ND	13.96	93.92	812.30	736.15/M	770246-4
Socket Connectors								
24-18AWG — Brass, Pre-Tin	.040-.100	.980	A14262-ND	1.62	10.88	94.06	85.25/M	770253-3
24-18AWG — Brass, Gold	.040-.100	.980	A14263-ND	9.99	67.19	581.14	526.66/M	770253-4
20-14AWG — Brass, Pre-Tin	.060-.130	.980	A14264-ND	1.70	11.44	98.91	89.64/M	770251-3
20-14AWG — Brass, Gold	.060-.130	.980	A14265-ND	10.51	70.73	611.71	554.37/M	770251-4
20-14AWG — Brass, Pre-Tin	.130-.200	.970	A14266-ND	2.22	14.96	129.38	117.25/M	770249-3
20-14AWG — Brass, Gold	.130-.200	.970	A14267-ND	12.78	85.98	743.63	673.92/M	770249-4
12-10AWG — Brass, Pre-Tin	.200 max.	.980	A14268-ND	2.94	19.80	171.20	155.15/M	770247-3
12-10AWG — Brass, Gold	.200 max.	.980	A14269-ND	14.15	95.22	823.49	746.29/M	770247-4
PRO-CRIMPER II Hand Tool w/o Dies			A9996-ND	63.75 each				354940-1
Die Set AWG 24-18			A9944-ND	99.00 each				90548-2
Die Set AWG 20-14 .060-.130			A9943-ND	99.00 each				90546-2
Die Set AWG 20-14 .130-.200			A9924-ND	99.00 each				90547-2
Die Set AWG 12-10			A9923-ND	141.75 each				58530-2
Universal Crimp Tool			A9942-ND	43.50 each				90287-1

AMP

.062 & .093 Soft-Shell Commercial Pin & Socket Connectors





Product Facts: • Polarized • Cavity Identification • Low contact-mating force • Detent and positive locking • Tin plating • Free-hanging styles • Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 • Certified by Canadian Standards Association, File No. LR7189

AMP.093 and .062 Soft-Shell Commercial Pin and Socket connectors form a total system of economical commercial-grade connectors and offer compatibility with competitive soft shells.

General Specifications: • **Thermal Shock:** -55°C to +105°C • **Temperature-Humidity Cycling:** +25°C to +65°C at 90-95% RH • **Durability:** 50 mating cycles • **Dielectric Withstanding Voltage:** 1.0kVAC • **Insulation Resistance:** 1000 megohms min. initial • **Voltage Rating:** 250VAC • **Contact Rating:** • .062 Connector: AWG 30-24 — .5-1.5 Amps, AWG 18-24 — 1.5-6 Amps • .093 Connector: AWG 14-24 — 2.0-10.0 Amps

No. of Pos.	Description	Digi-Key Part No.	Pricing 10	50	100	AMP Part No.
.062" Diameter Housings						
1	Recept w/ Detent	A14001-ND	.94	3.66	6.03	770277-1
2	Recept w/ Detent	A14002-ND	1.91	7.42	12.21	770342-1
3	Recept w/ Detent	A14003-ND	2.13	8.25	13.57	770333-1
4	Recept w/ Detent	A14004-ND	3.53	13.69	22.51	770274-1
4	Recept Square w/ Detent	A14005-ND	3.25	12.62	20.76	770442-1
6	Recept w/ Detent	A14006-ND	3.05	11.84	19.47	770356-1
9	Recept w/ Detent	A14007-ND	3.45	13.38	22.00	770429-1
1	Plug w/o Mt Ears	A14008-ND	1.09	4.24	6.97	770278-1
2	Plug w/o Mt Ears	A14009-ND	1.68	6.52	10.72	770340-1
3	Plug w/o Mt Ears	A14010-ND	2.00	7.76	12.76	770331-1
4	Plug w/o Mt Ears	A14011-ND	3.36	13.02	21.41	770275-1
4	Plug Square w/o Mt Ears	A14012-ND	3.25	12.62	20.76	770433-1
6	Plug w/o Mt Ears	A14013-ND	2.61	10.14	16.67	770355-1
9	Plug w/o Mt Ears	A14014-ND	3.03	11.77	19.35	770428-1

Description	Digi-Key Part No.	Pricing 100	500	1,000	AMP Part No.
18-24 Awg .062 Pin Tin	A14015-ND	4.00	17.30	32.45	794017-1
24-30 Awg .062 Pin Tin	A14016-ND	4.00	17.30	32.45	794018-1
18-24 Awg .062 Socket Tin	A14049-ND	4.00	17.30	32.45	794016-1
24-30 Awg .062 Socket Tin	A14048-ND	4.00	17.30	32.45	794019-1
Extraction Tool .062 Conn.	A9955-ND	36.75 each			458994-4
PRO-CRIMPER Hand Tool	A9996-ND	63.75 each			354940-1
Die Set 24-18 Awg, Use w/ A9996	A9957-ND	81.00 each			90869-2
Die Set 30-24 Awg, Use w/ A9996	A9956-ND	81.00 each			90870-2

No. of Pos.	Description	Digi-Key Part No.	Pricing 10	50	100	AMP Part No.
.093" Diameter Housings						
1	Recept w/ Detent	A14050-ND	.91	3.53	5.80	770063-1
2	Recept w/ Detent	A14051-ND	1.94	7.54	12 40	770065-1
2	Recept w/ Detent	A14386-ND	1.77	6.88	11.31	770066-1
3	Recept w/ Detent	A14052-ND	2.36	9.17	15.07	770070-1
3	Recept w/ Detent	A14388-ND	2.49	9.65	15.87	770071-1
4	Recept w/ Detent	A14053-ND	2.69	10.45	17.19	770075-1
4	Recept w/ Detent	A14389-ND	2.69	10.45	17.19	770076-1
4	Recept Square w/ Detent	A14054-ND	5.37	20.82	34.23	770843-1
5	Recept w/ Detent	A14055-ND	3.97	15.39	25.30	770083-1
6	Recept w/ Detent	A14056-ND	3.15	12.20	20.07	770086-1
9	Recept w/ Detent	A14057-ND	3.96	15.36	25.26	770092-1
1	Plug w/o Mt Ears	A14058-ND	1.17	4.52	7.44	770064-1
2	Plug Panel Mt	A14387-ND	1.83	7.08	11.65	770068-1
2	Plug w/o Mt Ears	A14059-ND	1.84	7.12	11.71	770069-1
3	Plug w/o Mt Ears	A14060-ND	2.30	8.92	14.66	770074-1
4	Plug w/o Mt Ears	A14061-ND	2.56	9.93	16.32	770078-1
4	Plug Square w/o Mt Ears	A14062-ND	5.14	19.93	32.78	770842-1
5	Plug w/o Mt Ears	A14063-ND	3.18	12.32	20.26	770084-1
6	Plug w/o Mt Ears	A14064-ND	3.20	12.42	20.42	770090-1
9	Plug w/o Mt Ears	A14065-ND	3.90	15.12	24.86	770096-1

Description	Digi-Key Part No.	Pricing 100	500	1,000	AMP Part No.
20-14 Awg .093 Pin Tin	A14099-ND	4.04	17.46	32.75	770145-1
24-18 Awg .093 Pin Tin	A14098-ND	4.04	17.46	32.75	770147-1
20-14 Awg .093 Socket Tin	A14097-ND	4.04	17.46	32.75	770144-1
24-18 Awg .093 Socket Tin	A14096-ND	4.04	17.46	32.75	770146-1
Extraction Tool .093 Conn.	A9950-ND	36.75 each			458994-3
PRO-CRIMPER II Hand Tool	A9996-ND	63.75 each			354940-1
Die Set 20-14 Awg Use w/ A9996	A9953-ND	81.00 each			90871-2
Die Set 24-18 Awg Use w/ A9996	A9952-ND	81.00 each			90872-2

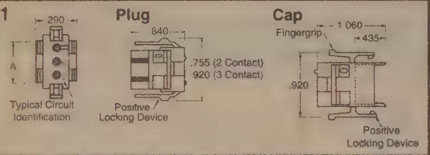
AMP

(MR) Miniature Rectangular Connectors

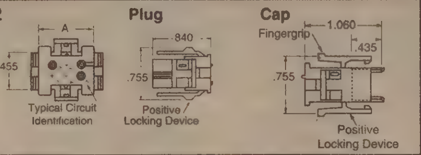
Product Facts: • Housings positively lock to prevent accidental disengagement • Either cap or plug housing can be mounted in same rectangular panel cutout without additional hardware • Brick red UL94V-0 housings • Plug and cap design includes molded-in polarizing feature to assure proper mating • High density achieved through .165" (4.19mm) contact centerline spacing • Recognized under the Component Program of Underwriters Laboratories, Inc. File No. E28476 • Certified by Canadian Standards Association File No. LR 7189

Performance Characteristics: • **Dielectric Withstanding Voltage:** 2.5 KVAC between adjacent circuits • **Insulation Resistance:** 1500 megohms minimum initial between adjacent circuits • **Voltage Rating:** 250V AC • **Contact Rating:** AWG 26-18 — Test Current 1-6 Amps

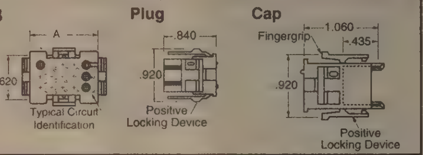
1



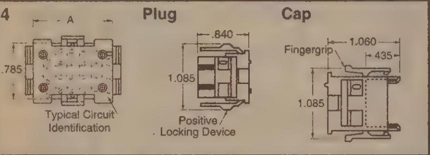
2



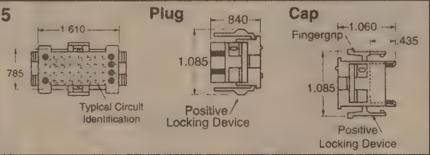
3



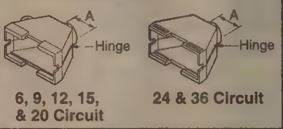
4



5

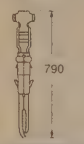


6 - Strain Relief

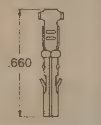


7 - Grommet

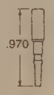
8 - Pin



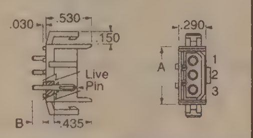
9 - Socket



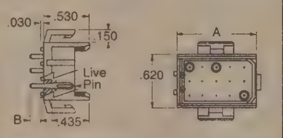
10 - Keying Plug



11



12



13

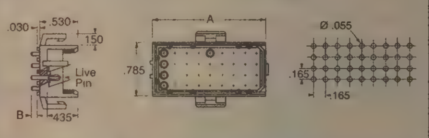


Fig. No.	No. of Pos.	Type	Dim. A	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
In-Line Housing (Contacts Sold Separately)								
1	2	Cap	.455	A14100-ND	.39	8.39	24.85	1-640507-0
1	3	Cap	.620	A14101-ND	.57	12.35	36.55	1-640508-0
1	2	Plug	.455	A14110-ND	.38	8.11	24.01	1-640517-0
1	3	Plug	.620	A14111-ND	.56	12.17	36.02	1-640518-0
Matrix Housing (Contacts Sold Separately)								
2	4	Cap	455	A14102-ND	.62	13.33	39.46	1-640509-0
2	6	Cap	620	A14103-ND	.70	15.08	44.63	1-640510-0
2	4	Plug	455	A14112-ND	.60	12.95	38.33	1-640519-0
2	6	Plug	620	A14113-ND	.67	14.50	42.92	1-640520-0
3	9	Cap	620	A14104-ND	.75	16.15	47.80	1-640511-0
3	12	Cap	.785	A14105-ND	.83	17.98	53.22	1-640512-0
3	15	Cap	.950	A14106-ND	.92	19.79	58.59	1-640513-0
3	9	Plug	620	A14114-ND	.75	16.07	47.57	1-640521-0
3	12	Plug	.785	A14115-ND	.83	17.89	52.96	1-640522-0
3	15	Plug	.950	A14116-ND	.89	19.19	56.81	1-640523-0
4	20	Cap	.950	A14107-ND	1.45	31.29	92.62	1-640514-0
4	24	Cap	1.115	A14108-ND	1.54	33.27	98.48	1-640515-0
4	20	Plug	.950	A14117-ND	1.45	31.32	92.71	1-640524-0
4	24	Plug	1.115	A14118-ND	1.55	33.37	98.77	1-640525-0
5	36	Cap	—	A14109-ND	1.93	41.70	123.43	1-640516-0
5	36	Plug	—	A14119-ND	1.60	34.56	102.30	1-640526-0

Fig. No.	No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Strain Relief (Grommet - Sold Separately)							
6	6	.374	A14120-ND	1.04	22.47	66.52	350373-1
6	9	.420	A14121-ND	1.13	24.41	72.24	350522-1
6	12	.420	A14122-ND	1.43	30.77	91.08	350374-1
6	15	.420	A14123-ND	2.17	46.76	138.41	350523-1
6	20	.560	A14124-ND	2.24	48.34	143.08	480634-1
6	24	.560	A14125-ND	2.29	49.39	146.19	350524-1
6	36	.560	A14126-ND	3.01	64.93	192.20	480594-1

Fig. No.	No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Adapting Grommet (Flexible PVC - Black)							
7	6	.156	A14130-ND	.83	17.97	53.19	1-350377-0
7	6	.218	A14131-ND	.74	16.02	47.40	1-350376-0
7	6	.296	A14132-ND	.80	17.17	50.83	1-350375-0
7	9	.218	A14133-ND	.82	17.58	52.02	1-350378-1
7	12	.250	A14134-ND	.81	17.42	51.57	1-350379-1
7	15	.281	A14135-ND	.81	17.42	51.55	1-350380-1
7	20	.437	A14136-ND	.89	19.11	56.55	1-380935-0
7	24	.375	A14137-ND	.85	18.29	54.15	1-380936-0
7	36	.312	A14138-ND	.81	17.48	51.75	1-380937-0.

Fig. No.	No. of Pos.	Plating	Dim. A	B	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
PCB Board Vertical Headers, .062 Board Thickness									
11	2	Tin	.455	.120	A14200-ND	.52	11.15	33.00	640497-1
11	2	Gold	.455	.120	A14201-ND	1.46	31.40	92.96	640497-2
11	3	Tin	.620	.120	A14202-ND	.77	16.63	49.24	640498-1
11	3	Gold	.620	.120	A14203-ND	2.16	46.55	137.77	640498-2
11	4	Tin	.455	.120	A14204-ND	1.03	22 26	65.88	640499-1
11	4	Gold	.455	.120	A14205-ND	2.70	58.13	172.07	640499-2
11	6	Tin	.620	.120	A14206-ND	1.42	30.50	90.28	640500-1
11	6	Gold	.620	.120	A14207-ND	3.70	79.79	236.17	640500-2
12	9	Tin	.620	.120	A14208-ND	1.84	39.62	117.27	640501-1
12	9	Gold	.620	.120	A14209-ND	5.14	110.68	327.61	640501-2
12	12	Tin	.785	.120	A14210-ND	2.36	50.91	150.70	640502-1
12	12	Gold	.785	.120	A14211-ND	6.66	143.53	424.86	640502-2
12	15	Tin	.950	.120	A14212-ND	2.89	62.29	184.37	640503-1
12	15	Gold	.950	.120	A14213-ND	8.11	174.70	517.12	640503-2
13	20	Tin	.950	.120	A14214-ND	3.75	80.85	239.32	640504-1
13	20	Gold	.950	.120	A14215-ND	10.65	229.54	679.44	640504-2
13	24	Tin	1.115	.120	A14216-ND	4.18	89.99	266.38	640505-1
13	24	Gold	1.115	.120	A14217-ND	11.82	254.76	754.10	640505-2
13	36	Tin	1.610	.120	A14218-ND	6.76	145.79	431.53	640506-1
13	36	Gold	1.610	.120	A14219-ND	18.78	404.67	1197.83	640506-2

Fig. No.	No. of Pos.	Plating	Dim. A	B	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
PCB Board Vertical Headers, .120 Board Thickness									
11	2	Tin	455	180	A14220-ND	.52	11.15	33.00	640497-3
11	2	Gold	.455	.180	A14221-ND	1.46	31.40	92.96	640497-4
11	3	Tin	.620	.180	A14222-ND	.77	16.63	49.24	640498-3
11	3	Gold	.620	.180	A14223-ND	2.16	46.55	137.77	640498-4
11	4	Tin	.455	.180	A14224-ND	1.03	22.26	65.88	640499-3
11	4	Gold	.455	.180	A14225-ND	2.70	58.13	172.07	640499-4
11	6	Tin	.620	.180	A14226-ND	1.42	30.50	90.28	640500-3
11	6	Gold	.620	.180	A14227-ND	3.70	79.79	236.17	640500-4
12	9	Tin	.620	.180	A14228-ND	1.84	39.62	117.27	640501-3
12	9	Gold	.620	.180	A14229-ND	5.14	110.68	327.61	640501-4
12	12	Tin	.785	.180	A14230-ND	2.36	50.91	150.70	640502-3
12	12	Gold	.785	.180	A14231-ND	6 66	143.53	424.86	640502-4
12	15	Tin	.950	.180	A14232-ND	2.89	62.29	184.37	640503-3
12	15	Gold	.950	.180	A14233-ND	8.11	174.70	517.12	640503-4
13	20	Tin	.950	.180	A14234-ND	3.75	80.85	239.32	640504-3
13	20	Gold	.950	.180	A14235-ND	10.65	229.54	679 44	640504-4
13	24	Tin	1.115	.180	A14236-ND	4.18	89.99	266.38	640505-3
13	24	Gold	1.115	.180	A14237-ND	11.82	254.76	754.10	640505-4
13	36	Tin	1.610	.180	A14238-ND	6.76	145.79	431.53	640506-3
13	36	Gold	1.610	.180	A14239-ND	18.78	404.67	1197.83	640506-4
Live Split Pin (Caps)									
8	—	Tin	—	—	A14199-ND	—	4.45	10.98	640545-1
8	—	Gold	—	—	A14198-ND	—	17.80	43.90	640545-2
Standard Socket (Plugs)									
9	—	Tin	—	—	A14197-ND	—	4.19	10.34	641300-1
9	—	Gold	—	—	A14196-ND	—	15.24	37.59	641300-2
Keying Plug									
10	—	—	—	—	A14195-ND	—	—	34.84	350591-1
Tools									
Die Set MR, Use w/ A9996					A9949-ND	93.75 each			58514-2
PRO-CRIMPER II Hand Tool					A9996-ND	63.75 each			354940-1
Extraction Tool					A9954-ND	17.25 each			455822-2
CERTI-CRIMP Tool MR					A9936-ND	508.50 each			90325-1

AMP

Z-Pack 2mm FB (Futurebus+) Connectors

The AMP Z-PACK 2mm FB two-piece connector system uses a modular concept and a 2mm contact pitch to provide high-density, high-speed signal and power connections for Futurebus+ and Futurebus+ "like" applications.

Product Facts: High-density connections; four-row, 2mm x 2mm circuit grid • Modular design for signal and power connections • Designed to meet International Specifications IEC 1076-4-0X (48B) and EIA IS 64 • Module assemblies are end-to-end stackable • Choice of solder leads or compliant press-fit leads • Flat rock receptacle tooling • Unique "cold hold" receptacle retention feature requires no tooing for lower applied cost • Integral receptacle lead organizer

Pin and Receptacle Contacts: Duplex plated gold flash over 0.0008 (.000030) min. palladium-nickel on mating surface, 0.0038 (.000150) min. tin-lead on solder lead, with entire contact underplated 0.0013 (.000050) nickel

Pin Contacts: Phosphor bronze

Receptacle Contacts: Copper alloy 18C

Housing: Liquid crystal polymer

Fig. 1

Signal Module, Vertical Pin

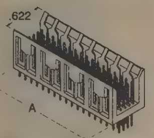


Fig. 2

Signal Module, Right-Angle Receptacle

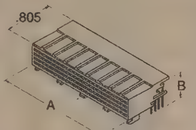


Fig. 3

Power Module, Vertical Pin

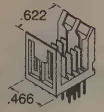
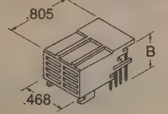


Fig. 4

Power Module, Right Angle Receptacle



# of Pos.	Dim. A	Dim. B	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Fig. 1 With Solder Leads							
24	.468	—	A3262-ND	1.91	43.20	122.40	536501-1
48	.940	—	A3263-ND	3.18	72.00	204.00	536501-2
96	1.885	—	A3264-ND	5.09	115.20	326.40	536501-3
192	3.775	—	A3265-ND	10.18	230.40	652.80	536501-4
Fig. 1 With Compliant Press-Fit Leads							
24	.468	—	A3266-ND	1.91	43.20	122.40	536504-1
48	.940	—	A3267-ND	3.18	72.00	204.00	536504-2
96	1.885	—	A3268-ND	5.09	115.20	326.40	536504-3
192	3.775	—	A3269-ND	10.18	230.40	652.80	536504-4
Fig. 2 With Solder Leads							
24	.468	.107	A3270-ND	2.23	50.40	142.80	536507-1
48	.940	.107	A3271-ND	4.08	92.40	261.80	536507-2
96	1.885	.107	A3272-ND	7.63	172.80	489.60	536507-3
192	3.775	.107	A3273-ND	15.26	345.60	979.20	536507-4
24	.468	.139	A3274-ND	2.23	50.40	142.80	536510-1
48	.940	.139	A3275-ND	4.08	92.40	261.80	536510-2
96	1.885	.139	A3276-ND	7.63	172.80	489.60	536510-3
192	3.775	.139	A3277-ND	15.26	345.60	979.20	536510-4
Fig. 2 With Compliant Press-Fit Leads							
24	.468	—	A3278-ND	2.23	50.40	142.80	536511-1
48	.940	—	A3279-ND	4.08	92.40	261.80	536511-2
96	1.885	—	A3280-ND	7.63	172.80	489.60	536511-3
192	3.775	—	A3281-ND	15.26	345.60	979.20	536511-4
Fig. 3 With Solder Leads							
8	—	—	A3282-ND	1.80	40.80	115.60	536600-1
Fig. 3 With Compliant Press-Fit Leads							
8	—	—	A3283-ND	1.80	40.80	115.60	536603-1
Fig. 4 With Solder Leads							
[illegible]	—	.107	A3284-ND	2.54	57.60	163.20	536607-1
8	—	.139	A3285-ND	2.54	57.60	163.20	536613-1
Fig. 4 With Compliant Press-Fit Leads							
8	—	—	A3286-ND	2.54	57.60	163.20	536614-1

AMP

Board Mount Headers – .050 Spacing

Board Mount Headers w/ Card Slots
Figures 1 & 2 mate with Figure 3

Fig. 1

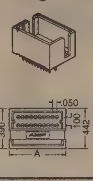


Fig. 2

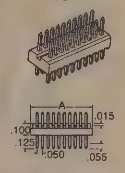
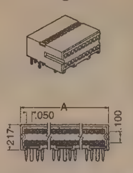


Fig. 3



Board Mount Headers
Figures 4 & 5 mate with Figure 6

Fig. 4

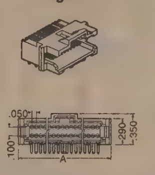


Fig. 5

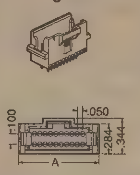
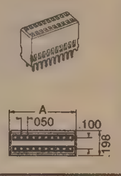


Fig. 6



MATERIAL & FINISH: • **Housing:** Black thermoplastic, 94V-0 rated • **Contacts:** Copper Alloy, plated gold in mating area.

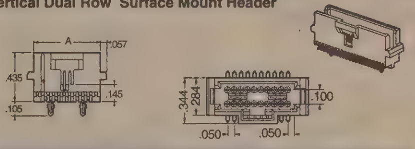
Description	Fig.	No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Board Mount Headers With Card Slots (Figures 1 & 2 mate with Figure 3)								
Protected Dual Row Vertical Header	1	40	1.144	A3200-ND	5.62	127.20	360.40	104076-3
Protected Dual Row Vertical Header	1	50	1.394	A3201-ND	6.81	154.20	436.90	104076-7
Unprotected Dual Row Vertical Header	2	40	1.015	A3222-ND	4.19	94.80	268.60	1-103916-1
Unprotected Dual Row Vertical Header	2	50	1.265	A3223-ND	5.09	115.20	326.40	1-103916-3
Dual Row Right Angle Receptacle	3	40	1.044	A3202-ND	7.84	177.60	503.20	103911-5
Dual Row Right Angle Receptacle	3	50	1.294	A3203-ND	9.49	214.80	608.60	103911-4
Board Mount Headers (Figures 4 & 5 mate with Figure 6)								
Protected Dual Row Rt. Angle Header	4	20	.630	A3204-ND	3.71	84.00	238.00	104069-1
Protected Dual Row Rt. Angle Header	4	30	.880	A3205-ND	5.11	115 80	328.10	104069-5
Protected Dual Row Rt. Angle Header	4	40	1.130	A3206-ND	6.17	139.80	396.10	104069-6
Protected Dual Row Rt. Angle Header	4	50	1.380	A3207-ND	7.47	169.20	479.40	104069-2
Protected Dual Row Rt. Angle Header	4	60	1.630	A3208-ND	8.61	195.00	552.50	104069-7
Protected Dual Row Rt. Angle Header	4	100	2.630	A3209-ND	13.14	297.60	843.20	1-104069-7
Protected Dual Row Vertical Header	5	20	.630	A3210-ND	3.37	76.20	215.90	104068-1
Protected Dual Row Vertical Header	5	30	.880	A3211-ND	4.64	105.00	297.50	104068-3
Protected Dual Row Vertical Header	5	40	1.130	A3212-ND	5.62	127.20	360.40	104068-4
Protected Dual Row Vertical Header	5	50	1.380	A3213-ND	6.81	154.20	436.90	104068-5
Protected Dual Row Vertical Header	5	60	1.630	A3214-ND	7.82	177.00	501.50	104068-6
Protected Dual Row Vertical Header	5	100	2.630	A3215-ND	11.93	270.00	765.00	1-104068-7
Dual Row Vertical Receptacle	6	20	.544	A3216-ND	4.03	91.20	258.40	104078-1
Dual Row Vertical Receptacle	6	30	.794	A3217-ND	5.57	126.00	357.00	104078-4
Dual Row Vertical Receptacle	6	40	1.044	A3218-ND	6.73	152.40	431.80	104078-2
Dual Row Vertical Receptacle	6	50	1.294	A3219-ND	8.14	184.20	521.90	104078-5
Dual Row Vertical Receptacle	6	60	1.544	A3220-ND	9.41	213.00	603.50	104078-6
Dual Row Vertical Receptacle	6	100	2.544	A3221-ND	14.31	324.00	918.00	104078-8

AMP

Surface Mount Headers and Receptacles – .050 Spacing

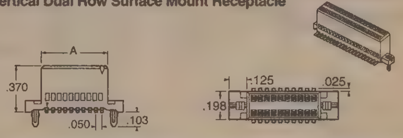
MATERIAL & FINISH: • **Housing:** Glass Filled, black thermoplastic, 94V-0 rated • **Contacts:** Phosphor bronze, plated gold in mating area.

Vertical Dual Row Surface Mount Header



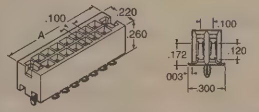
No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Vertical Dual Row Surface Mount Headers						
20	.630	A3250-ND	3.63	82.20	232.90	104549-2
30	.880	A3252-ND	4.88	110.40	312.80	104549-5
40	1.130	A3254-ND	5.88	133.20	377.40	104549-6
50	1,380	A3256-ND	7.13	161.40	457.30	104549-7
60	1.630	A3258-ND	8.22	186.00	527.00	104549-8
100	2.630	A3260-ND	12.53	283.80	804.10	1-104549-0

Vertical Dual Row Surface Mount Receptacle



No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Vertical Dual Row Surface Mount Receptacles						
20	.544	A3251-ND	4.32	97.80	277.10	104550-2
30	.794	A3253-ND	5.86	132.60	375.70	104550-4
40	1.044	A3255-ND	7.05	159.60	452.20	104550-5
50	1.294	A3257-ND	8.53	193.20	547.40	104550-6
60	1.544	A3259-ND	9.88	223.80	634.10	104550-7
100	2.544	A3261-ND	15.03	340.20	963.90	104550-9

AMPMODU® Surface Mount Receptacles – .100 Spacing

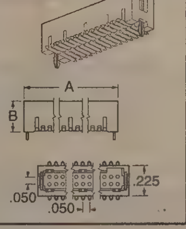


MATERIAL & FINISH:
Housing: Black polyphenylene sulfide, 94V-0 rate
Contacts: Phosphor bronze, duplex plated min. gold on contact area.

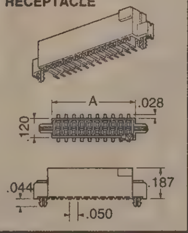
No. of Pos.	Dim. A	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Vertical Mount, Bottom Entry with Holddowns						
10	.700	A3100-ND	4.24	96.00	272.00	535959-1
20	1.200	A3101-ND	5.27	119.40	338.30	535959-3
26	1.500	A3102-ND	5.99	135.60	384.20	535959-2

AMPMODU® .050 Grid Surface Mount Connectors

HEADER



RECEPTACLE

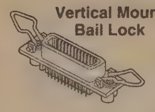


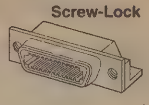
Housing: Black glass filled thermoplastic, 94V-0 rated.
Contacts: Phosphor Bronze (headers), Beryllium Copper (receptacles), both with duplex plated gold in mating area.

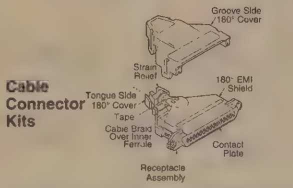
No. of Pos.	Dim. A	Dim. B*	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Vertical Dual Row Surface Mount Headers							
20	.622	.250	A3107-ND	2.68	60.60	171.70	104655-3
50	1.372	.250	A3108-ND	4.37	99.00	280.50	104655-6
70	1.872	.250	A3109-ND	4.96	112.20	317.90	104655-8
100	2.622	.250	A3110-ND	6.52	147.60	418.20	1-104655-1
20	.622	.320	A3111-ND	2.68	60.60	171.70	104656-2
50	1.372	.320	A3112-ND	4.37	99.00	280.50	104656-5
70	1.872	.320	A3113-ND	4.96	112.20	317.90	104656-7
100	2.622	.320	A3114-ND	6.52	147.60	418.20	1-104656-0
20	.622	.390	A3115-ND	2.68	60.60	171.70	104693-2
50	1.372	.390	A3116-ND	4.37	99.00	280.50	104693-5
70	1.872	.390	A3117-ND	4.96	112.20	317.90	104693-7
100	2.622	.390	A3118-ND	6.52	147.60	418.20	1-104693-0
Vertical Dual Row Surface Mount Receptacles							
20	.516	—	A3103-ND	2.99	67.80	192.10	104652-2
50	1.266	—	A3104-ND	5.25	118.80	336.60	104652-5
70	1.766	—	A3105-ND	6.84	154.80	438.60	104652-7
100	2.516	—	A3106-ND	8.64	195.60	554.20	1-104652-0

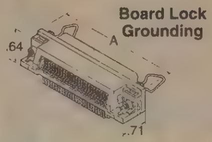
* Mated Height

AMP CHAMP® Shielded Connectors



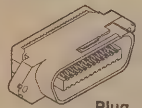


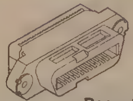


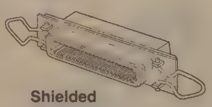


No. of Pos.	Description	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Shielded Right Angle, Screw-Lock Connector						
24	Receptacle	A15016-ND	6.35	127.00	406.40	553811-1
50	Receptacle	A15001-ND	8.28	165.50	529.60	553813-3
Shielded Right Angle, Bail Lock Connector						
50	Receptacle	A15002-ND	8.53	170.50	545.60	554901-1
Shielded Right Angle, Board Lock Grounding						
36	Standard Receptacle	A15004-ND	5.60	112.00	358.40	555520-2
50	Standard Receptacle	A15003-ND	9.30	186.00	595.20	555057-1
50	IBM Compatable	A15005-ND	8.38	167.50	536.00	555149-1
Shielded Vertical Mount, Bail Lock Connector						
50	Receptacle	A15008-ND	10.45	209.00	668.80	554216-3
Shielded Cable Connector						
24	Plug, Screw-lock	A15009-ND	7.00	140.00	448.00	554948-3
36	Plug, Bail Lock	A15010-ND	4.93	98.50	315.20	554950-1
50	Plug, Bail Lock	A15011-ND	5.65	113.00	361.60	554953-1
50	Plug, Screw-lock	A15012-ND	6.23	124.50	398.40	554954-1
Shielded Cover Kits						
24	180° Cover	A15013-ND	7.28	145.50	465.60	554944-1
36	180° Cover	A15014-ND	3.13	62.50	200.00	554945-1
50	180° Cover	A15015-ND	2.80	56.00	179.20	554946-1

AMP CHAMP® Latch Parallel Interface and Ribbon Cable Connectors



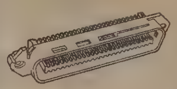


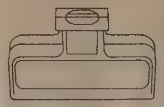


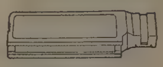
No. of Contacts	Description	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
CHAMP® Latch Connectors — Screw Lock — Plastic						
24	Plug	A1559-ND	4.68	106.28	173.55	553598-1
24	Receptacle	A1561-ND	4.68	106.28	173.55	553599-1
36	Plug	A1563-ND	5.80	131.62	214.94	553600-1
36	Receptacle	A1565-ND	5.80	131.62	214.94	553601-1
50	Plug	A1567-ND	4.91	111.59	182.23	553602-1
50	Receptacle	A1569-ND	4.91	111.59	182.23	553603-1
Shielded CHAMP® Latch Connectors — Screw Lock, Preassembled						
24	Receptacle	A1556-ND	6.66	151.24	246.67	554434-1
50	Receptacle	A1557-ND	9.04	205.19	334.67	554436-2
CHAMP® Latch Connectors — Bail Lock — Plastic						
24	Receptacle	A1561-ND	4.68	106.28	173.55	553599-1
36	Plug	A1564-ND	5.26	119.36	194.91	554084-1
36	Receptacle	A1565-ND	5.80	131.62	214.94	553601-1
50	Plug	A1568-ND	6.19	140.61	229.62	554085-1
50	Receptacle	A1569-ND	4.91	111.59	182.23	553603-1
Shielded CHAMP® Latch Connectors — Bail Lock						
36	Receptacle	A1575-ND	7.25	164.73	268.67	554346-2
50	Receptacle	A1576-ND	4.09	92.79	151.34	556297-1
CHAMP® Latch Connectors — Panel Mount — Plastic						
36	Receptacle	A1566-ND	5.26	119.36	194.91	554089-1
50	Receptacle	A1570-ND	4.52	102.60	167.54	554090-1
Shielded CHAMP® Latch Connectors — Screw Lock, Loose Pieces						
24	Receptacle	A1558-ND	5.44	123.44	201.34	554349-1
50	Receptacle	A1574-ND	8.24	187.21	305.34	554350-1
Bail Lock Hardware Kit						
—	Hardware	A1517-ND	1.84	38.25	71.40	552561-3
Shielded Screw Lock Hardware Kit						
	Rear Mount 4-40	A1578-ND	2.43	55.18	90.00	554272-1
	Rear Mount Metric	A1579-ND	1.66	37.61	61.33	554808-1

AMP CHAMP® Parallel Interface Connectors

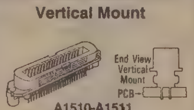
(For Discrete Wire Termination)





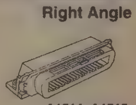

A1538-A1539

No. of Pos.	Description	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
24-26 AWG, Solid						
24	Plug, Bail Lock	A1502-ND	3.31	66.98	204.45	552272-1
24	Receptacle, Panel Mt. Screw or Bail Lock	A1508-ND	3.24	65.55	200.10	2-552273-1
36	Plug, Bail Lock	A1503-ND	3.50	70.78	216.05	552274-1
36	Receptacle, Panel Mt, Screw or Bail Lock	A1509-ND	3.50	70.78	216.05	2-552275-1
50	Plug, Screw Lock, Thick Flange	A1540-ND	2.58	51.50	164.80	229974-1
50	Receptacle, Screw Lock Thick Flange	A1541-ND	2.58	51.50	164.80	229975-1
50	Plug, Bail Lock	A1542-ND	2.58	51.50	164.80	552032-1
50	Receptacle, Panel Mt, Screw or Bail Lock	A1543-ND	2.58	51.50	164.80	2-552001-1
26-28 AWG, 7 Strand						
24	Plug, Screw Lock	A1530-ND	3.58	68.57	230.55	552443-1
24	Plug, Bail Lock	A1531-ND	3.51	67.28	226.20	552469-1
24	Receptacle, Panel Mt, Screw or Bail Lock	A1533-ND	5.45	104.36	350.90	2-552474-1
36	Plug, Screw Lock	A1534-ND	5.54	106.09	356.70	552444-1
36	Plug, Bail Lock	A1535-ND	3.35	64.26	216.05	552470-1
36	Receptacle, Panel Mt, Screw or Bail Lock	A1537-ND	6.39	122.48	411.80	2-552475-1
50	Plug, Screw Lock, Thick Flange	A1544-ND	2.58	51.50	164.80	552390-1
50	Receptacle, Screw Lock, Thick Flange	A1545-ND	2.58	51.50	164.80	552391-1
50	Plug, Bail Lock	A1546-ND	2.60	52.00	166.40	552471-1
50	Receptacle, Panel Mt, Screw or Bail Lock	A1547-ND	5.50	110.00	352.00	2-552476-1
24	180° Snap-On Strain Relief Cover	A1506-ND	2.97	57.01	191.68	1-552076-1
36	180° Snap-On Strain Relief Cover	A1507-ND	1.27	24.40	82.05	552073-5
50	180° Snap-On Strain Relief Cover	A1548-ND	1.53	30.59	97.88	552008-1
24	90° Snap-On Strain Relief Cover	A1538-ND	.75	14.45	48.57	552413-1
36	90° Snap-On Strain Relief Cover	A1539-ND	.85	16.29	54.78	552414-1
50	90° Snap-On Strain Relief Cover	A1549-ND	.50	10.03	32.09	552011-1
—	Screw Lock Hardware Kit	A1525-ND	2.03	38.81	130.50	552568-1
—	Bail Lock Hardware Kit	A1526-ND	1.91	36.66	123.25	552567-1
—	Insertion Tool for CHAMP® IDC Connector	A1528-ND		$174.90 each		229764-2
—	T-Handle Wire Insertion Tool	A1529-ND		$8.00 each		229384-1



A1510-A1511
A1550-A1552

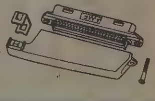
Edge Mount
End View
Edge
Mount
PCB
A1512-A1513
A1553



A1514- A1515
A1554- A1555

No. of Pos.	Description	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
24	Receptacle, Vertical Mount	A1510-ND	5.10	102.00	326.40	552224-1
36	Receptacle, Vertical Mount	A1511-ND	7.33	146.50	468.80	522235-1
50	Plug, Vertical Mount	A1550-ND	5.20	104.00	332.80	552116-1
50	Receptacle, Vertical Mount	A1552-ND	5.20	104.00	332.80	552118-1
24	Receptacle, Edge Mount	A1512-ND	5.83	116.50	372.80	552230-1
36	Receptacle, Edge Mount	A1513-ND	11.13	222.50	712.00	552241-1
50	Receptacle, Edge Mount	A1553-ND	7.80	156.00	499.20	552130-1
24	Receptacle, Right-Angle Mount	A1514-ND	6.05	121.00	387.20	552740-1
36	Receptacle, Right-Angle Mount	A1515-ND	6.48	129.50	414.40	552742-1
50	Plug, Right-Angle Mount	A1555-ND	6.78	135.50	433.60	552726-1
50	Receptacle, Right-Angle Mount	A1554-ND	6.78	135.50	433.60	552725-1
—	Screw Lock Hardware Kit, Vertical Mount	A1523-ND	3.45	69.00	220.80	552563-1
—	Bail Lock Hardware Kit, Vertical Mount	A1520-ND	1.70	34.00	108.80	552562-1
—	Screw Lock Hardware Kit, Edge Mount	A1521-ND	4.55	91.00	291.20	552675-1
—	Bail Lock Hardware Kit, Edge Mount	A1522-ND	5.33	106.50	340.80	552676-1
—	Screw Lock Hardware Kit, Rt-Angle Mt	A1524-ND	1.60	32.00	102.40	552631-1
—	4-40 Mounting Screw	A1516-ND	.90/10;	2.86/100		229911-1

CHAMP® Connector Kits

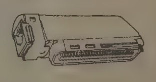


A1571-ND:
- 50-Position Plug with Tapered Cover • Wire Size of 24 AWG, Solid

A1572-ND:
- 50-Position Receptacle with Tapered Cover • Wire Size of 24 AWG, Solid

Cable Dia. Range	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
.350-.425	A1571-ND	3.66	76.39	221.49	229912-1
.350-.425	A1572-ND	3.66	76.39	221.49	229913-1

For discrete wire termination, kit includes connector, 90° cover and hardware.

Description	Digi-Key Part No.	Pricing 1	25	AMP Part No.	
Modular Champ Adaptor (Prewired Assembly*)	A1573-ND	10.88	219.93	552789-1	

* Wiring is as follows: Pin 1 — Green; Pin 2 — Black; Pin 26 — Red; and Pin 27 — Yellow.

AMP .050 Connectors

Figure 1 & 2: • **Housing and Tine Plate:** Glass-filled nylon, rated 94V-0, black for standard, LCP, rated 94V-0, black for High Temp. • **Contacts:** Phosphor bronze selectively plated with minimum of .000030 gold in mating area and tin-lead in solder tail area • **Retention Leg (Board Lock):** Brass, tin-lead plated.

Figure 3: • **Housing, Covers:** Glass-filled polyester, rated 94V-0, black • **Contacts:** Phosphor bronze, selectively plated with minimum of .000030 gold in mating area and tin-lead in termination area • **Wire Accommodation:** 28 AWG 7 Strand with .020-.028 insulation diameter. Most UL Type 2789 wires meet these dimensional requirements.

Figure 4: • **Enclosure:** Polyester, rated 94V-0, beige white • **Shields:** Brass, nickel plated • **Locking Spring:** Stainless steel.

Figure 5: • **Housing:** Glass-filled nylon, rated 94V-0, black • **Contacts:** Phosphor bronze, selectively plated with minimum of .000030 gold in mating area and tin-lead in solder tail area • **Retention Leg (Board Lock):** Brass, tin-lead over nickel underplate • **Shield:** Carbon steel, nickel plated • **Frame for Right Angle Receptacle:** Die cast zinc, nickel plated

Figure 6: • **Housing:** Glass-filled nylon, rated 94V-0, black • **Contacts:** Phosphor bronze, selectively plated with minimum of .000030 gold in mating area and tin-lead in solder tail area • **Shield:** Die cast zinc, nickel plated.

Figure 7: • **Housing and Covers:** Thermoplastic, 94V-0 rated, black • **Contacts:** Phosphor bronze, duplex plated .000030 min. gold on mating end; .000050 min. tin-lead on termination end; all underplated .000050 min. nickel • **Shell:** Steel, plated .000200 min. bright tin-lead over .000050 min. copper.

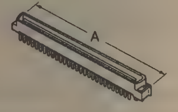
Figure 8 & 9: • **Backshell:** Zinc, plated nickel over copper • **Spring Latch:** Stainless steel • **Strain Relief Staple:** Steel, plated tin-lead over nickel.

Figure 10: • **Backshells:** Zinc • **Boot:** PVC, Black • **Jackscrews:** Carbon Steel and PVC, black, plated .000200 min. zinc, black chromate • **Staple:** Carbon Steel, plated .000050 min. tin-lead over .000050 min. nickel • **Screws:** Stainless Steel.

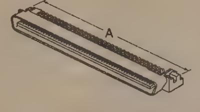
Figure 11 & 12: • **Covers:** Thermoplastic, 94V-0 rated, black • **Shell:** Steel, plated .000200 min. bright tin over .000050 min. copper • **Bracket:** Zinc, plated nickel over copper • **Contacts:** Phosphor bronze, duplex plated .000030 min. gold on mating end; .000050 min. bright tin-lead in termination area, all underplated .000050 nickel.

Figure 13, 14, & 15: • **Housing:** Thermoplastic, 94V-0 rated, black. SMT compatible • **Shell:** Steel, plated .000200 min. bright tin over .000050 min. copper • **Bracket:** Zinc, plated nickel over copper • **Contacts:** Phosphor bronze, duplex plated .000030 min. gold on mating end; .000120 min. tin-lead on solder end; all underplated .000050 min. nickel.

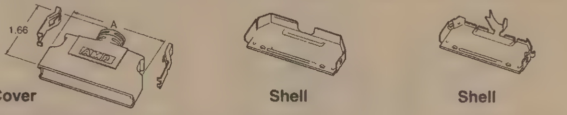
1



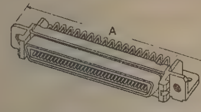
2



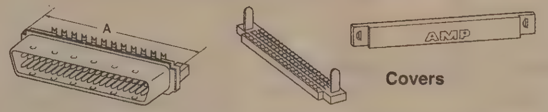
3



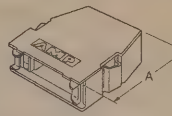
4



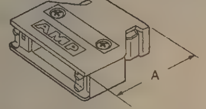
5



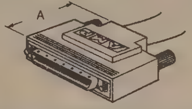
6



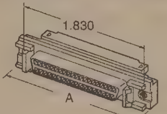
7



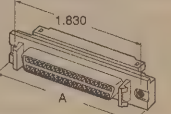
8



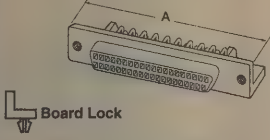
9



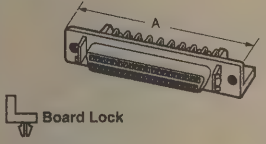
10



11



12



13

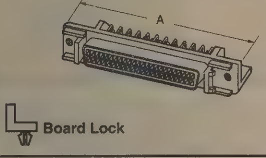


Fig. No.	No. of Pos.	Description	Dimension A	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part. No.
		CHAMP® .050 Series (VESA Media Bus Standard)						
1	80	Vertical Plug	2.447	A15020-ND	6.39	129.20	394.40	2-557102-1
2	80	Right Angle Plug	2.391	A15021-ND	7.03	142.03	433.55	2-557100-1
1	68	Vertical Plug	2.147	A15022-ND	5.43	109.73	334.95	1-557102-7
2	68	Right Angle Plug	2.091	A15023-ND	5.99	121.13	369.75	1-557100-7
3	36	Enclosure Kit for A15024-ND	1.567	A15025-ND	5.58	111.50	356.80	176793-5
4	36	Right Angle Receptacle, with Board Lock	1.713	A15027-ND	6.63	133.95	408.90	2-178238-5
		AMPLIMITE® .050 Series (SCSI-2, SCSI-3, IPI-2, HIPPI)						
5	50	Cable Plug Connectors with Assembled Termination Covers	1.579	A15029-ND	6.27	126.83	387.15	749111-4
5	50	Cable Plug Connectors without Assembled Termination Covers	1.579	A3301-ND	5.68	113.50	363.20	749621-5
5	50	Cable Plug Connectors with Wire Lacing Termination Covers	1.579	A3302-ND	6.68	133.50	427.20	1-750913-5
5	68	Cable Plug Connectors with Assembled Termination Covers	2.029	A3303-ND	12.15	243.00	777.60	749111-6
5	68	Cable Plug Connectors without Assembled Termination Covers	2.029	A3304-ND	8.25	165.00	528 00	749621-7
5	68	Cable Plug Connectors with Wire Lacing Termination Covers	2.029	A3305-ND	9.73	194.50	622.40	1-750913-7
6	50	Shielded Backshell Kits, with Latches	1.395	A3306-ND	5.60	112.00	358.40	749193-2
7	50	Shielded Backshell Kits, with Latches	1.800	A3307-ND	5.90	118.00	377.60	749889-3
6	68	Shielded Backshell Kits, with Latches	1.405	A3308-ND	10.73	214.50	686.40	749195-2
8	68	Shielded Enclosure Kits, with Male Jackscrews	1.887	A3309-ND	12.85	257.00	822.40	750752-1
9	50	Panel Mount Receptacle Assemblies with Rails, 2/56 threaded holes	2.065	A3310-ND	11.10	222.00	710.40	749611-5
9	50	Panel Mount Receptacle Assemblies with Rails, 4/40 threaded holes	2.065	A3311-ND	10.10	202.00	646.40	750450-1
10	50	Panel Mount Receptacle Assemblies without Rails, 2/56 threaded holes	2.065	A3312-ND	10.10	202.00	646.40	749656-5
10	50	Panel Mount Receptacle Assemblies without Rails, 4/40 threaded holes	2.065	A3313-ND	11.10	222.00	710 40	750640-1
11	50	Rt. Angle Recept. Header without Rails, without Boardlocks	2.065	A3320-ND	5.60	112.00	358.40	787169-5
11	68	Rt. Angle Recept. Header without Rails, with Boardlocks	2.515	A3324-ND	7.80	156.00	499.20	787170-7
11	100	Rt. Angle Recept. Header without Rails, without Boardlocks	3.315	A3325-ND	11.20	224.00	716.80	787169-9
12	26	Rt. Angle Recept. Header without Rails, with Boardlocks	1.465	A3314-ND	5.00	100.00	320.00	787082-2
12	50	Rt. Angle Recept. Header without Rails, with Boardlocks	2.065	A3316-ND	5.90	118.00	377.60	787082-5
12	50	Rt. Angle Recept. Header without Rails, without Boardlocks	2.065	A3317-ND	5.60	112.00	358.40	787394-5
12	68	Rt. Angle Recept. Header without Rails, with Boardlocks	2.515	A3321-ND	7.80	156.00	499.20	787082-7
12	68	Rt. Angle Recept. Header without Rails, without Boardlocks	2.515	A3322-ND	7.48	149.50	478.40	787394-7
13	26	Rt. Angle Recept. Header with Rails, without Boardlocks	1.465	A3315-ND	4.70	94.00	300.80	787190-2
13	50	Rt. Angle Recept. Header with Rails, with Boardlocks	2.065	A3318-ND	5.90	118.00	377.60	787171-5
13	50	Rt. Angle Recept. Header with Rails, without Boardlocks	2.065	A3319-ND	5.60	112.00	358.40	787190-5
13	68	Rt. Angle Recept. Header with Rails, with Boardlocks	2.515	A3323-ND	7.80	156.00	499.20	787171-7

AMP SCSI Terminators

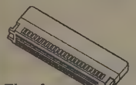


Fig. A

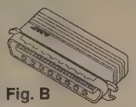


Fig. B

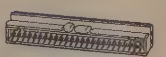


Fig. C

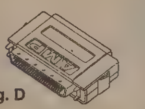


Fig. D

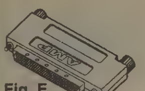


Fig. E

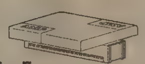


Fig. F

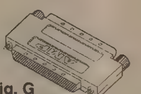


Fig. G

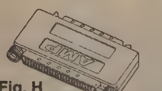


Fig. H

Types of Terminators: SCSI • Single-Ended: Allows up to 5 megabytes per second. **A. Passive:** 220/330 Ohms: For lower data transmission rates • Termination of each signal consists of 220 Ohms to Term Power Line and 330 Ohms to ground • 36 resistors • Ideal impedance match - 132 Ohms. **B. Active:** Also referred to as "Regulated" or "Boulay." These terminators include a voltage regulator along with resistors and capacitors. They support applications requiring longer cable lengths and faster data transmission rates. • Eighteen 110 Ohm resistors • Three or more capacitors • Two voltage reference resistors • One voltage regulator

• **Differential:** Allows up to 10 megabytes per second, cable lengths up to 25 meter. • Requires more powerful drivers than single-ended. • Ideal impedance match - 122 Ohms.

Fig. No.	No. Of Pos.	Description	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
		Single Ended Passive					
B	50	CHAMP® style plug, mate w/ .085 center-line SCSI-1	A15032-ND	34.19	691.13	2109.75	556578-1
C	50	Plug, mate w/ ribbon cable socket connectors	A15034-ND	16.54	334.40	1020.80	869587-1
D	50	AMPLIMITE® .050 series plug. "A" cable SCSI-2	A15036-ND	32.31	653.13	1993.75	750881-1
		Single Ended Active					
A	50	.050 center-line ribbon cable SCSI-1	A15031-ND	33.72	681.63	2080.75	869574-1
D	50	AMPLIMITE® .050 series plug. "A" cable SCSI-2	A15037-ND	35.84	724.38	2211.25	869546-1
E	68	AMPLIMITE® .050 series plug. "P&Q" cable SCSI-3	A15039-ND	40.77	824.13	2515.75	869516-1
G	68	Plug feed-thru to 68 position receptacle	A15043-ND	81.80	1653.48	5047.45	869684-1
H	68	Receptacle feed-thru to 50 position plug	A15045-ND	67.05	1355.18	4136.85	869680-1
		Differential					
B	50	CHAMP® style plug, mate w/ .085 center-line SCSI-1	A15033-ND	35.53	718.20	2192.40	555867-1
D	50	AMPLIMITE® .050 series plug. "A" cable SCSI-2	A15038-ND	33.44	675.93	2063.35	869545-1
E	68	AMPLIMITE® .050 series plug. "P&Q" cable SCSI-3	A15040-ND	37.91	766.18	2338.85	869515-1
F	68	.025 center-line ribbon cable SCSI-3	A15042-ND	44.46	898.70	2743.40	869794-1
G	68	Plug feed-thru to 68 position receptacle	A15044-ND	56.64	1144.75	3494.50	869682-1
H	68	Receptacle feed-thru to 50 position plug	A15046-ND	59.69	1206.50	3683.00	869678-1
		Active Negation Compatible					
F	68	.025 center-line ribbon cable SCSI-3	A15041-ND	44.74	904.40	2760.80	869705-1
		Unterminated					
H	68	Receptacle feed-thru to 50 position plug	A15047-ND	49.73	1005.10	3068.20	869686-1

AMP Filtered D-Sub Connectors

Right Angle Connector

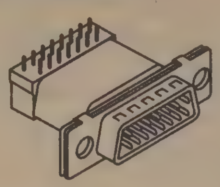
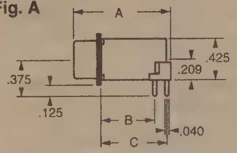


Fig. A



Straight Connector

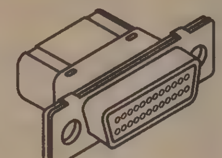


Fig. B

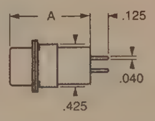


Fig. C

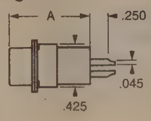
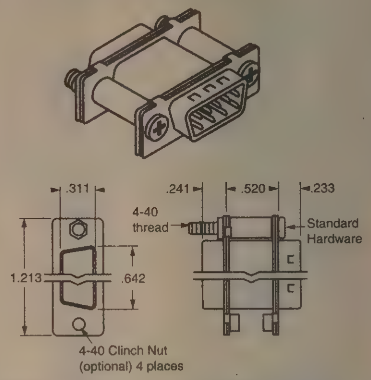


Fig. D - Plug-Receptacle Adapter



Filtered AMPLIMITE® Subminiature D Connectors for Commercial Application

- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476
- Certified by Canadian Standards Association, File No. LR 16455

AMPLIMITE® Subminiature D Connectors are versatile and widely used connectors. AMP has designed and built into these connectors a proven, rugged and inexpensive filter that eliminates the problem of conducted electromagnetic interference (EMI). These connectors also conform to FCC regulations which may require the use of filtering to limit EMI in computing devices. High Performance Subminiature D Connectors are offered with two types of filters—distributed element and capacitive. They are provided with a variety of termination choices such as solder cup, straight post and right angle post. Various types of accessories are available to meet the needs of many applications.

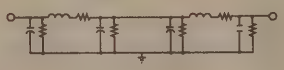
Quiet Line High Performance Filter Products:

AMP Quiet Line Filters are offered in three types—Distributed Element, Pi and Capacitive.

- **Distributed Element Filters:** Distributed Element Filters are of one piece construction (no beads), having distributed low Q elements which cause no noticeable resonances within the filters. These filters are particularly suited to applications where source and load impedance are not matched. This is because of the lossy transmission line effect.
- **Capacitive Filters:** Capacitive Filters provide excellent noise removal economically. Systems that transmit strong signals and can tolerate moderate loss are well suited for capacitive filtering.

Material and Finish: • **Shell:** Steel, tin plated • **Insert:** UL rated 94V0 thermoplastic • **Contact:** Phosphor bronze, plated .000015 min. gold in contact area, plated tin/lead on termination end • **Filter Sleeve:** Ferrite and Ceramic

Distributed Element Filter Circuit



Capacitive Filter Circuit

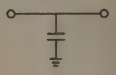
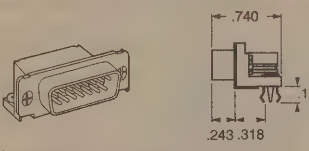


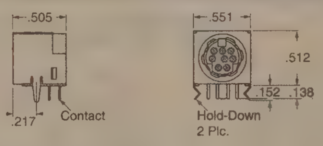
Fig. No.	No. of Pos.	Type	Dim. A	Dim. B	Dim. C	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
Subminiature D Connectors with Distributed Element Filters										
A	9	Plug	1.132	.657	.769	A15073-ND	54.63	1150.00	3823.75	1-842900-0
A	15		1.132	.657	.769	A15074-ND	76.65	1613.60	5365.22	1-842901-0
A	25		1.132	.657	.769	A15075-ND	97.51	2052.80	6825.56	1-842902-0
B	9	Plug	.950	—	—	A15076-ND	57.04	1200.80	3992.66	1-842910-0
B	15		.950	—	—	A15077-ND	64.20	1351.60	4494.07	1-842911-0
B	25		.950	—	—	A15078-ND	96.14	2024.00	6729.80	1-842912-0
C	9	Plug	.990	—	—	A15079-ND	56.22	1183.60	3935.47	1-842920-0
C	15		.990	—	—	A15080-ND	77.60	1633.60	5431.72	1-842921-0
C	25		.990	—	—	A15081-ND	156.03	3284.80	10921.96	1-842922-0
C	37		.990	—	—	A15082-ND	160.40	3376.80	11227.86	1-842923-0
A	9	Receptacle	1.132	.657	.769	A15083-ND	47.61	1002.40	3332.98	1-842905-0
A	15		1.132	.657	.769	A15084-ND	66.56	1401.20	4658.99	1-842906-0
A	25		1.132	.657	.769	A15085-ND	102.87	2165.60	7200.62	1-842907-0
A	37		1.132	.657	.769	A15086-ND	138.19	2909.20	9673.09	1-842908-0
B	9	Receptacle	.950	—	—	A15087-ND	55.59	1170.40	3891.58	1-842915-0
B	15		.950	—	—	A15088-ND	64.79	1364.00	4535.30	1-842916-0
B	25		.950	—	—	A15089-ND	105.85	2228.40	7409.43	1-842917-0
B	37		.950	—	—	A15090-ND	138.78	2921.60	9714.32	1-842918-0
C	9	Receptacle	.990	—	—	A15091-ND	54.51	1147.60	3815.77	1-842925-0
C	15		.990	—	—	A15092-ND	75.77	1595.20	5304.04	1-842926-0
C	25		.990	—	—	A15093-ND	123.23	2594.40	8626.38	1-842927-0
C	37		.990	—	—	A15094-ND	173.15	3645.20	12120.29	1-842928-0
Plug-Receptacle Adapter with Distributed Element Filters										
D	9	Adapter	—	—	—	A15095-ND	71.93	1514.40	5035.38	1-842930-0
D	15		—	—	—	A15096-ND	76.29	1606.00	5339.95	1-842931-0
D	25		—	—	—	A15097-ND	107.01	2252.80	7490.56	1-842932-0
D	37		—	—	—	A15098-ND	147.42	3103.60	10319.47	1-842933-0
Subminiature D Connectors with Capacitive Filters										
A	9	Plug	1.015	—	—	A15062-ND	29.81	627.60	2086.77	842646-4
A	15		1.015	—	—	A15063-ND	36.67	772.00	2566.90	842647-4
A	25		1.015	—	—	A15064-ND	45.11	949.60	3157.42	842648-4
A	9	Receptacle	1.020	—	—	A15065-ND	43.05	906.40	3013.78	842650-4
A	15		1.020	—	—	A15066-ND	38.21	804.40	2674.63	842651-4
A	25		1.020	—	—	A15067-ND	46.53	979.60	3257.17	842652-4
A	37		1.020	—	—	A15068-ND	73.19	1540.80	5123.16	842653-4
Plug-Receptacle Adapter with Capacitive Filters										
D	9	Adapter	—	—	—	A15069-ND	38.48	810.00	2693.25	842697-4
D	15		—	—	—	A15070-ND	40.76	858.00	2852.85	842698-4
D	25		—	—	—	A15071-ND	52.57	1106.80	3680.11	842699-4
D	37		—	—	—	A15072-ND	99.98	2104.80	6998.46	842700-4

AMP Filtered D-Sub Connectors

Quiet D-Sub Connector



Shielded Miniature Circular DIN Connector



Quiet Line Filtered PCB Connectors

Product Facts: • Offer economic EMI/RFI protection • Matched pcb footprints mean "Drop-in" replacement for non-filtered connectors • Choice of ferrite only or capacitive array on ferrite • Connectors have industry standard interface • Connectors offer a choice of duplex gold over nickel contact plating • AMPLIMITE® connector housing made of U.L. 94V-0 rated high temperature, thermoplastic • Shielded miniature circular DIN receptacles made of U.L. 94V-0 rated, high temperature thermoplastic, compatible with IR reflow solder processes, SMT • Recognized under the Component Program of the Underwriters Laboratories, Inc., File No. E28476 • Certified by the Canadian Standards Association, File No. LR 7189

Material and Finish: • **Housing:** Thermoplastic, 94V-0 rated, black, SMT compatible • **Metal Shell:** Steel, plated .000200 min. over .000100 min. copper • **Eyelets:** Brass, plated .000200 min. over copper flash • **Boardlocks:** Copper alloy, plated .000200 min. tin-lead over .000050 min. nickel • **Inserts:** Zinc, plated clear chromate

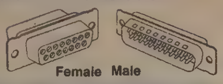
Plating Code B: Duplex plated .000030 min. gold on mating end, .000120 min. tin-lead on solder end, all over .000050 nickel underplating

No. of Pos.	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
D Sub Plugs — Ferrite Block Only					
9	A15099-ND	10.32	222.50	587.40	869436-2
15	A16000-ND	11.92	256.88	678.15	869526-2
25	A16001-ND	14.27	307.50	811.80	869442-2
D Sub Receptacles — Ferrite Block Only					
9	A16002-ND	10.53	226.88	598.95	869520-2
15	A16003-ND	12.27	264.38	697.95	869521-2
25	A16004-ND	14.88	320.63	846.45	869448-2
D Sub Plugs — Ferrite Block and Capacitors					
9	A16005-ND	20.10	433.13	1143.45	869470-5
15	A16006-ND	22.59	486.88	1285.35	869527-5
25	A16007-ND	25.81	556.25	1468.50	869476-5
D Sub Receptacles — Ferrite Block and Capacitors					
9	A16008-ND	20.33	438.13	1156.65	869522-5
15	A16009-ND	22.94	494.38	1305.15	869523-5
25	A16010-ND	26.42	569.38	1503.15	869464-5
Shielded Mini Din Receptacles — Ferrite Only, w/Hold Down					
6	A16011-ND	6.03	130.00	343.20	869508-1
8	A16012-ND	6.50	140.00	369.60	869509-1
Shielded Mini Din Receptacles — Ferrite Only, w/o Hold Down					
6	A16013-ND	5.77	124.38	328.35	869504-1
8	A16014-ND	6.26	135.00	356.40	869505-1

AMP

AMPLIMITE® D-Sub Connectors Solder Cup Type-Tin Plated

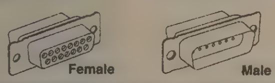
Connector comes complete with pins & sockets.



No. of Pos.	Sex	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
9	Male	A2043-ND	1.89	40.63	120.25	747904-2
9	Female	A2047-ND	2.49	53.75	159.10	747905-2
15	Male	A2044-ND	2.49	53.75	159.10	747908-2
15	Female	A2048-ND	3.36	72.50	214.60	747909-2
25	Male	A2045-ND	3.60	77.50	229.40	747912-2
25	Female	A2049-ND	4.50	96.88	286.75	747913-2
37	Male	A2046-ND	5.25	113.13	334.85	747916-2
37	Female	A2050-ND	6.47	139.38	412.55	747917-2

AMPLIMITE® D-Sub Connectors Zinc & Tin Plated Metal Shell Crimp Type

Pins and Sockets Sold Separately

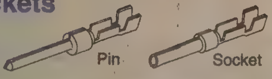


No. of Pos.	Sex	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Crimp Type – Zinc Plated Shell, Uses Crimp Contacts						
9	Male	A1000-ND	1.45	31.25	92.50	205204-1
9	Female	A1001-ND	1.45	31.25	92.50	205203-1
15	Male	A1002-ND	1.48	31.88	94.35	205206-1
15	Female	A1003-ND	1.48	31.88	94.35	205205-1
25	Male	A1004-ND	1.54	33.13	98.05	205208-1
25	Female	A1005-ND	1.54	33.13	98.05	205207-1
37	Male	A1006-ND	1.83	39.38	116.55	205210-1
37	Female	A1007-ND	1.83	39.38	116.55	205209-1
50	Male	A2037-ND	2.23	48.13	142.45	205212-1
50	Female	A2041-ND	2.23	48.13	142.45	205211-1
Crimp Type – Tin Plated Shell, Uses Crimp Contacts						
9	Male	A1030-ND	1.54	33.13	98.05	205204-3
9	Female	A1031-ND	1.45	31.25	92.50	205203-3
15	Male	A1032-ND	1.57	33.75	99.90	205206-2
15	Female	A1033-ND	1.48	31.88	94.35	205205-2
25	Male	A1034-ND	1.62	35.00	103.60	207464-1
25	Female	A1035-ND	1.54	33.13	98.05	207463-1
37	Male	A1036-ND	1.83	39.38	116.55	205210-2
37	Female	A1037-ND	1.83	39.38	116.55	205209-2
50	Male	A2038-ND	2.64	56.88	168.35	205212-2
50	Female	A2042-ND	2.23	48.13	142.45	205211-2
Crimp Type – Tin Plated Shell With Grounding Indents, Uses Crimp Contacts						
9	Male	A1038-ND	1.97	42.50	125.80	205204-4
15	Male	A1039-ND	2.00	43.13	127.65	205206-3
25	Male	A1040-ND	2.06	44.38	131.35	207464-2
37	Male	A1041-ND	2.38	51.25	151.70	205210-3
50	Male	A2039-ND	2.76	59.38	175.75	205212-3

Pins & Sockets

Crimp Type

Pin Diameter: .040

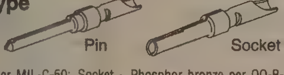


Material: Pin – Brass per MIL-C-50 Socket – Phosphor bronze per QQ-B-750 **Finish:** Gold flash over .000030 nickel **Wire Size Range:** 24-20 AWG

Description	Digi-Key Part No.	Pricing 10	100	500	AMP Part No.
Pin, 24-20 AWG	A1008-ND	2.69	16.55	74.47	1-66506-0
Socket, 24-20 AWG	A1009-ND	2.99	18.39	82.74	1-66504-0
"PRO-CRIMPER II ™" Tool with Dies	A9990-ND	132.00 each			58448-2
Universal Crimp Tool for Pins and Sockets	A9999-ND	39.15 each			601884-1
Pin Insertion/Extraction Tool for Snap-In Contacts	A1010-ND	4.88 each			91067-2

Solder Cup Type

Pin Diameter: .040

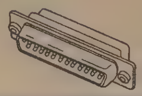


Material: Pin – Brass per MIL-C-50; Socket – Phosphor bronze per QQ-B-750 **Finish:** Gold flash over .000050 (0.00127) nickel on entire contact, with additional .000030 (0.000076) gold on mating end for length of .150 (3.81) min. (pin); .100 (2.54) min. (socket).

Description	Digi-Key Part No.	Pricing 10	100	500	AMP Part No.
Pin 24-20 AWG	A1028-ND	3.52	21.63	97.34	66570-3
Socket 24-20 AWG	A1029-ND	4.23	26.01	117.03	66569-3
A1010-ND	Pin Insertion/Extraction Tool for Snap-In Contacts		**4.88 each**		91067-2

Series 109 Connectors for Crimp, Snap-In Contacts

(Per MIL-C-24308 Qualified Connectors)



Class G steel shell has cadmium plating per ASTM-B633.

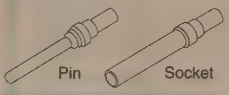
Pins and Sockets Sold Separately
Only use sockets for Series 109 Connectors

No. of Pos.	Sex	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Crimp Type						
9	Male	A2150-ND	5.48	118.13	349.65	205162-1
9	Female	A2155-ND	5.05	108.75	321.90	205161-1
15	Male	A2151-ND	5.86	126.25	373.70	205164-1
15	Female	A2156-ND	5.86	126.25	373.70	205163-1
25	Male	A2152-ND	6.61	142.50	421.80	205166-1
25	Female	A2157-ND	6.61	142.50	421.80	205165-1
37	Male	A2153-ND	8.29	178.75	529.10	205168-1
37	Female	A2158-ND	8.29	178.75	529.10	205167-1
50	Male	A2154-ND	10.79	232.50	688.20	205170-1
50	Female	A2159-ND	10.79	232.50	688.20	205169-1

Screw-Machined Pins & Sockets for Series 109 Connectors

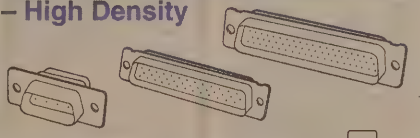
Material:
Pin Body – Copper Alloy.
Socket Body – Beryllium Copper.
Finish: 50μ Gold.
Contact Size: 20 DM.
Pin Diameter: .040.
Test Current:: 7.5 amperes.

Crimp Type Pin Diameter: .040

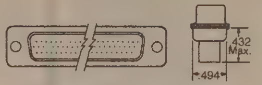


Description	Digi-Key Part No.	Pricing 10	100	500	AMP Part No.
50μ Gold					
Pin (24-20 AWG)	A2160-ND	5.24	32.27	145.22	205089-1
Socket (24-20 AWG)	A2161-ND	8.53	52.47	236.10	205090-1
A9979-ND	Insertion/Extraction Tool for Series 109 D-Sub Crimp Contacts			**9.84 each**	91285-1
A9977-ND	Hand Crimping Tool for Screw-Machined Contacts (20DM)			**341.81 each**	601966-1

AMPLIMITE® D-Sub Connectors – High Density



Pins and Sockets Sold Separately

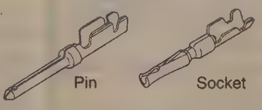


ELECTRICAL CHARACTERISTICS: • **Contact Rating:** 5.0 amperes. • **Dielectric Strength:** 1000 VAC min. • **Insulation Resistance:** 5000 megohms min.
MECHANICAL CHARACTERISTICS: • **Contact Insertion Force:** 3 lb. max. • **Durability:** 000030 gold – 500 cycles; Gold Flash - 100 cycles.

No. of Pos.	Sex	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Crimp Type — Tin Plated Shell, High Density						
15	Male	A2076-ND	4.12	88.75	262.70	748364-1
15	Female	A2081-ND	4.84	104.38	308.95	748565-1
26	Male	A2077-ND	4.67	100 63	297.85	748365-1
26	Female	A2082-ND	5.51	118.75	351.50	748566-1
44	Male	A2078-ND	5.57	120.00	355.20	748366-1
44	Female	A2083-ND	6.41	138.13	408.85	748567-1
62	Male	A2079-ND	6.50	140.00	414 40	748367-1
62	Female	A2084-ND	7.51	161.88	479.15	748568-1
78	Male	A2080-ND	6.70	144.38	427.35	748368-1
78	Female	A2085-ND	7.80	168.13	497.65	748569-1

Pins & Sockets – High Density

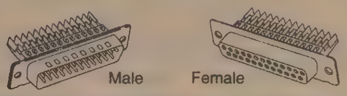
CRIMP TYPE
Pin Diameter: .030



Material: Pin – Brass. **Socket** – Phosphor bronze. **Finish: 30μ Gold** – Duplex plated .000030 gold on mating end, tin-lead on crimp barrel, with entire contact nickel underplated. **Gold Flash** – Duplex plated gold flash on mating end, tin-lead on crimp barrel, with entire contact nickel underplated.

Description	Digi-Key Part No.	Pricing 10	100	500	AMP Part No.
Pin (22-28 AWG), 30μ Gold	A2088-ND	2.09	12.89	58.00	748333-4
Socket (22-28 AWG), 30μ Gold	A2089-ND	2.37	14.58	65.63	748610-4
Pin (22-28 AWG), Gold Flash	A2086-ND	1.80	11.09	49.92	748333-7
Socket (22-28 AWG), Gold Flash	A2090-ND	2.68	16.49	74.19	748610-7
Insertion/Extraction Tool for High Density D-Sub Crimp Contacts	A9979-ND	9.84 each			91285-1
Crimp Tool for High Density D-Sub Pins & Sockets	A2112-ND	416.00 each			90430-1

AMPLIMITE® D-Sub Connectors Discrete Wire Type-Metal Shell



No. of Pos.	Sex	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
Discrete Wire Type — Metal Shell						
9	Male	A1042-ND	3.19	68.75	203.50	745492-2
9	Female	A1043-ND	3.42	73.75	218.30	745491-2
15	Male	A1044-ND	4.15	89.38	264.55	745494-2
15	Female	A1045-ND	4.50	96.88	286.75	745493-2
25	Male	A1046-ND	5.66	121.88	360.75	745496-2
25	Female	A1047-ND	6.32	136.25	403.30	745495-2
37	Male	A1048-ND	7.74	166.88	493.95	745498-2
37	Female	A1049-ND	8.67	186.88	553.15	745497-2
Discrete Wire Type — Plastic Shell						
9	Male	A2000-ND	2.70	58.13	172.05	745203-2
9	Female	A2001-ND	2.90	62.50	185.00	745201-2
15	Male	A2002-ND	3.45	74.38	220.15	745207-2
15	Female	A2003-ND	3.80	81.88	242.35	745205-2
25	Male	A2004-ND	4.79	103.13	305.25	745211-2
25	Female	A2005-ND	5.37	115.63	342.25	745209-2
37	Male	A2006-ND	6.55	141.25	418.10	745215-2
37	Female	A2007-ND	7.48	161.25	477.30	745213-2
A9980-ND	T-Handle Tool for IDC D-Subs			**3.87 each**		91287-1
A2031-ND	Manual Pistol Grip Tool for Metal & All-Plastic Shell Connectors			**55.50 each**		58074-1
A2032-ND	Head Assembly Tool for D-Sub IDC Connectors			**175.56 each**		58063-2
A2033-ND	Contact Extraction Tool for Metal and All-Plastic Shell Connectors			**10.38 each**		91232-1

D-Sub Connectors Right-Angle Stacked

- **Front Shells and Brackets:** Steel, tin plated
- **Housings:** 94V-0 rated thermoplastic, black
- **PC Board:** 94V-0 flame retardant glass/epoxy

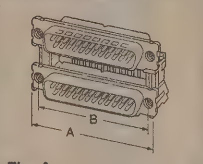


Fig. A

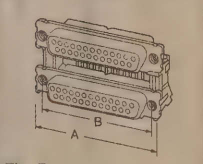


Fig. B

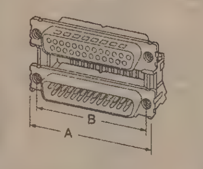


Fig. C

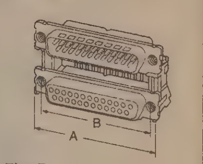


Fig. D

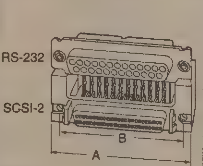
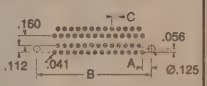


Fig. E

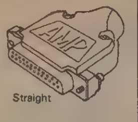


No. of Contact	PC Board Dimensions A	B	C
18	.276	.984	.108
30	.278	1.312	.108
50	.274	1.852	.109
74	.272	2.500	.109

Fig. No.	No. of Contact Positions	Dimensions A	B	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
A	9-9 M-M	1.222	.984	A1584-ND	12.12	261.25	773.30	750593-4
A	15-15 M-M	1.550	1.312	A1585-ND	14.56	313.75	928.70	750595-4
A	37-37 M-M	2.738	2.500	A1587-ND	16.97	365.63	1082.25	750599-4
B	9-9 F-F	1.222	.984	A1580-ND	12.01	258.75	765.90	750585-4
B	15-15 F-F	1.550	1.312	A1581-ND	14.41	310.63	919.45	750587-4
B	25-25 F-F	2.090	1.852	A1582-ND	15.60	336.25	995.30	750589-4
B	37-37 F-F	2.738	2.500	A1583-ND	16.82	362.50	1073.00	750591-4
C	9-9 F-M	1.222	.984	A1588-ND	12.06	260.00	769.60	750609-4
C	25-25 F-M	2.090	1.852	A1590-ND	15.69	338.13	1000.85	750613-4
D	9-9 M-F	1.222	.984	A1592-ND	12.06	260.00	769.60	750603-4
D	15-15 M-F	1.550	1.312	A1593-ND	14.47	311.88	923.15	750605-4
D	25-25 M-F	2.090	1.852	A1594-ND	15.69	338.13	1000.85	750601-4
D	37-37 M-F	2.738	2.500	A1595-ND	16.88	363.75	1076.70	750607-4
E	25-50 F-F	2.090	1.852	A1596-ND	31.32	675.00	1998.00	786387-1

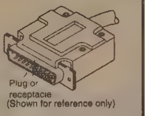
AMP Hoods

A



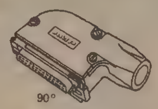
Die Cast Shield: Zinc alloy, plated nickel over copper. **Metal-Plated Plastic Shield:** Thermoplastic, plated nickel over copper. **Plastic Shield:** Thermoplastic, black.

B



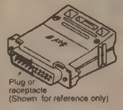
Cable Clamp Housing: Thermoplastic, black with textured finish. **Gates:** Thermoplastic, black. **Flat Head Screws:** Steel, black, zinc plated.

C



90° exit RFI/EMI die cast shields. **Shield:** Zinc alloy, plated nickel over copper.

D



Cable Clamp Housing: Thermoplastic, gray. **4-40 Mounting Screws:** Steel, zinc plated. **Flat 4-40 Housing Screws & Hex Nuts:** Steel, zinc plated.

E

AMP Qwik-Snap Backshell Kit is a one-piece, all-plastic cable clamp kit. **Cover:** Polypropylene, black. **Strain Relief & Retainer Clip:** Stainless steel. **Screws:** Carbon steel, zinc plated.

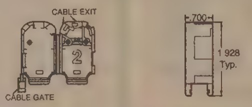
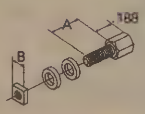


Fig.	No. of Pos.	Max. Cable Dia.	Description (Type)	Digi-Key Part No.	Pricing 1	25	100	500	AMP Part No.
			Die Cast Shell (Hardware Included)						
A	9	.320	Die Cast	A2061-ND†	7.05	151.88	449.55	1701.00	748676-1
	15	.320	Die Cast	A2062-ND†	7.69	165.63	490.25	1855.00	748676-2
	25	.470	Die Cast	A2063-ND†	7.57	163.13	482.85	1827.00	748676-3
	37	.470	Die Cast	A2064-ND†	8.18	176.25	521.70	1974.00	748676-4
	50	.470	Die Cast	A2065-ND†	8.35	180.00	532.80	2016.00	748676-5
			Metal Shell (Must Order Ferrule Separately)						
A	9	.200	Straight	A2008-ND	4.73	105.83	348.60	1618.50	745171-2
	9	.240	Straight	A2009-ND	4.45	99.45	327.60	1521.00	745171-1
	15	.225	Straight	A2012-ND	4 86	108.80	358.40	1664.00	745172-3
	15	.300	Straight	A2013-ND	4.86	108.80	358.40	1664.00	745172-2
	15	.375	Straight	A2014-ND	4.58	102.43	337.40	1566.50	745172-1
	25	.280	Straight	A2020-ND	4.98	111.35	366.80	1703.00	745173-5
	25	.350	Straight	A2021-ND	4.98	111.35	366.80	1703.00	745173-4
	25	.430	Straight	A2022-ND	4.67	104.55	344.40	1599.00	745173-3
	37	.350	Straight	A2028-ND	5.07	113.48	373.80	1735.50	745174-5
	37	.430	Straight	A2029-ND	5,07	113.48	373.80	1735.50	745174-4
	37	.500	Straight	A2030-ND	5.07	113.48	373.80	1735.50	745174-3
C	15	.225	90°	A2015-ND#	8.00	178.93	589.40	2736.50	745652-4
	15	.300	90°	A2016-ND#	8.00	178.93	589.40	2736.50	745652-3
	15	.375	90°	A2017-ND#	8.00	178.93	589.40	2736.50	745652-2
	15	.430	90°	A2036-ND#	8.00	178.93	589.40	2736.50	745652-1
	25	.280	90°	A2023-ND#	9.50	212.50	700.00	3250.00	745653-5
	25	.350	90°	A2024-ND#	9.50	212.50	700.00	3250.00	745653-4
	25	.430	90°	A2025-ND#	9.50	212.50	700.00	3250.00	745653-3
—	—	.200	Ferrule	A2010-ND	.22	4.91	16.18	75.13	745508-2
	—	.225-.240	Ferrule	A2011-ND	.22	4.91	16.18	75.13	745508-3
	—	.280-.300	Ferrule	A2026-ND	.22	4.91	16.18	75.13	745508-4
	—	.350	Ferrule	A2027-ND	.22	4.91	16.18	75.13	745508-5
	—	.370-.375	Ferrule	A2019-ND	.22	4.91	16.18	75.13	745508-6
	—	.430	Ferrule	A2034-ND	.22	4.91	16.18	75.13	745508-1
	—	.480-.500	Ferrule	A2035-ND	.22	4.91	16.18	75.13	745508-8
			Plastic Shell (Hardware Included)						
A	9	.320	Metal Plated	A2066-ND†	4.00	86.25	255 30	966.00	748677-1
	15	.320	Metal Plated	A2067-ND†	4.35	93.75	277.50	1050.00	748677-2
	25	.470	Metal Plated	A2068-ND†	4.32	93.13	275.65	1043.00	748677-3
	37	.470	Metal Plated	A2069-ND†	6.18	133.13	394.05	1491.00	748677-4
	50	.470	Metal Plated	A2070-ND†	7.83	168.75	499.50	1890.00	748677-5
A	9	.320	Straight, Black	A2071-ND†	2.96	63.75	188.70	714.00	748678-1
	15	.320	Straight, Black	A2072-ND†	4.32	93.13	275.65	1043.00	748678-2
	25	.470	Straight, Black	A2073-ND†	3.28	70.63	209.05	791.00	748678-3
	37	.470	Straight, Black	A2074-ND†	3.92	84.38	249.75	945.00	748678-4
	50	.470	Straight, Black	A2075-ND†	3.51	75.63	223.85	847.00	748678-5
B	9	.160	Straight, Black	A9001-ND	1.84	41.83	143.08	654.75	207467-1
	15	.320	Straight, Black	A9002-ND	1.96	44.42	151.93	695.25	207470-1
	25	.390	Straight, Black	A9003-ND	2.00	45.28	154.88	708.75	207345-1
	37	.640	Straight, Black	A9004-ND	2.07	47.01	160.78	735.75	207473-1
	50	.490	Straight, Black	A2060-ND	3.13	67.50	199.80	756.00	207476-1
D	15	.350	Straight, Gray	A2055-ND	3.25	70.00	207.20	784.00	206471-1
	25	.335	Straight, Gray	A2056-ND	3.28	70.63	209.05	791.00	206472-1
	25	.460	Straight, Gray	A2057-ND	3.28	70.63	209.05	791.00	745134-1
	37	.675	Straight, Gray	A2058-ND	3.34	71.88	212.75	805.00	745081-1
	50	.775	Straight, Gray	A2059-ND	3.80	81.88	242.35	917.00	745082-1
E	9	—	Quick-Snap	A2051-ND	1.68	36.25	107.30	406.00	749914-2
	15	—	Quick-Snap	A2052-ND	1.68	36.25	107.30	406.00	749915-2
	25	—	Quick-Snap	A2053-ND	1.71	36.88	109.15	413.00	749626-2
	37	—	Quick-Snap	A2054-ND	1.86	40.00	118.40	448.00	749916-2

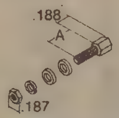
# ETHERNET Slide -locking hood. † Sold as a kit; complete with Ferrule and Grommets.

Accessories (A, B, and C Sold In Packages of 2)

A



B



C

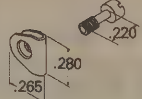


Fig.	Description	Dimensions (In.) A	B	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
A	Female Screw Locks	.250	.250	A9005-ND	1.05	23.72	81.13	207952-1
B		.312	—	A9006-ND	1.05	23.72	81.13	205817-1
		.560	—	A9007-ND	1.14	25.88	88.50	207719-1
C	Male Screw Retainer	For Metal Shell		A9008-ND	.44	9.96	34.06	205980-1
		For Plastic Shell		A1236-ND	.65	14.76	50.48	745647-1

AMP AMPLIMITE® D-Sub Connectors

Fig. A

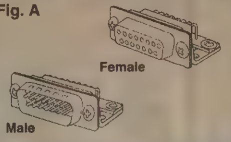


Fig. B

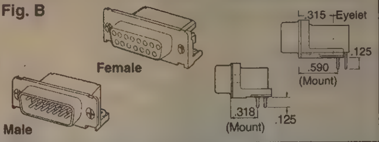
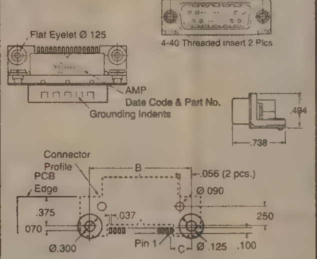


Fig.	No. of Pos.	Sex	Digi-Key Part No.	Pricing 1	25	100	250	500	AMP Part No.
			Right Angle – Zinc Plated Shell						
A	9	Male	A1020-ND	11.03	220.50	732.06	1543.50	2866.50	205865-1
	9	Female	A1021-ND	11.90	238.00	790.16	1666.00	3094.00	205866-1
	15	Male	A1022-ND	12.48	249.50	828.34	1746.50	3243.50	205867-1
	15	Female	A1023-ND	13.48	269.50	894.74	1886.50	3503.50	205868-1
	25	Male	A1024-ND	14.85	297.00	986.04	2079.00	3861.00	205857-1
	25	Female	A1025-ND	16.05	321.00	1065.72	2247.00	4173.00	205858-1
	37	Male	A1026-ND	17.68	353.50	1173.62	2474.50	4595.50	205859-1
	37	Female	A1027-ND	19.05	381.00	1264.92	2667.00	4953.00	205860-1
			Right Angle – Tin Plated, .318 mount						
B	9	Male	A2096-ND	2.43	48.50	161.02	339.50	630.50	747250-4
	9	Female	A2100-ND	2.38	47.50	157.70	332.50	617.50	745781-4
	15	Male	A2097-ND	2.80	56.00	185.92	392.00	728.00	747236-4
	15	Female	A2101-ND	2.78	55.50	184.26	388.50	721.50	745782-4
	25	Male	A2098-ND	3.33	66.50	220.78	465.50	864.50	747238-4
	25	Female	A2102-ND	3.28	65.50	217.46	458.50	851.50	745783-4
	37	Male	A2099-ND	5.78	115.50	383.46	808.50	1501.50	747252-4
	37	Female	A2103-ND	5.73	114.50	380.14	801.50	1488.50	745784-4
			Right Angle – Tin Plated, .590 mount						
B	9	Male	A2104-ND	10.88	217.50	722.10	1522.50	2827.50	745990-4
	9	Female	A2108-ND	10.73	214.50	712.14	1501.50	2788.50	745988-4
	15	Male	A2105-ND	12.45	249.00	826.68	1743.00	3237.00	745986-4
	15	Female	A2109-ND	12.30	246.00	816.72	1722.00	3198.00	745984-4
	25	Male	A2106-ND	14.35	287.00	952.84	2009.00	3731.00	745994-4
	25	Female	A2110-ND	14.23	284.50	944.54	1991.50	3698.50	745992-4
	37	Male	A2107-ND	18.40	368.00	1221.76	2576.00	4784.00	745998-4
	37	Female	A2111-ND	18.28	365.50	1213.46	2558.50	4751.50	745996-4

D-Sub Surface Mount Connectors

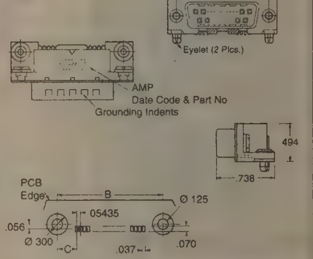
General Specifications: • Right-angle pc board mount connectors with butt-joint board contacts available in 9, 15, 25, and 37 positions • Right-angle pc board mount connectors with gull-wing type board contacts available in 9, 15, and 25 positions • Housings made of U.L 94V-0 rated, high temperature thermoplastic material for vapor-phase and infrared reflow soldering • Recognized under the Component Program of Underwriters Laboratories, Inc. File No. E28476 • Certified by Canadian Standards Association File No. LR8179 • **Front Shell:** Steel, tin plated • **Housing:** 94V-0 rated, high temperature thermoplastic, black

Fig. 1



Right-Angle, Surface-Mount Connectors with Gull-Wing Solder Contacts: • **Contacts:** Phosphor Bronze, duplex plated .000030 min. gold on mating end, .000120 min. tin-lead on solder end, all underplated .000050 min. nickel

Fig. 2

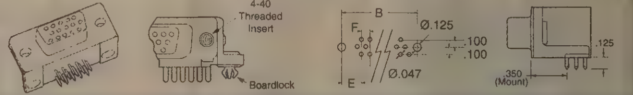


Right-Angle, Surface-Mount Connectors with Butt-Joint Contacts: • **Contacts:** Phosphor Bronze, duplex plated .000030 min. gold on mating end, .000100 min. tin-lead on solder end; all underplated .000050 min. nickel

Fig. No.	Type	No. of Pos.	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
1	Plug	25	2.088	1.852	.2738	A15052-ND	8.58	185.00	547.60	786273-1
2	Plug	15	1.550	1.312	.2755	A15057-ND	8.24	177.50	525.40	787119-1
2	Receptacle	9	1.222	.984	.2746	A15059-ND	6.61	142.50	421.80	786917-1
2	Receptacle	15	1.550	1.312	.2755	A15060-ND	7.86	169.38	501.35	786919-1
2	Receptacle	25	2.090	1.852	.2738	A15061-ND	8.73	188.13	556.85	786642-1

High Density Right Angle D-Sub Connectors

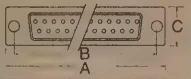
Connector Type: HD-22 **Electrical Characteristics:** **Single Contact Current Rating:** 2.0 amperes. **Dielectric Withstanding Voltage:** 1000 VAC min. **Material and Finish:** **Front Shell** – Steel, tin plated. **Housing** – 94 V-0 rated. **Socket Contacts** – Phosphor bronze. **Contact Finish** – Duplex Plated: .000030 gold mating end, tin-lead on termination end, with entire contact nickel underplated.



No. of Pos.	Sex	Dimensions B	E	F	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
15	Female	.984	.277	.090	A2091-ND	3.13	67.50	199.80	748390-5
26	Female	1.312	.271	.090	A2092-ND	10.03	216.25	640.10	748481-5
44	Female	1.852	.271	.090	A2093-ND	5.92	127.50	377.40	748482-5
62	Female	2.500	.2755	.095	A2094-ND	9.57	206.25	610.50	748394-5

NorComp

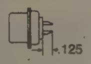
D-Sub Connectors



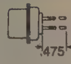
Connector Size	MALE and FEMALE				MALE		FEMALE	
	A	B	C	D	E	F	E	F
9	1.213	.984	.494	.436	.030	235	.030	.243
15	1.541	1.312	.494	.763	.030	.235	.030	.243
25	2.088	1.852	.494	1.308	.039	.220	.030	.233
37	2.729	2.500	.494	1.962	.039	.230	.030	.243
50	2.635	2.406	.605	1.744	.039	.230	.030	243

• Non-removable contacts • Contact current rating: 5 amps. **Materials:** Shells – Steel cadmium with yellow chromate; Glass filled polyester U/L rated 94V-0. Male Contacts – Machined brass. Female Contacts – Machined phosphor bronze on dip solder and wire wrap, stamped phosphor bronze on solder pot. Contact Plating – .000010" gold over .000050" nickel.

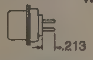
Original D-Subminiature



Solder Cup

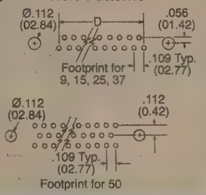


2-Level Wire Wrap



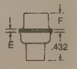
Straight PC Mount

Hole Patterns



No. of Pins	Type	Digi-Key Part No.	Pricing 1	10	100	Norcomp Part No.
Solder Cup Type — W/ Machined Contacts						
9	Male	109M-ND	1.36	12.08	102.68	09P
9	Female	109F-ND	1.65	14.68	124.78	09S
15	Male	115M-ND	1.76	15.62	132.77	15P
15	Female	115F-ND	2.32	20.62	175.27	15S
25	Male	125M-ND	2.36	21.00	178.50	25P
25	Female	125F-ND	3.43	30.48	259.08	25S
37	Male	137M-ND	3.43	30.48	259.08	37P
37	Female	137F-ND	4.76	42.34	359.89	37S
50	Male	150M-ND	3.66	32.50	276.25	50P
50	Female	150F-ND	5.75	51.08	434.18	50S
Solder Cup Type — W/ Stamped Contacts						
9	Male	209M-ND	.49	4.36	37.06	ET09P
9	Female	209F-ND	.52	4.64	39.44	ET09S
15	Male	215M-ND	.71	6.32	53.72	ET15P
15	Female	215F-ND	.88	7.80	66.30	ET15S
25	Male	225M-ND	.83	7.42	63.07	ET25P
25	Female	225F-ND	.98	8.72	74.12	ET25S
37	Male	237M-ND	1.51	13.38	113.73	ET37P
37	Female	237F-ND	1.78	15.80	134.30	ET37S
50	Male	250M-ND	3.16	28.06	238.51	ET50P
50	Female	250F-ND	3.43	30.48	259.08	ET50S
Straight PCB Mount Type						
9	Male	509M-ND	1.34	11.90	101.15	09P1
9	Female	509F-ND	1.94	17.28	146.88	09S1
15	Male	515M-ND	1.71	15.22	129.37	15P1
15	Female	515F-ND	2.72	24.16	205.36	15S1
25	Male	525M-ND	2.30	20.44	173.74	25P1
25	Female	525F-ND	3.64	32.32	274.72	25S1
37	Male	537M-ND	3.53	31.38	266.73	37P1
37	Female	537F-ND	5.24	46.62	396.27	37S1
50	Male	550M-ND	4.12	36.60	311.10	50P1
50	Female	550F-ND	7.04	62.60	532.10	50S1
Wire Wrap Type						
9	Male	609M-ND	1.94	17.28	146.88	09P4
9	Female	609F-ND	2.45	21.74	184.79	09S4
15	Male	615M-ND	2.86	25.46	216.41	15P4
15	Female	615F-ND	3.66	32.50	276.25	15S4
25	Male	625M-ND	4.16	37.02	314.67	25P4
25	Female	625F-ND	5.64	50.16	426.36	25S4
37	Male	637M-ND	6.25	55.54	472.09	37P4
37	Female	637F-ND	8.19	72.82	618.97	37S4
50	Male	650M-ND	8.00	71.14	604.69	50P4
50	Female	650F-ND	10.76	95.66	813.11	50S4

Crimp D-Subminiature



• Reliable crimp snap-in contacts feature insulation grip for increased holding power; • Nylon insulator has minimum contact retention of 10 lbs.; • Gonnector shells available with bright tin finish for EMI/RFI shielding; • Contacts compatible with industry standard crimp tools; • Contact current rating: 5 amps. **Materials:** Shell — Steel cadmium with bright tin plating; Insulator — Glass filled thermoplastic. U/L Rated 94V-0; Male Contact — Brass; Female Contact — Phosphor Bronze.

Snap-In Contacts For Crimp Type Connectors

• **Contacts — Stamped** For 20-26 AWG dia. • **Pin Diameter:** .040
• **Finish:** .0000100" gold over .000050" nickel pin

No. of Pins	Type	Digi-Key Part No.	Pricing 1	10	100	Norcomp Part No.
Crimp D-Sub Standard Type – Uses Snap-In Crimp Contacts						
9	Male	709M-ND	.52	4.64	39.44	T09P7
9	Female	709F-ND	.52	4.64	39.44	T09S7
15	Male	715M-ND	.61	5.38	45.73	T15P7
15	Female	715F-ND	.67	5.94	50.49	T15S7
25	Male	725M-ND	.61	5.38	45.73	T25P7
25	Female	725F-ND	.65	5.76	48.96	T25S7
37	Male	737M-ND	1.19	10.60	90.10	T37P7
37	Female	737F-ND	1.17	10.40	88.40	T37S7
50	Male	750M-ND	1.61	14.32	121.72	T50P7
50	Female	750F-ND	1.23	10.96	93.16	T50S7
—	Pin	82P-ND	—	.46	3 91	C20P
—	Socket	82S-ND	—	.48	4.08	C20S
—	Pin	82PSF-ND*	—	.38	3.23	C20P-SF
—	Socket	82SSF-ND*	—	.38	3.23	C20S-SF
Crimp Tool		A9999-ND	39.15 each			601884-1
Insertion/Removal Tool		T1010-ND	2.76 each			EXT-01

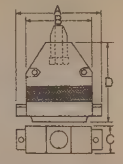
*Pins and Sockets are selectively gold plated

NorComp

D-Sub Backshells

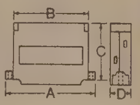
MSH Series — Die-Cast Zinc Hood: • Conductive rubber grommet/strain relief for complete EMI/RFI shielding (over 70db). • Solid die-cast ZINC construction. • Supplied complete with rubber grommet kit and male screw locks.

Connector Size	A	B	C	D	Max. Cable Dia.
9	1.22	.79	.63	1.9	.42
15	1.55	1.11	.63	1.9	.42
25	2.10	1.64	.63	1.9	.42
37	2.73	2.27	.63	1.9	.43



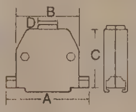
TT Series — Plain Plasitc or Fiber Plastic Hoods: • May be used as a "Gender Changer", pin-out changer, or standard backshell • Snap-together assembly • Half-clamp with self-tapping screws provides positive strain-relief • Available in plain plastic or metalized for EMI/RFI shielding

Connector Size	A	B	C	D	Max. Cable Dia.
9	1.28	.80	1.77	.65	.27
15	1.63	1.13	1.77	.65	.47
25	2.10	1.67	1.77	.65	.47
37	2.79	2.32	1.77	.54	.47
50	2.64	2.22	1.77	.75	.75



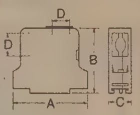
GPH Series — Plastic or Metalized Hoods: • Available in both plain plastic and metalized for EMI/RFI suppression • Over 60 dB shielding • Materials: Shell – Thermoplastic polyester; U/L rated 94V-0; Screw locks – brass; EMI/RFI plating – Electroplated with nickel over copper

Connector Size	A	B	C	D	Max. Cable Dia.
9	1.21	.81	1.50	.61	.334
15	1.65	1.09	1.34	.46	.40
25	2.16	1.65	1.61	.51	.435
37	2.74	2.28	2.00	.66	.55
50	2.73	2.14	1.76	.70	.61



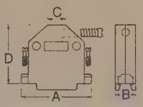
UHD Series — Plastic or Metalized Hoods: • Cable Exit Top or Side • Available in both plain plastic and metalized for EMI/RFI suppression • Over 60 dB shielding • Materials: Shell: Thermoplastic polyester; U/L rated 94V-0; Screw locks – brass; EMI/RFI plating – Electroplated with nickel over copper. Electroplated parts not U/L rated; • Operating Temperature: -35°C to +95°C
**UHD9 Does not have a side cable exit.*

Connector Size	A	B	C	D
9*	1.23	1.38	.630	.350
15	1.56	1.610	.630	.374
25	2.10	1.81	.630	.444
37	2.74	1.81	.630	.444
50	2.65	1.81	.735	.543



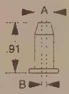
TCH Series — Plastic or Metalized Hoods: • Available in both plain plastic and metalized for EMI/RFI suppression • Over 60 dB shielding • EMI/RFI Plating - Electroplated with nickel over copper • Materials: Shell – Thermoplastic polyester; U/L rated 94V-0; Screw locks – brass

Connector Size	A	B	C	D
9	1.21	.620	.250	1.585
15	1.55	.620	.335	1.585
25	2.09	.620	.375	1.750
37	2.74	.620	.375	1.750
50	2.64	.731	.450	1.750



Conductive Rubber Grommet Sets: For better EMI/RFI Shielding and/or strain relief. For use with D-Sub Backshells. * Note: Grom-9/25 & Grom-50 have four grommets per set & Grom-37 has three per set.

Outside Dia. A		Inside Dia. B			
901G-ND	.40	.200	.260	.310	.36
902G-ND*	.60	.33	.42	.49	—
903G-ND	.73	.340	.425	.495	.65



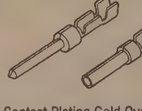
Series	Description	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Norcomp Part No.
Die-Case Zinc Hoods								
MSH Series	9-Pin Hood	909Z-ND	2.00	17.82	151.47	645.98	1113.75	MSH09
	15-Pin Hood	915Z-ND	2.34	20.80	176.80	754.00	1300.00	MSH15
	25-Pin Hood	925Z-ND	3.03	26.94	228.99	976.58	1683.75	MSH25
	37-Pin Hood	937Z-ND	4.10	36.40	309.40	1319.50	2275.00	MSH37
Shielded Fiber Plastic Hoods (for EMI/RFI)								
TT Series	9-Pin Hood	909M-ND	1.34	11.90	101.15	431.38	743.75	TT09NA
	15-Pin Hood	915M-ND	1.82	16.16	137.36	585.80	1010.00	TT15NA
	25-Pin Hood	925M-ND	1.80	15.98	135.83	579.28	998.75	TT25NA
	37-Pin Hood	937M-ND	2.97	26.36	224.06	955.55	1647.50	TT37NA
	50-Pin Hood	950M-ND	3.09	27.48	233.58	996.15	1717.50	TT50NA
Plain Plastic Hoods								
TT Series	9-Pin Hood	909P-ND	.88	7.80	66.30	282.75	487.50	TT09G
	15-Pin Hood	915P-ND	1.00	8.86	75.31	321.18	553.75	TT15G
	25-Pin Hood	925P-ND	1.05	9.30	79.05	337.13	581.25	TT25G
	37-Pin Hood	937P-ND	1.86	16.52	140.42	598.85	1032.50	TT37G
	50-Pin Hood	950P-ND	2.00	17.82	151.47	645.98	1113.75	TT50G
Shielded Metalized Plastic Hoods (for EMI/RFI)								
GPH Series	9-Pin Hood	909GM-ND	.56	5.02	42.67	181.98	313.75	GPH-09A
	15-Pin Hood	915GM-ND	.69	6.14	52.19	222.58	383.75	GPH-15A
	25-Pin Hood	925GM-ND	.69	6.14	52.19	222.58	383.75	GPH-25A
	37-Pin Hood	937GM-ND	1.73	15.40	130.90	558.25	962.50	GPH-37A
	50-Pin Hood	950GM-ND	1.36	12.08	102.68	437.90	755.00	GPH-50A
Plain Plastic Hoods								
GPH Series	9-Pin Hood	909GP-ND	.42	3.72	31.62	134.85	232.50	GPH-09
	15-Pin Hood	915GP-ND	.52	4.64	39.44	168.20	290.00	GPH-15
	25-Pin Hood	925GP-ND	.50	4.46	37.91	161.68	278.75	GPH-25
	37-Pin Hood	937GP-ND	.77	6.88	58.48	249.40	430.00	GPH-37
	50-Pin Hood	950GP-ND	.83	7.42	63.07	268.98	463.75	GPH-50
Unshielded Hoods								
UHD Series	9-Pin Hood	909U-ND*	2.63	23.40	198.90	848.25	1462.50	UHD-09
	15-Pin Hood	915U-ND	2.63	23.40	198.90	848.25	1462.50	UHD-15
	25-Pin Hood	925U-ND	2.84	25.26	214.71	915.68	1578.75	UHD-25
	37-Pin Hood	937U-ND	3.32	29.54	251.09	1070.83	1846.25	UHD-37
	50-Pin Hood	950U-ND	3.97	35.30	300.05	1279.63	2206.25	UHD-50
Shielded Hoods								
UHD Series	9-Pin Hood	909UA-ND*	4.95	44.04	374.34	1596.45	2752.50	UHD-09A
	15-Pin Hood	915UA-ND	5.00	44.40	377.40	1609.50	2775.00	UHD-15A
	25-Pin Hood	925UA-ND	5.37	47.74	405.79	1730.58	2983.75	UHD-25A
	37-Pin Hood	937UA-ND	6.25	55.54	472.09	2013.33	3471.25	UHD-37A
	50-Pin Hood	950UA-ND	6.85	60.92	517.82	2208.35	3807.50	UHD-50A
Unshielded Hoods								
TCH Series	9-Pin Hood	909C-ND	.86	7.62	64.77	276.23	476.25	TCH-09
	15-Pin Hood	915C-ND	.92	8.18	69.53	296.53	511.25	TCH-15
	25-Pin Hood	925C-ND	.96	8.54	72.59	309.58	533.75	TCH-25
	37-Pin Hood	937C-ND	1.34	11.90	101.15	431.38	743.75	TCH-37
	50-Pin Hood	950C-ND	1.36	12.08	102.68	437.90	755.00	TCH-50
Shielded Hoods								
TCH Series	9-Pin Hood	909CA-ND	1.02	9.10	77.35	329.88	568.75	TCH-09A
	15-Pin Hood	915CA-ND	1.19	10.60	90.10	384.25	662.50	TCH-15A
	25-Pin Hood	925CA-ND	1.24	11.06	94.01	400.93	691.25	TCH-25A
Conductive Rubber Grommet Sets								
Grommet Sets	DB 9/25 Grom. Set	901G-ND	1.53/5	6.80/25	23.12	98.60	170.00	MSH-GROMMETS
	DB 37 Grom. Set	902G-ND	4.11/5	18.25/25	62.05	264.63	456.25	MSH-GROM-37
	DB 50 Grom. Set	903G-ND	3.76/5	16.70/25	56.78	242.15	417.50	MSH-GROM-50
Ethernet Hoods — 15-Pin Hoods								
ENH Series	Rt. Angle	915ER-ND	3.38	30.08	255.68	1090.40	1880.00	ENH-15R
	Straight	915ES-ND	3.11	27.66	235.11	1002.68	1728.75	ENH-15

NorComp High Density D-Sub Connectors

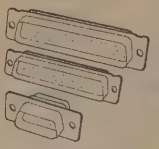
• Compatible with new generation systems from several computer manufacturers. • Shells have bright tin finish for EMI/RFI sheilding. • Male connector shells have grounding indents. • Reliable crimp snap-in contacts feature insulation grip for increased holding power. • Contacts compatible with industry standard crimp tools.

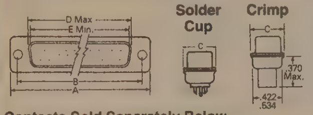
Materials: Shell - Steel, with bright tin over nickel. Insulator- Glass-filled thermoplastic, U/L rated 94V-0. Male Pin - Brass. Female Contact - Phosphor bronze.

Stamped Contacts For High Density D-Sub Connectors Pin Dia: .030"



Contact Plating Gold Over Nickel; For Wire Size: 22-26 AWG.





Contacts Sold Separately Below

No. of Pins	Shell Size	A	B	C	D MAX. (female)	E MIN. (male)
15	DB-9	1.213	.984	.494	.643	666
26	DB-15	1.541	1.312	.494	.971	.994
44	DB-25	2.088	1.852	494	1.511	1.534
62	DB-37	2.729	2.500	.494	2.159	2 182
78	DB-50	2.635	2.406	.605	2.064	2.079

No. of Pins	Type	Digi-Key Part No.	Pricing 1	10	100	500	1,000	NorComp Part No.
Crimp								
15	Male	815M-ND	1.49	13.20	112.20	478.50	825.00	HDT15P7
15	Female	815F-ND	1.49	13.20	112.20	478.50	825.00	HDT15S7
26	Male	826M-ND	4.58	40.68	345.78	1474.65	2542.50	HDT26P7
26	Female	826F-ND	4.96	44.08	374.68	1597.90	2755.00	HDT26S7
44	Male	844M-ND	5.12	45.52	386.92	1650.10	2845.00	HDT44P7
44	Female	844F-ND	5.12	45.52	386.92	1650.10	2845.00	HDT44S7
62	Male	862M-ND	6.48	57.60	489.60	2088 00	3600.00	HDT62P7
62	Female	862F-ND	6.48	57.60	489 60	2088.00	3600.00	HDT62S7
78	Male	878M-ND	12.14	107.92	917.32	3912.10	6745.00	HDT78P7
78	Female	878F-ND	8.32	73.94	628.49	2680.33	4621.25	HDT78S7
—	Pin	85P-ND	—	.44	3.74	15.95	27.50	HDC22P
—	Socket	85S-ND	—	.50	4.25	18.13	31.25	HDC22S
Solder Cup								
15	Male	T815M-ND	1.65	14.68	124.78	532.15	917.50	HDT15P
15	Female	T815F-ND	1.90	16.90	143.65	612 63	1056.25	HDT15S
26	Male	T826M-ND	5.37	47.74	405 79	1730.58	2983 75	HDT26P
26	Female	T826F-ND	5.70	50.70	430.95	1837.88	3168 75	HDT26S
44	Male	T844M-ND	6.48	57.60	489.60	2088.00	3600.00	HDT44P
44	Female	T844F-ND	7.50	66.68	566.78	2417.15	4167.50	HDT44S
62	Male	T862M-ND	8.07	71.70	609.45	2599.13	4481.25	HDT62P
62	Female	T862F-ND	9.11	80.98	688.33	2935.53	5061.25	HDT62S

A9999-ND Crimp Tool .... **$39.15 each**
T2020-ND Insertion/Removal Tool .... **$2.88 each**

NorComp Parallel Interface Connectors (Centronics Type)

Material: Insulator — Glass filled thermoplastic, U/L rated 94V-0. Shell — Nickel plated steel. Contacts — Copper alloy, .000010" gold over .000030" nickel.

Male Cable Plug (Fig. A): • Compatible with industry standard • Solder eyelets accept 24 AWG wire • Complete with cable boot, shell & hardware

Female Cable Receptacle (Fig. B): • Compatible with industry standard • Complete with spring latches and cable boot • Solder eyelets accept 24 AWG wire • Can be used as panel mount

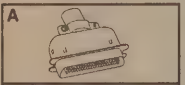
Panel Mount Male Plug (Fig. C): • 0.103 Mounting hole accepts #3 screw (not included) • Compatible with industry standard • Solder eyelets accept 24 awg wire • Insulator color: Blue

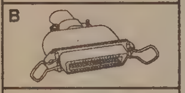
Panel Mount Female Receptacle (Fig. D): • Compatible with industry standard • Complete with spring latches • Solder eyelets accept 24 awg wire • Insulator color: Blue

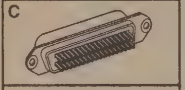
Straight DIP Solder (Fig. E): • For standard .062" PC mount • Latch locks standard • Insulator color: Blue

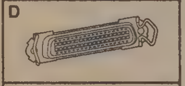
Right Angle PCB Mount (Fig. F): • Compatible with industry standard • Metal shell for EMI/RFI shielding • Insulator color: Blue

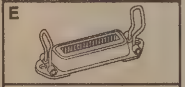
Discrete Wire IDC Solderless (Fig. G): • Compatible with standard terminating tools • Quick solderless termination for #24 or 26 AWG • Insulator color: Gray

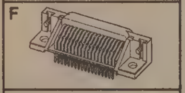
A


B


C


D


E


F


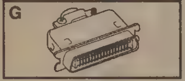
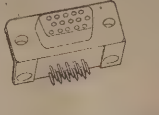
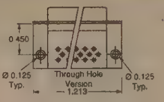
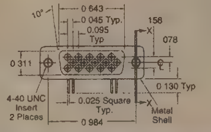
G


Fig. No.	No. of Contacts	Type	Digi-Key Part No.	Pricing 1	10	100	NorComp Part No.
A	14	Male	T1501-ND	2.63	23.40	198.90	TT57-30140
A	24	Male	T1502-ND	3.18	28.24	240.04	TT57-30240
A	36	Male	T1503-ND	2.76	24.52	208.42	TT57-30360
A	50	Male	T1504-ND	4.89	43.46	369.41	TT57-30500
B	14	Female	T1507-ND	2 80	24.88	211 48	TT57-60140
B	24	Female	T1508-ND	3.45	30.66	260.61	TT57-60240
B	36	Female	T1509-ND	3.62	32.14	273.19	TT57-60360
B	50	Female	T1510-ND	5.43	48.30	410.55	TT57-60500
C	14	Male	1014M-ND	1.94	17.28	146.88	TT57-10140
C	24	Male	1024M-ND	2.09	18.58	157.93	TT57-10240
C	36	Male	1036M-ND	2.03	18.02	153.17	TT57-10360
C	50	Male	1050M-ND	3.07	27.30	232.05	TT57-10500
D	14	Female	1014F-ND	2.05	18.20	154.70	TT57-40140
D	24	Female	1024F-ND	2.17	19.32	164.22	TT57-40240
D	36	Female	1036F-ND	2.36	21.00	178.50	TT57-40360
D	50	Female	1050F-ND	3.83	34.00	289.00	TT57-40500
E	14	Male	1014PM-ND	2.31	20.50	174.25	TT57-10140-8
E	24	Male	1024PM-ND	3.51	31.20	265.20	TT57-10240-9
E	36	Male	1036PM-ND	3.78	33.64	285.94	TT57-10360-12
E	50	Male	1050PM-ND	3.67	32.66	277.61	TT57-10500-9
E	14	Female	1014PF-ND	2.13	18.94	160.99	TT57-40140-8
E	24	Female	1024PF-ND	2.31	20.50	174.25	TT57-40240-9
E	36	Female	1036PF-ND	3.40	30.18	256.53	TT57-40360-12
E	50	Female	1050PF-ND	5.26	46.78	397.63	TT57-40500-9
F	14	Male	1014RM-ND	2.47	21.92	186.32	TT57-LE30140
F	24	Male	1024RM-ND	2.78	24.70	209.95	TT57-LE30240
F	36	Male	1036RM-ND	4.12	36.60	311.10	TT57-LE30360
F	50	Male	1050RM-ND	4.95	44.04	374.34	TT57-LE30500
F	14	Female	1014RF-ND	2.86	25.46	216.41	TT57-LE40140
F	24	Female	1024RF-ND	2.84	25.26	214.71	TT57-LE40240
F	36	Female	1036RF-ND	3.62	32.14	273.19	TT57-LE40360
F	50	Female	1050RF-ND	5.18	46.06	391.51	TT57-LE40500
G	36	Male	1036CM-ND	3.70	32.88	279.48	TT157-30360
G	50	Male	1050CM-ND	5.29	47.00	399.50	TT157-30500
G	36	Female	1036CF-ND	3.31	29.42	250.07	TT157-60360
G	50	Female	1050CF-ND	5.39	47.88	406.98	TT157-60500

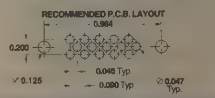
NorComp High Density 90° PC Mount D-Sub Connector







Specifications: • **Contact Rating:** 5 Amps • **Dielectric Strength:** 1000V AC RMS • **Insulation Resistance:** 1000 meg ohms • **Contact Material:** Phonsphor Bronze • **Contact Finish:** Gold over Nickel • **Operating Temperature:** -55C to 150C • **Shell Material:** Steel, Tin Plated • **Insulations Material:** Glass-Filled Polyester (UL 94V-0) • **Gender:** Receptacle (female)

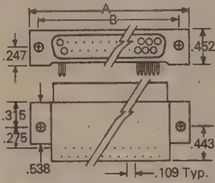


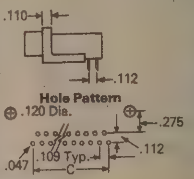
No. of Pins	Type	Digi-Key Part No.	Pricing 1	10	100	500	1,000	NorComp Part No.
15	Female	815RF-ND	2.26	20.06	170.51	727.18	1253.75	4740-15-42-P1
26	Female	826RF-ND	6.55	58.26	495.21	2111.93	3641.25	4740-26-42-P1
44	Female	844RF-ND	7.09	62.98	535.33	2283.03	3936.25	4740-44-42-P1
62	Female	862RF-ND	9.45	83.96	713.66	3043.55	5247.50	4740-62-42-P1

Right Angle Type

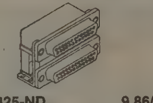
• Metal front shell has grounding strap for terminating ground to PCB
• Contact current rating: 5 amps

Insulator — Glass filled polyester; U/L rated 94V-0; Color — Black; Contacts — Alloy CA 725 cupronickel; Contact plating — .000015" gold on mating end; .000050" nickel underplate.





Dual-Port D-Sub Connector



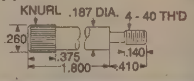
T2325-ND **9.86/1; 87.68/10; 745.28/100**

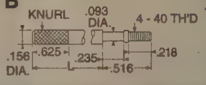
Conn. Size	A	B	C
9	1.228	.984	.436
15	1 556	1.312	.763
25	2.100	1.852	1.308
37	2.742	2.500	1.962

No. of Pins	Type	Digi-Key Part No.	Pricing 1	10	100	500	1,000	NorComp Part No.
Plastic Right Angle Type — Shielded (Metal Face on plastic connector)								
9	Male	309M-ND	2.77	24.66	209.61	893.93	1541.25	P09P-21
9	Female	309F-ND	2.60	23.14	196.69	838.83	1446.25	P09S-21
15	Male	315M-ND	3.26	29.02	246.67	1051.98	1813.75	P15P-21
15	Female	315F-ND	3.07	27.30	232.05	989.63	1706.25	P15S-21
25	Male	325M-ND	3.97	35.28	299.88	1278.90	2205.00	P25P-21
25	Female	325F-ND	3.53	31.34	266.39	1136.08	1958.75	P25S-21
37	Male	337M-ND	5.20	46.18	392.53	1674.03	2886.25	P37P-21
37	Female	337F-ND	4.24	37.72	320.62	1367.35	2357.50	P37S-21
Plastic Right Angle Type — Unshielded								
9	Male	409M-ND	2.31	20.50	174.25	743.13	1281.25	P09P-02
9	Female	409F-ND	2.60	23.08	196.18	836.65	1442.50	P09S-02
15	Male	415M-ND	2.82	25.10	213.35	909.88	1568.75	P15P-02
15	Female	415F-ND	2.69	23.94	203.49	867.83	1496.25	P15S-02
25	Male	425M-ND	3.63	32.30	274.55	1170.88	2018.75	P25P-02
25	Female	425F-ND	2.95	26.20	222.70	949.75	1637.50	P25S-02
37	Male	437M-ND	4.45	39.56	336.26	1434.05	2472.50	P37P-02
37	Female	437F-ND	3.97	35.26	299.71	1278.18	2203.75	P37S-02

KEYSTONE Connector Hardware

Material: Steel, Zinc Plate and Gold Iridite.
2 Pieces Required Per Connector.

A


B


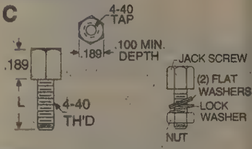
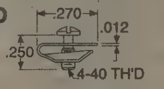
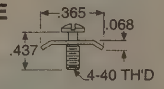
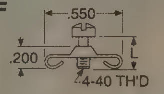
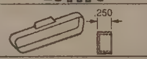
C


Fig.	"L"	Digi-Key Part No.	Pricing 2	10
Jack Screws				
A	—	2073K-ND	5.32	23.94
B	1.250	2069K-ND	4.11	18.50
B	1.750	2071K-ND	4.32	19.46
C	.250	7229K-ND	.81	3.63
C	.312	7231K-ND	.66	2.95
C	.625	7233K-ND	1.44	6.49
"U" Clip				
D	—	2062K-ND	.79	3.54
Saddle Washer				
E	—	2063K-ND	.89	3.98
"Bow Tie" Retaining Clip				
F	4-40x1/4	2060K-ND	.98	4.43
F	4-40x9/32	2061K-ND	1.08	4.87

D


E


F


	Slide Lock Posts **15Pin, D-Sub, or Ethernet**	**T2040-ND** .... **$1.00 each**
	Slide Lock Posts **(2 connectors required)**	**T2042-ND** .... **$1.04 set**
 .250	**9 Pos D-Sub Dust Cover** **15 Pos D-Sub Dust Cover** **25 Pos D-Sub Dust Cover**	**909DC-ND•** .... **$.21 each** **915DC-ND•** .... **$.21 each** **925DC-ND•** .... **$.23 each**

• D-Sub Dust Cover's to be used with female D-Subs only.

HRS HIROSE ELECTRIC CO.,LTD.

“TM” Modular Connectors

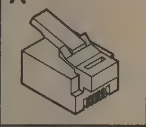
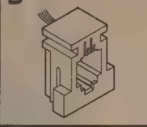
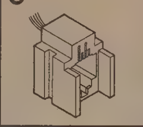
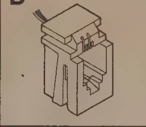
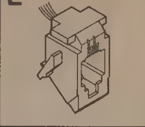
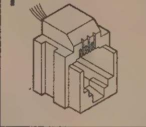
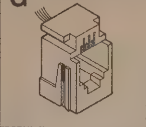
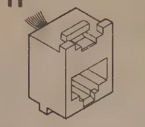
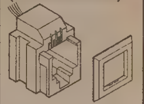
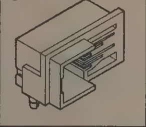
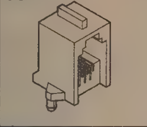
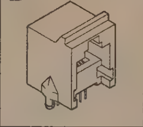
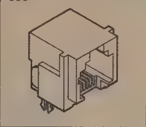
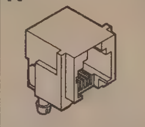
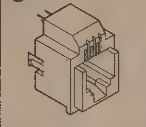
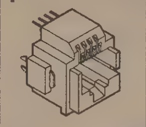
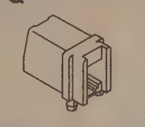
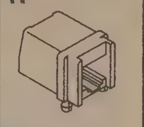
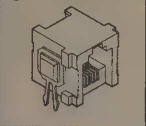
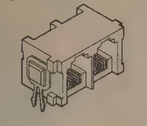
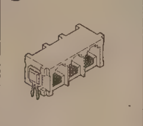
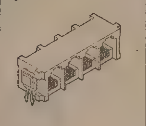
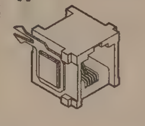
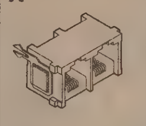
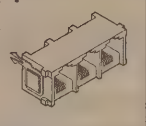
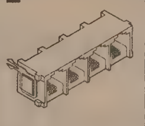
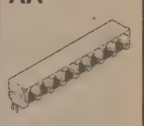
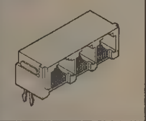
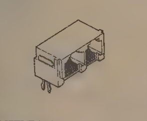
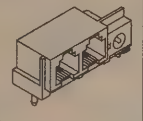
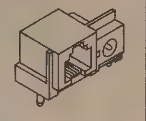
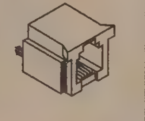
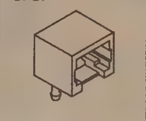
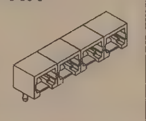
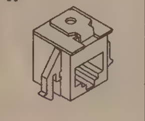
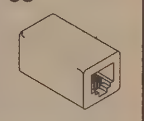
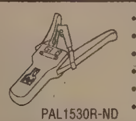
A

B

C

D

E

F

G

H

I (Bezel Included)

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

AA

BB

CC

DD

EE

FF

GG

HH

II

JJ


Diagram	Positions-Contacts	Description	Dimensions (mm) W	H	D	Digi-Key Part No.	Pricing 1	10	100	Hirose Part No.
Plugs (for IDC Termination with Flat Line Cord)										
A	4-4	Plugs	7.7	6.6	13.4	H9091-ND	.77	7.20	66.00	TM3P-44P
A	6-4	Plugs	9.7	6.6	13.4	H9092-ND	.77	7.20	66.00	TM3P-64P
A	6-6	Plugs	9.7	6.6	13.4	H9093-ND	.93	8.70	79.75	TM3P-66P
A	8-8	Plugs	11.7	6.6	22.5	H9094-ND	1.57	14.70	134.75	TM8P-88P
Receptacles — Jack with 6" Wire Leads — Color: Gray										
B	4-4	Jack - w/6" leads	17.5	20.5	10.2	H9001-ND	2.30	21.60	198.00	TM1R-616B44-35S-150
C	4-4	Jack - w/6" leads	12.4	17.4	14.3	H9002-ND	2.30	21.60	198.00	TM1R-616M44-35S-150
D	4-4	Jack - w/6" leads	12.4	21.3	12.5	H9003-ND	2.30	21.60	198.00	TM1R-616P44-35S-150
E	4-4	Jack - w/6" leads	15.3	20.5	10.2	H9018-ND	3.65	34.20	313.50	TM1R-616W44-4S-150
F	6-4	Jack - w/6" leads	14.9	18.3	13.7	H9011-ND	2.30	21.60	198.00	TM1R-623K64-35S-150
F	6-4	Jack - w/6" leads	14.9	18.3	13.7	H9009-ND*	2.02	18.90	173.25	TM1RV-623K64-35S-150
G	6-4	Jack - w/6" leads	14.9	18.3	13.7	H9013-ND	2.34	21.90	200.75	TM1R-623P64-35S-150
G	6-4	Jack - w/6" leads	14.9	18.3	13.7	H9010-ND*	2.34	21.90	200.75	TM1RV-623P64-35S-150
F	6-6	Jack - w/6" leads	13.8	21.4	12.5	H9015-ND*	2.46	23.10	211.75	TM1RV-623K66-35S-150
G	6-6	Jack - w/6" leads	13.8	21.4	12.5	H9016-ND*	2.98	27.90	255.75	TM1RV-623K66-35S-150
H	8-8	Jack - w/6" leads	16.0	18.4	12.5	H9021-ND*	7.97	74.70	684.75	TM1RV-647A88-35S-150
Receptacles — Panel Mount with 6" Wire Leads (Bezel Included) — Color: Brown										
I	6-2	Jack - w/6" leads	14.9	18.3	13.7	H9061-ND	2.66	24.90	228.25	TM2RG-L62-5S-150
I	6-4	Jack - w/6" leads	14.9	18.3	13.7	H9062-ND	3.39	31.80	291.50	TM2RG-L64-5S-150
I	6-6	Jack - w/6" leads	14.9	18.3	13.7	H9063-ND	3.90	36.60	335.50	TM2RG-L66-5S-150
Receptacles — Jack P.C. Board Mount — Color: Gray										
J	4-4	Jack - PC Mount	20.0	11.0	10.5	H9031-ND	2.05	19.20	176.00	TM5RF-44
J	6-4	Jack - PC Mount	24.6	13.0	14.0	H9032-ND	2.43	22.80	209.00	TM5RF-64
J	6-6	Jack - PC Mount	24.6	13.0	14.0	H9033-ND	2.59	24.30	222.75	TM5RF-66
K	4-4	Jack - PC Mount	18.0	18.6	14.3	H9041-ND	2.02	18.90	173.25	TM5RC-44
K	6-4	Jack - PC Mount	18.0	21.1	14.3	H9042-ND	2.11	19.80	181.50	TM5RC-64(01)
K	6-6	Jack - PC Mount	18.0	21.1	14.3	H9043-ND	2.46	23.10	211.75	TM5RC-66(01)
L	8-8	Jack - PC Mount	18.1	21.2	17.5	H9044-ND	3.78	35.40	324.50	TM5RC-88(01)
M	4-4	Jack - PC Mount	12.8	14.0	14.0	H9081-ND	2.05	19.20	176.00	TM5RJ3-44
M	6-4	Jack - PC Mount	14.8	14.0	14.0	H9082-ND	2.14	20.10	184.25	TM5RJ1-64
M	6-6	Jack - PC Mount	14.8	14.0	14.0	H9083-ND	2.50	23.40	214.50	TM5RJ1-66
M	8-8	Jack (Keyed)	19.2	14.0	16.0	H9084-ND	3.42	32.10	294.25	TM5RJ1-88
N	8-8	Receptacle (Keyed)	19.2	14.0	16.0	H9085-ND	3.20	30.00	275.00	TM5RJ-88
N	6-4	Jack - PC Mount	14.8	14.0	14.0	H9126-ND	2.21	20.70	189.75	TM5RJ2-64
N	6-6	Jack - PC Mount	14.8	14.0	14.0	H9127-ND	2.69	25.20	231.00	TM5RJ2-66
N	8-8	Jack (Keyed)	18.6	14.0	14.0	H9128-ND	4.16	39.00	357.50	TM5RJ2-88
Q	6-2	Jack - PC Mount	13.0	14.5	18.0	H9122-ND	1.89	17.70	162.25	TM5RE1-62(50)
Q	4-4	Jack - PC Mount	13.0	14.5	18.0	H9123-ND	2.30	21.60	198.00	TM5RE1-44
Q	6-4	Jack - PC Mount	15.0	14.5	18.0	H9124-ND	2.34	21.90	200.75	TM5RE1-64
R	6-6	Jack - PC Mount	15.0	14.5	18.0	H9125-ND	2.75	25.80	236.50	TM5RE1-66
Receptacles — Top Entry P.C. Board Mount — Color: White										
O	4-4	Jack - Low Profile	12.9	18.3	15.0	H9071-ND	2.34	21.90	200.75	TM3RA-44
O	6-4	Jack - Low Profile	14.9	18.3	15.0	H9072-ND	2.34	21.90	200.75	TM3RA-64
O	6-6	Jack - Low Profile	14.9	18.3	15.0	H9073-ND	2.85	26.70	244.75	TM3RA-66
P	8-8	Jack - Low Profile	16.9	18.3	15.0	H9074-ND	4.03	37.80	346.50	TM3RA-88
Receptacles — P.C. Board Mount With Tin Hold-Down Tabs — Color: Gray										
J	4-4	PC Mount	20.0	11.0	10.5	H9034-ND	2.30	21.60	198.00	TM5RF1-44
S	6-2	PC Mount	18.0	15.4	16.0	H9064-ND	3.17	29.70	272.25	TM2REA-0602
S	6-4	PC Mount	18.0	15.4	16.0	H9057-ND	3.55	33.30	305.25	TM2REA-0604
S	6-6	PC Mount	18.0	15.4	16.0	H9058-ND	3.97	37.20	341.00	TM2REA-0606
T	2 x 6-2	PC Mount	28.2	15.4	16.0	H9051-ND	4.16	39.00	357.50	TM2REA-1204
T	2 x 6-4	PC Mount	28.2	15.4	16.0	H9052-ND	4.99	46.80	429.00	TM2REA-1208
T	2 x 6-6	PC Mount	28.2	15.4	16.0	H9065-ND	6.08	57.00	522.50	TM2REA-1212
U	3 x 6-2	PC Mount	39.2	15.4	16.0	H9053-ND	5.09	47.70	437.25	TM2REA-1806
U	3 x 6-4	PC Mount	39.2	15.4	16.0	H9054-ND	6.37	59.70	547.25	TM2REA-1812
U	3 x 6-6	PC Mount	39.2	15.4	16.0	H9066-ND	8.03	75.30	690.25	TM2REA-1818
V	4 x 6-2	PC Mount	50.2	15.4	16.0	H9055-ND	5.92	55.50	508.75	TM2REA-2408
V	4 x 6-4	PC Mount	50.2	15.4	16.0	H9056-ND	8.32	78.00	715.00	TM2REA-2416
V	4 x 6-6	PC Mount	50.2	15.4	16.0	H9059-ND	10.94	102.60	940.50	TM2REA-2424
W	6-2	PC Top Entry	17.2	16.0	15.4	H9110-ND	3.20	30.00	275.00	TM2RE-0602
W	6-4	PC Top Entry	17.2	16.0	15.4	H9111-ND	3.49	32.70	299.75	TM2RE-0604
W	6-6	PC Top Entry	17.2	16.0	15.4	H9112-ND	3.68	34.50	316.25	TM2RE-0606
X	2 x 6-2	PC Top Entry	28.2	16.0	15.4	H9113-ND	4.06	38.10	349.25	TM2RE-1204
X	2 x 6-4	PC Top Entry	28.2	16.0	15.4	H9114-ND	5.18	48.60	445.50	TM2RE-1208
X	2 x 6-6	PC Top Entry	28.2	16.0	15.4	H9115-ND	6.37	59.70	547.25	TM2RE-1212
Y	3 x 6-2	PC Top Entry	39.2	16.0	15.4	H9116-ND	4.90	45.90	420.75	TM2RE-1806
Y	3 x 6-4	PC Top Entry	39.2	16.0	15.4	H9117-ND	6.50	60.90	558.25	TM2RE-1812
Y	3 x 6-6	PC Top Entry	39.2	16.0	15.4	H9118-ND	8.22	77.10	706.75	TM2RE-1818
Z	4 x 6-2	PC Top Entry	50.2	16.0	15.4	H9119-ND	6.37	59.70	547.25	TM2RE-2408
Z	4 x 6-4	PC Top Entry	50.2	16.0	15.4	H9120-ND	8.74	81.90	750.75	TM2RE-2416
Z	4 x 6-6	PC Top Entry	50.2	16.0	15.4	H9121-ND	9.79	91.80	841.50	TM2RE-2424
AA	8 x 6-6	Side Entry 8 x 6-6	93.0	14.0	14.0	H9086-ND	17.63	165.30	1515.25	TM5RJ1-4848
BB	3 x 8-8	3 x 8-8	43.3	14.0	14.7	H9075-ND	11.62	108.90	998.25	TM5RSA-2424
BB	—	3 x (1) 8-8, (2) 6-6	30.0	14.0	13.5	H9076-ND	10.50	98.40	902.00	TM5RQ-2020
CC	—	2 x (1) 8-8, (1) 6-6	28.0	14.0	13.5	H9077-ND	8.29	77.70	712.25	TM5RQ-1414
DD	2 x 6-2	Jack w/ Power Plug	35	15	13.7	H9129-ND	3.58	33.60	308.00	TM5RT-1204PWJ
DD	2 x 6-2	Jack w/ Power Plug	35	15	13.7	H9130-ND	3.58	33.60	308.00	TM5RT1-1204PWJ
EE	6-2	Jack w/ Power Plug	24	15	13.7	H9131-ND	2.98	27.90	255.75	TM5RT-62PWJ
EE	6-2	Jack w/ Power Plug	24	15	13.7	H9132-ND	2.98	27.90	255.75	TM5RT1-62PWJ
EE	6-4	Jack w/ Power Plug	24	15	13.7	H9133-ND	3.90	36.60	335.50	TM5RT1-64PWJ
EE	6-6	Jack w/ Power Plug	24	15	13.7	H9134-ND	4.06	38.10	349.25	TM5RT1-66PWJ
FF	4-4	Jack Top Entry SMT	13	17	12.5	H9135-ND	2.50	23.40	214.50	TM15R-44(30)
FF	6-4	Jack Top Entry SMT	14	17	12.5	H9136-ND	2.62	24.60	225.50	TM15R-64(30)
FF	6-6	Jack Top Entry SMT	14	17	12.5	H9137-ND	2.85	26.70	244.75	TM15R-66
GG	8-8	Receptacle	14	11.7	17	H9138-ND	3.49	32.70	299.75	TM5RL-88
HH	4 x 8-8	Receptacle	56	11.7	17	H9139-ND	11.07	103.80	951.50	TM5RL-3232
II	8-8	Wire Lead Jack 12"	24	20	15	H9140-ND	9.28	87.00	797.50	TM11R-88-35S-300
JJ	8-8	Adapter Plug to Plug	18.6	17	37.5	H9141-ND	18.85	176.70	1619.75	TM5RL-88-JJ

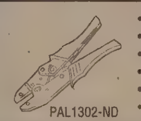
* 50µ Gold Plating

Weidmüller
Paladin Tools

Crimp Tools


PAL1530R-ND

- Fully Ratcheting Cycle
- Adjustable Crimp Tension
- Hardened Dies for Long Life
- Crimp 4, 6, & 8 Position
- Cuts and Strips Cable
- RJ45, RJ11


PAL1302-ND

- Fully Ratcheting Cycle
- Dies Fully Interchangeable
- Manual Ratchet Release
- Adjustable Crimp Tension
- EZI-CHANGE™ Die Set Screws
- Hardened Dies for Long Life

Description	Digi-Key Part No.	Price
Modular Crimp Tool	PAL1530R-ND	130.13
Crimp Tool — Frame Only	PAL1302-ND	40.53
RJ45 Hirose Connectors Die Set (for 1302 Crimper)	PAL2061-ND	19.84
RJ45 AMP Modular Plug Die Set (for 1302)	PA2064-ND	18.85
RJ11 AMP/Hirose Modular Plug Die Set (for 1302)	PA2065-ND	18.85

AMP Modular Connectors & Jacks

Product Facts:

- Meets or exceeds FCC Part 68 rules and regulations; REA PE-76; and UL 1863, Communication Circuit Accessories.
- Meets 1000 volt dielectric requirement.
- Designed for direct mounting on pc boards.
- Designed for ease of soldering and board cleaning.
- Selectively gold plated contacts for lower cost.
- Surface mount jacks compatible with vapor phase environment.
- All jacks are flame retardant polyester, standard color black, unless specified otherwise.
- Listed by Underwriters Laboratories Inc., File No. E81956.
- Certified by Canadian Standards Association File No. LR82669.

Specifications:

Electrical:

- **Current Rating** — 1.5 amp max. @ 25°C, derated to 0.2 amp max. @ 70°C ambient
- **Voltage Rating** — 150 volts ac max.
- **Dielectric Withstanding Voltage** — 1000 VAC, RMS, 60 Hz, 1 min.
- **Insulation Resistance** — 500 megohms min.
- **Surge Test** — to 1000 volts.

Mechanical:

- **PC Board Retention** — will not dislodge from pc board when subjected to 1 lb. (4.4 N) pull before soldering and 10 lbs. (44 N) pull after soldering.
- **Durability** — 750 mating cycles.

Material and Finish:

- **Housing** — Thru-hole: Polyester, UL 94V-0 rated surface mount: Polyphenylene Sulfide, UL 94V-0 rated.
- **Contact** — .014 (0.36) thk. phosphor bronze; plated .000050 (0.00127) gold in contact area and .000150 (0.00381) tin-lead on solder tails, over .000050 (0.00127) nickel underplate.

Fig. 9 Product Facts:

- Performance exceeds Near End Crosstalk (NEXT) requirements of -40dB at 100 MHz per EIA/TIA 568A.
- Available in single port or multiple port configurations, shielded or unshielded.
- Eliminate need for customized printed circuit board compensation to achieve high performance.

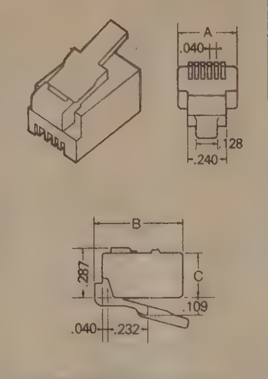
Material and Finish:

- **Housing:** Polyester, black UL 94V-0 rated.
- **Contact:** Phosphor bronze, gold over nickel plated in contact area, tin-lead over nickel in solder area.
- **Shield:** Brass, bright tin-lead plated.

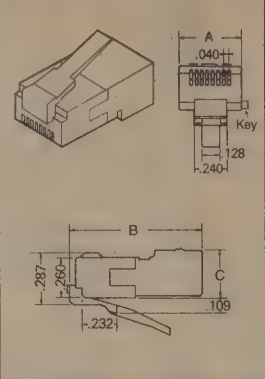
Specifications:

- **Current:** 1.5 amp max. @ 25°C.
- **Voltage:** 150 VAC maximum.
- **Operating Temperature:** -40°C to 70°C.
- **Mating/Unmating Forces:** 5 pounds maximum.

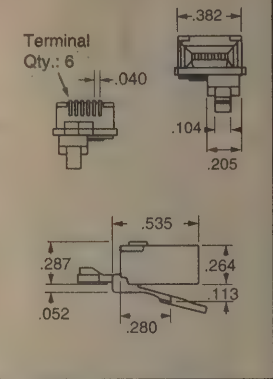
1



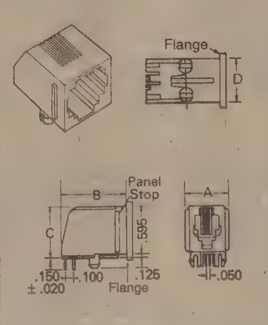
2



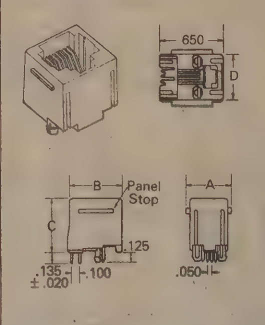
3



4 – Side Entry



5 – Top Entry



6 – Side Entry, Low Profile

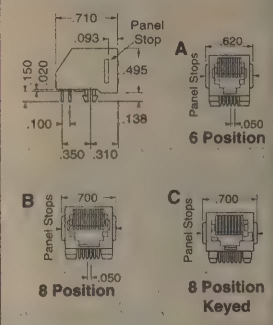
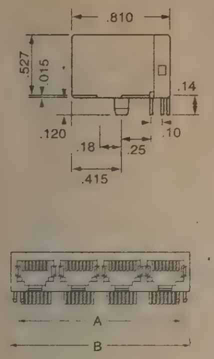
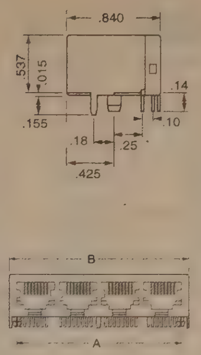


Fig.	Description	Positions Contacts	Dimensions A	B	C	D	E	Digi-Key Part No.	Pricing 1	10	25	100	AMP Part No.
1	Plug	4-4	.300	.525	.260	—	—	A9091-ND	.30	2.77	—	25.41	5-641334-3
	Plug	6-4	.380	.525	.260	—	—	A9092-ND	.30	2.77	—	25.41	5-641335-3
	Plug	6-6	.380	.525	.260	—	—	A9093-ND	.35	3.28	—	30.10	5-641337-3
	Plug, Shielded Long Body	6-6	.380	.900	.325	—	—	A9027-ND	2.11	—	49.42	181.20	5-555174-2
2	Plug	8-8	.460	.845	.312	—	—	A9094-ND	.76	7.12	—	65.23	5-554739-3
	Plug, Shielded Long Body	8-8	.460	.900	.325	—	—	A9028-ND	2.36	—	55.23	202.52	5-555178-2
	Plug, Keyed, High Performance	8-8	.464	.895	.314	—	—	A9058-ND	.59	—	11.86	37.95	5-554743-3
	Plug, High Performance	8-8	.464	.895	.314	—	—	A9059-ND	.85	—	17.06	54.58	5-558530-3
	Plug, Shielded, High Performance	8-8	.464	.895	.314	—	—	A9061-ND	2.10	—	42.08	134.65	5-558593-3
3	Plug with Offset Latch	6-6	.382	.535	.264	—	—	A9057-ND	.69	—	13.79	44.14	5-555237-2
4	Jack, With Stops	4-4	.540	.810	.630	.440	—	A9041-ND	.86	8.04	—	73.72	520249-2
	Jack, With Stops	6-4	.620	.815	.630	.520	—	A9042-ND	.90	8.42	—	77.17	520250-2
	Jack, With Stops	6-6	.620	.815	.630	.520	—	A9043-ND	.91	8.53	—	78.21	520250-3
	Jack, With Stops	8-8	.700	.810	.630	.600	—	A9044-ND	.96	9.04	—	82.82	520251-4
	Jack, With Stops, Keyed	8-8	.700	.810	.630	.600	—	A9046-ND	.75	—	15.06	48.19	520252-4
4	Jack, Side Entry, Flanged	4-4	.570	.810	.680	.440	.300	A9077-ND	.67	—	13.40	42.89	520241-2
	Jack, Side Entry, Flanged	6-2	.620	.815	.630	.520	.400	A9082-ND	.69	—	13.84	44.29	520250-1
	Jack, Side Entry, Flanged	6-4	.650	.810	.680	.520	.400	A9078-ND	.70	—	14.03	44.90	520242-2
	Jack, Side Entry, Flanged	6-6	.650	.810	.680	.520	.400	A9079-ND	.71	—	14.22	45.50	520242-3
	Jack, Side Entry, Flanged	8-8	.730	.810	.680	.600	.450	A9080-ND	.75	—	15.06	48.19	520243-4
	Jack, Side Entry, Flanged, Keyed	8-8	.730	.810	.680	.600	.450	A9081-ND	.75	—	15.06	48.19	520244-4
4	Jack, Without Stops, Flanged	4-4	.440	.810	.630	—	—	A9047-ND	.70	—	14.07	45.04	555980-1
	Jack, Without Stops, Flanged	6-4	.520	.810	.630	—	—	A9048-ND	.70	—	14.03	44.90	555979-1
	Jack, Without Stops, Flanged	6-6	.520	.815	.630	—	—	A9049-ND	.76	—	15.26	48.82	520470-3
	Jack, Without Stops, Flanged	8-8	.600	.810	.630	—	—	A9050-ND	.80	—	16.10	51.50	520426-4
	Jack, Without Stops, Keyed, Flanged	8-8	.600	.810	.630	—	—	A9051-ND	.80	—	16.10	51.50	554517-1
5	Jack, With Stops	4-4	.550	.625	.645	.450	—	A9071-ND	.86	8.04	—	73.72	520257-2
	Jack, With Stops	6-4	.630	.625	.645	.530	—	A9072-ND	.90	8.42	—	77.17	520258-2
	Jack, With Panel Stops	6-6	.630	.625	.645	.530	—	A9073-ND	.91	8.53	—	78.21	520258-3
	Jack, With Stops	8-8	.710	.625	.645	.610	—	A9074-ND	.96	9.04	—	82.82	520259-4
	Jack, With Stops, Keyed	8-8	.710	.625	.645	.610	—	A9052-ND	.75	—	15.06	48.19	520260-4
5	Jack, Top Entry Without Stops	6-4	.530	.625	.645	—	.400	A9083-ND	.75	—	15.07	48.21	520425-2
	Jack, Top Entry Without Stops	6-6	.530	.625	.645	—	.400	A9084-ND	.76	—	15.26	48.82	520425-3
	Jack, Top Entry Without Stops	8-8	.615	.630	.645	—	.450	A9085-ND	.75	—	15.06	48.19	556416-1
	Jack, Top Entry Without Stops, Keyed	8-8	.615	.630	.645	—	.450	A9086-ND	1.03	—	20.54	65.71	555799-1
	Jack, Top Entry With Stops, Shielded	8-8	.710	.625	.645	.610	.450	A9087-ND	1.15	—	23.03	73.68	557969-1
6A	Jack, With Stops	6-6	—	—	—	—	—	A9010-ND	.99	9.27	—	84.98	555163-1
6A	Jack, With Stops	6-4	—	—	—	—	—	A9011-ND	.98	9.18	—	84.13	555163-2
6B	Jack, With Stops	8-8	—	—	—	—	—	A9012-ND	1.05	9.82	—	89.99	555162-1
6C	Jack, With Stops, Keyed	8-8	—	—	—	—	—	A9034-ND	.82	—	16.36	52.36	555166-1
6A	Jack, Without Stops	6-6	—	—	—	—	—	A9031-ND	.77	—	15.45	49.44	555165-1
6A	Jack, Without Stops	6-4	—	—	—	—	—	A9032-ND	.76	—	15.30	48.95	555165-2
6B	Jack, Without Stops	8-8	—	—	—	—	—	A9033-ND	.82	—	16.36	52.36	555164-1
6C	Jack, Without Stops, Keyed	8-8	—	—	—	—	—	A9035-ND	.82	—	16.36	52.36	555167-1

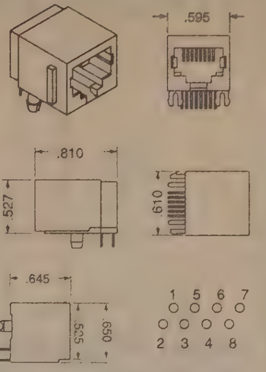
7



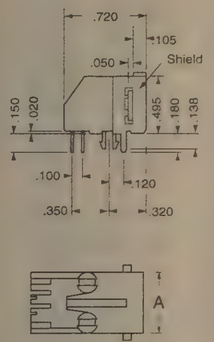
8



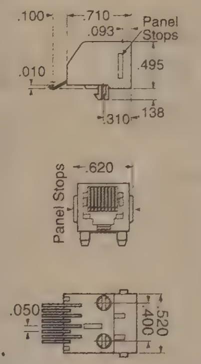
9 – Side Entry with Panel Stops



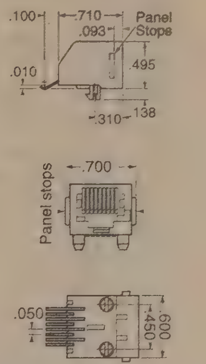
10 – Modular Jack



11 – Surface Mount

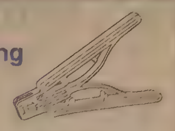


12 – Surface Mount



AMP

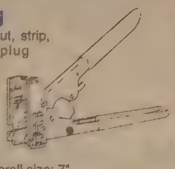
Modular Plugs Tooling



- Strips & Terminates Cable
- Light Weight
- Low Cost

A9989-ND	Crimp Tool for RJ-11 (2, 4, & 6) Position Modular Plugs	**$24.00**
A9988-ND	Crimp Tool for 4-Position Handset Plugs	**$24.00**
A9932-ND	***NEW!*** Crimp Tool for RJ11 & RJ45 (6-8 Pos)	**$29.25**

Modular Crimp Tooling



Now with one efficient tool you can cut, strip, crimp and terminate modular plug connectors. Features include: color-coded dies, a cable jacket stripper, smooth ratcheting action to assure positive connector termination and spring-actuated and cushioned handles for fatigue-free use. Available as entire crimping tool, or dies may be purchased separately. Overall size: 7"

Hand Tool Kit

Contents included: Carrying case with frame; RJ-11 (4-&-6) RJ-45 (8)-Position Die sets, Blade Replacement Kit & Small Screwdriver.

A9040-ND Production Tool Kit $174.90

Production Tool Kit

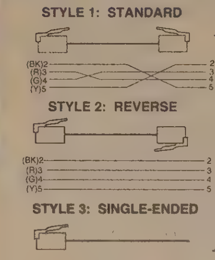
Carry Case with Frame; 4-Position Handset, RJ-11 (4-&-6) RJ-45 (8)-Position Die Sets, Blade Replacements Kit & Small Screwdriver.

A9967-ND Production Tool Kit $206.82

Description	Digi-Key Part No.	Price	AMP Part No.
8-Pos Crimper w/die	A9900-ND	111.75	2-231652-1
6-Pos Crimper w/die	A9901-ND	111.75	2-231652-8
4-Pos Crimper w/die	A9902-ND	111.75	1-231652-3
6-Pos Hand Tool Long Body	A9029-ND	111.75	2-9231652-7
6-Pos Crimp Offset	A9930-ND	111.75	2-231652-6
8-Pos High Performance	A9929-ND	111.75	3-231652-0
8-Pos Die Set Only	A9904-ND	37.50	853400-1
6-Pos Die Set Only	A9905-ND	37.50	853400-8
4-Pos Die Set Only	A9906-ND	37.50	853400-3
6-Pos Die Set Long Body	A9030-ND	37.50	853400-7
6-Pos Die Set Only, Offset	A9927-ND	37.50	853400-6
8-Pos Die Set Only, High Perform.	A9926-ND	37.50	1-853400-0
Crimp Tool Modular Plugs w/o Dies	A9931-ND	81.75	2-231652-0
Replace. Wire Strip. Blade	A9976-ND	33.75	231662-4
Wire Strip. Blade Set	A9928-ND	4.55	231662-5

Fig.	Description	Positions Contacts	Dimensions A	B	C	D	E	Digi-Key Part No.	Pricing 1	10	25	100	AMP Part No.
7	Jack, 2 Pos, Unshielded	8-8	1.000	1.200	—	—	—	A9013-ND	1.93	—	33.60	121.80	557560-1
	Jack, 3 Pos, Unshielded	8-8	1.550	1.750	—	—	—	A9014-ND	2.90	—	50.40	182.70	557561-1
	Jack, 4 Pos, Unshielded	8-8	2.100	2.300	—	—	—	A9015-ND	3.89	—	67.60	245.05	557562-1
	Jack, 5 Pos, Unshielded	8-8	2.650	2.850	—	—	—	A9016-ND	4.83	—	84.00	304.50	557563-1
	Jack, 6 Pos, Unshielded	8-8	3.200	3.400	—	—	—	A9017-ND	5.82	—	101.20	366.85	557564-1
	Jack, 7 Pos, Unshielded	8-8	3.750	3.950	—	—	—	A9018-ND	6.76	—	117.60	426.30	557565-1
	Jack, 8 Pos, Unshielded	8-8	4.300	4.500	—	—	—	A9019-ND	7.75	—	134.80	488.65	557566-1
8	Jack, 2 Pos, Shielded	8-8	1.000	1.230	—	—	—	A9020-ND	3.40	—	59.20	214.60	557570-1
	Jack, 4 Pos, Shielded	8-8	2.100	2.330	—	—	—	A9021-ND	4.81	—	83.60	303.05	557571-1
	Jack, 6 Pos, Shielded	8-8	3.200	3.430	—	—	—	A9022-ND	7.22	—	125.60	455.30	557572-1
	Jack, 8 Pos, Shielded	8-8	4.300	4.530	—	—	—	A9023-ND	9.61	—	167.20	606.10	557573-1
9	Jack, 1 Pos, Unshielded	8-8	.450	.595	—	—	—	A9063-ND	1.15	—	23.00	73.60	557785-1
	Jack, 1 Pos, Unshielded	10-10	.450	.595	—	—	—	A9064-ND	1.97	—	39.33	125.87	558065-1
	Jack, 1 Pos, Unshielded, Keyed	10-10	.450	.595	—	—	—	A9065-ND	1.97	—	39.33	125.87	558066-1
9	Jack, 1 Pos, Shielded, PCB GRD	10-10	.450	.625	—	—	—	A9067-ND	3.13	—	62.63	200.40	558067-1
	Jack, 1 Pos, Shielded, PNL GRD	8-8	.450	.625	—	—	—	A9066-ND	1.78	—	35.50	113.60	557787-1
	Jack, 1 Pos, Shielded, PNL GRD	10-10	.450	.625	—	—	—	A9068-ND	3.13	—	62.63	200.40	558070-1
	Jack, 2 Pos, Shielded, PNL GRD	8-8	1.00	1.23	—	—	—	A9069-ND	3.70	—	74.00	236.80	557570-2
	Jack, 4 Pos, Shielded, PNL GRD	8-8	2.10	2.33	—	—	—	A9070-ND	5.23	—	104.50	334.40	557571-2
	Jack, 6 Pos, Shielded, PNL GRD	8-8	3.20	3.43	—	—	—	A9075-ND	7.85	—	157.00	502.40	557572-3
	Jack, 8 Pos, Shielded, PNL GRD	8-8	4.30	4.53	—	—	—	A9076-ND	10.45	—	209.00	668.80	557573-2
10	Jack, 1 Pos, Unshielded w/Panel Stops	8-8	.595	.810	.527	—	—	A9088-ND	1.63	—	32.50	104.00	558343-1
	Jack, 1 Pos, Unshielded w/o Panel Stops	8-8	.595	.810	.527	—	—	A9089-ND	1.63	—	32.50	104.00	558341-1
	Jack, 4 Pos, Unshielded w/o Panel Stops	8-8	2.30	.810	.527	—	—	A9096-ND	7.08	—	141.50	452.80	558500-1
	Jack, 6 Pos, Unshielded w/o Panel Stops	8-8	3.40	.810	.527	—	—	A9099-ND	10.63	—	212.50	680.00	558501-1
	Jack, 8 Pos, Unshielded w/o Panel Stops	8-8	4.50	.810	.527	—	—	A9102-ND	14.20	—	284.00	908.80	558502-1
10	Jack, 1 Pos, Shielded, Pc GRD	8-8	6.25	.840	.537	—	—	A9090-ND	2.53	—	50.50	161.60	558342-1
	Jack, 1 Pos, Shielded, PNL GRD	8-8	6.25	.840	.537	—	—	A9095-ND	2.53	—	50.50	161.60	558344-1
	Jack, 4 Pos, Shielded, Pc GRD	8-8	2.33	.840	.537	—	—	A9097-ND	8.80	—	176.00	563.20	558503-1
	Jack, 4 Pos, Shielded, PNL GRD	8-8	2.33	.840	.537	—	—	A9098-ND	8.80	—	176.00	563.20	558524-1
	Jack, 6 Pos, Shielded, Pc GRD	8-8	3.43	.840	.537	—	—	A9100-ND	13.18	—	263.50	843.20	558504-1
	Jack, 6 Pos, Shielded, PNL GRD	8-8	3.40	.810	.527	—	—	A9101-ND	13.18	—	263.50	843.20	558525-1
	Jack, 8 Pos, Shielded, Pc GRD	8-8	4.53	.840	.537	—	—	A9103-ND	17.55	—	351.00	1123.20	558505-1
	Jack, 8 Pos, Shielded, PNL GRD	8-8	4.53	.840	.537	—	—	A9104-ND	17.55	—	351.00	1123.20	558526-1
10	Jack, PC Ground	6-6	.545	—	—	—	—	A9024-ND	1.41	13.20	—	121.00	555154-1
	Jack, PC Ground	6-4	.545	—	—	—	—	A9025-ND	.94	—	16.40	59.45	555154-2
	Jack, PC Ground	8-8	.625	—	—	—	—	A9026-ND	1.47	13.80	—	126.50	555153-1
	Jack, PC Ground, Keyed	8-8	.625	—	—	—	—	A9056-ND	1.21	—	24.12	77.18	556591-1
10	Jack, Panel Ground	6-6	.545	—	—	—	—	A9053-ND	1.10	—	22.00	70.40	555140-1
	Jack, Panel Ground	6-4	.545	—	—	—	—	A9054-ND	1.08	—	21.50	68.80	555140-2
	Jack, Panel Ground	8-8	.625	—	—	—	—	A9055-ND	1.15	—	23.00	73.60	555141-1
11	Jack, 6 Pos, With Stops	6-6	—	—	—	—	—	A9036-ND	1.20	—	24.02	76.87	555077-1
	Jack, 6 Pos, With Stops	6-4	—	—	—	—	—	A9037-ND	1.19	—	23.79	76.11	555077-2
12	Jack, 8 Pos, With Stops	8-8	—	—	—	—	—	A9039-ND	3.39	—	67.84	217.09	555248-1
	Jack, 8 Pos, With Stops, Keyed	8-8	—	—	—	—	—	A9038-ND	1.27	—	25.44	81.41	555078-1
	Jack, 8 Pos, Without Stops	8-8	—	—	—	—	—	A9045-ND	3.39	—	67.84	217.09	555764-1

IDC MODULAR CABLE ASSEMBLIES



H ☐ ☐ ☐ ☐ - ☐ ☐ ☐ -ND

CONNECTOR(S):
44 = 4-Position, 4-Contact (Black on Pin 1)
64 = 6-Position, 4-Contact (Black on Pin 1)
66 = 6-Position, 6-Contact (White on Pin 1)
88 = 8-Position, 8-Contact (Gray on Pin 1)

WIRE TYPE: (Color) **1** = White, **2** = Black, **3** = Silver Satin

LENGTH*
07 = 7 Feet, **14** = 14 Feet, **25** = 25 Feet — Straight
05 = 5 Feet, **07** = 7 Feet, **10** = 10 Feet, **14** = 14 Feet — Coiled

C = Designates Coil Cord

All cable lengths are ± 1%

HOW TO ORDER: 1) You choose your part number simply by substituting the corresponding code to indicate the following: Style, Connector(s), Wire Type, and Length (in feet).

Straight Cable Assembly

Example: H1441-07-ND
Style 1
4-Position 4-Contact
White Wire
7 Feet Long

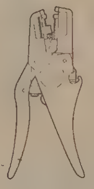
Coil Cord Assembly

Example: H1441-10C-ND
Style 1
4-Position 4-Contact
White Wire
10 Feet Long (Optimum Extended Length)

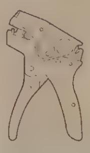
Weidmüller Tools

Paladin Tools

Cable Tester



Professional Wire Stripper



Mini-Wire Stripper

The modular cable tester is a hand held instrument designed to test telephone (RJ11) and computer data-link (RJ45) wiring.

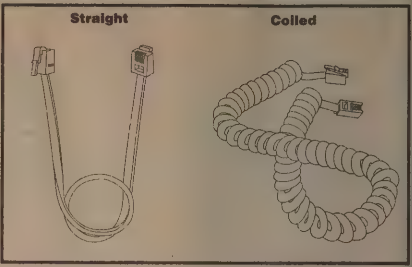
Stripping and cutting wires in the range of 10-28 AWG. ● Solid and fine stranded conductors with all grades of PVC insulation hardness. ● P.T.F.E. (Teflon®) insulation. ● Stranded conductors (even several conductors in one work cycle). ● Self-adjusting cable cutter. ● Strips both modular and discrete wires

Description	Digi-Key Part No.	Price
Modular Cable Tester	PAL1529-ND	66 67
Pro Wire Stripper (10-20 AWG)	PAL1100-ND	70.91
Replacement Blade for PAL1100-ND	PAL2101-ND	27.76
Pro Wire Stripper (10-28 AWG)	PA1101-ND	70.98
Replacement Blade for PA1101	PA2131-ND	28.22
Mini Wire Stripper (28-18 AWG)	PAL1115-ND	70.89
Replacement Blade for PAL115-ND	PAL2108-ND	20.27

Straight Cable Assemblies

Style	Digi-Key* Part No.	Pricing 1	10	100	250
	4-Position, 4-Contact Assemblies				
1	H144☐-07-ND	1.95	15.90	117.16	252.80
	H144☐-14-ND	2.47	20.09	148.03	319.41
	H144☐-25-ND	3.28	26.67	196.54	424.08
2	H244☐-07-ND	1.95	15.90	117.16	252.80
	H244☐-14-ND	2.47	20.09	148.03	319.41
	H244☐-25-ND	3.28	26.67	196.54	424.08
3	H344☐-07-ND	1.23	10.05	74.03	159.73
	H344☐-14-ND	1.75	14.24	104.90	226.34
	H344☐-25-ND	2.56	20.82	153.41	331.01
	6-Position, 4-Contact Assemblies				
1	H164☐-07-ND	1.95	15.90	117.16	252.80
	H164☐-14-ND	2.47	20.09	148.03	319.41
	H164☐-25-ND	3.28	26.67	196.54	424.08
2	H264☐-07-ND	1.95	15.90	117.16	252.80
	H264☐-14-ND	2.47	20.09	148.03	319.41
	H264☐-25-ND	3.28	26.67	196.54	424.08
3	H364☐-07-ND	1.23	10.05	74.03	159.73
	H364☐-14-ND	1.75	14.24	104.90	226.34
	H364☐-25-ND	2.56	20.82	153.41	331.01
	6-Position, 6-Contact Assemblies				
1	H166☐-07-ND	2.43	19.80	145.91	314.83
	H166☐-14-ND	3.23	26.29	193.68	417.92
	H166☐-25-ND	4.48	36.47	268.76	579.91
2	H266☐-07-ND	2.43	19.80	145.91	314.83
	H266☐-14-ND	3.23	26.29	193.68	417.92
	H266☐-25-ND	4.48	36.47	268.76	579.91
3	H366☐-07-ND	1.61	13.14	96.85	208.98
	H366☐-14-ND	2.41	19.63	144.63	312.07
	H366☐-25-ND	3.66	29.82	219.70	474.06
	8-Position, 8-Contact Assemblies				
1	H188☐-07-ND	3.29	26.76	197.21	425.53
	H188☐-14-ND	4.08	33.25	244.99	528.62
	H188☐-25-ND	5.33	43.44	320.06	690.61
2	H288☐-07-ND	3.29	26.76	197.21	425.53
	H288☐-14-ND	4.08	33.25	244.99	528.62
	H288☐-25-ND	5.33	43.44	320.06	690.61
3	H388☐-07-ND	2.04	16.62	122.49	264.31
	H388☐-14-ND	2.84	23.11	170.27	367.39
	H388☐-25-ND	4.09	33.30	245.34	529.39

* **1** = White, **2** = Black, **3** = Silver Satin.
Note: Custom length also available — minimum order required.



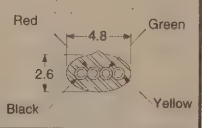
Coil Cord Assemblies

Style	Digi-Key* Part No.	Pricing 1	10	100	250
	4-Position, 4-Contact Assemblies				
1	H144☐-05C-ND	3.78	30.81	226.99	489.78
	H144☐-07C-ND	4.38	35.65	262.69	.566.81
	H144☐-10C-ND	5.43	44.20	325.69	702.75
	H144☐-14C-ND	7.35	59.88	441.19	951.97
2	H244☐-05C-ND	3.78	30.81	226.99	489.78
	H244☐-07C-ND	4.38	35.65	262.69	566.81
	H244☐-10C-ND	5.43	44.20	325.69	702.75
	H244☐-14C-ND	7.35	59.88	441.19	951.97
3	H344☐-05C-ND	3.06	24.95	183.86	396.71
	H344☐-07C-ND	3.66	29.80	219.56	473.74
	H344☐-10C-ND	4.71	38.35	282.56	609.68
	H344☐-14C-ND	6.63	54.02	398.06	858.90
	6-Position, 4-Contact Assemblies				
1	H164☐-05C-ND	3.78	30.81	226.99	489.78
	H164☐-07C-ND	4.38	35.65	262.69	566.81
	H164☐-10C-ND	5.43	44.20	325.69	702.75
	H164☐-14C-ND	7.35	59.88	441.19	951.97
2	H264☐-05C-ND	3.78	30.81	226.99	489.78
	H264☐-07C-ND	4.38	35.65	262.69	566.81
	H264☐-10C-ND	5.43	44.20	325.69	702.75
	H264☐-14C-ND	7.35	59.88	441.19	951.97
3	H364☐-05C-ND	3.06	24.95	183.86	396.71
	H364☐-07C-ND	3.66	29.80	219.56	473.74
	H364☐-10C-ND	4.71	38.35	282.56	609.68
	H364☐-14C-ND	6.63	54.02	398.06	858.90
	6-Position, 6-Contact Assemblies				
1	H166☐-05C-ND	4.61	37.54	276.63	596.90
	H166☐-07C-ND	5.00	40.68	299.73	646.75
	H166☐-10C-ND	6.64	54.07	398.43	859.71
	H166☐-14C-ND	8.01	65.19	480.33	1036.43
2	H266☐-05C-ND	4.61	37.54	276.63	596.90
	H266☐-07C-ND	5.00	40.68	299.73	646.75
	H266☐-10C-ND	6.64	54.07	398.43	859.71
	H266☐-14C-ND	8.01	65.19	480.33	1036.43
3	H366☐-05C-ND	3.79	30.89	227.58	491.05
	H366☐-07C-ND	4.18	34.02	250.68	540.90
	H366☐-10C-ND	5.82	47.42	349.38	753.86
	H366☐-14C-ND	7.19	58.53	431.28	930.58
	8-Position, 8-Contact Assemblies				
1	H188☐-05C-ND	7.95	64.74	477.04	1029.32
	H188☐-07C-ND	7.64	62.18	458.14	988.54
	H188☐-10C-ND	10.12	82.41	607.24	1310.26
	H188☐-14C-ND	11.07	90.11	663.94	1432.60
2	H288☐-05C-ND	7.95	64.74	477.04	1029.32
	H288☐-07C-ND	7.64	62.18	458.14	988.54
	H288☐-10C-ND	10.12	82.41	607.24	1310.26
	H288☐-14C-ND	11.07	90.11	663.94	1432.60
3	H388☐-05C-ND	6.71	54.60	402.32	868.10
	H388☐-07C-ND	6.39	52.04	383.42	827.32
	H388☐-10C-ND	8.88	72.27	532.52	1149.03
	H388☐-14C-ND	9.82	79.97	589.22	1271.38

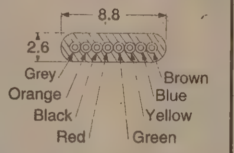
* **1** = White, **2** = Black, **3** = Silver Satin.

I/O INTERCONNECT MODULAR CABLE

View Ridge Up

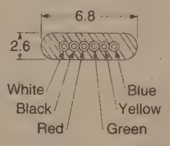


View Ridge Up — 8-Conductor Cable



View Ridge Up

6-Conductor Cable



Flat modular line cord is available in either straight or coiled. **Straight:** H004 is sold in hanks of 100 and 1,000 feet, spools of 2,000 feet; H006 and H008 are sold in hanks of 100 feet, spools of 1,000 feet. **Coiled:** Hxx4☐C, Hxx6☐C and Hxx8☐C are sold in 5, 7, 10 and 14 feet approx. optimum extended lengths. Extension beyond the optimum extended length can degrade the retractability of the cord. Both types are available in three colors — white (designated by 1 for ☐ in part number), black (designated by 2 for ☐ in part number), and silver satin (designated by 3 for ☐ in part number).

Straight Line Cord — 26 AWG

(Note: "X" in Digi-Key Part No. Represents Number of feet)

No. of Cond.	Digi-Key* Part No.	Pricing 100 ft.	500 ft.	1,000 ft.	2,000 ft.
4	H004☐-X-ND	6.30	28.88	52.50	84.00
6	H006☐-X-ND	9.75	44.69	65.00	—
8	H008☐-X-ND	13.20	60.50	88.00	—

* **1** = White, **2** = Black, **3** = Silver Satin.

Coiled Line Cord

5 ft., 7 ft., 10 ft. and 14 ft. approx. extended lengths.

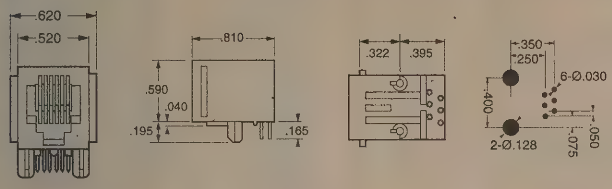
No. of Cond.	Length	Digi-Key* Part No.	Pricing 1	10	100	1,000	5,000
4	5 ft.	H054☐C-ND	2.01	18.09	160.80	1112.20	1005.00/M
4	7 ft.	H074☐C-ND	2.52	22.68	201.60	1394.40	1260.00/M
4	10 ft.	H104☐C-ND	3.42	30.78	273.60	1892.40	1710.00/M
4	14 ft.	H144☐C-ND	5.07	45.63	405.60	2805.40	2535.00/M
6	5 ft.	H056☐C-ND	2.55	22.95	204.00	1411.00	1275.00/M
6	7 ft.	H076☐C-ND	2.88	25.92	230.40	1593.60	1440.00/M
6	10 ft.	H106☐C-ND	4.29	38.61	343.20	2373.80	2145.00/M
6	14 ft.	H146☐C-ND	5.46	49.14	436.80	3021.20	2730.00/M
8	5 ft.	H058☐C-ND	4.68	42.12	374.40	2589.60	2340.00/M
8	7 ft.	H078☐C-ND	4.41	39.69	352.80	2440.20	2205.00/M
8	10 ft.	H108☐C-ND	6.54	58.86	523.20	3618.80	3270.00/M
8	14 ft.	H148☐C-ND	7.35	66.15	588.00	4067.00	3675.00/M

* **1** = White, **2** = Black, **3** = Silver Satin.

CORCOM Filtered Modular Jacks

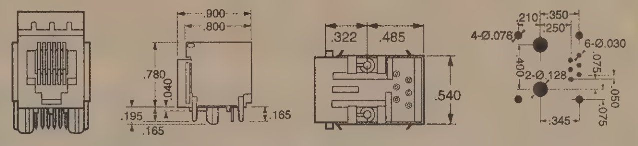
Jack design and component selection compatible with equipment registered under FCC Part 68. UL Recognized. CSA Certified. U.S. Patent No. 4,695,115 and U.S. Patent No. 4,772,224 and a variety of international patents.

Fig. 1



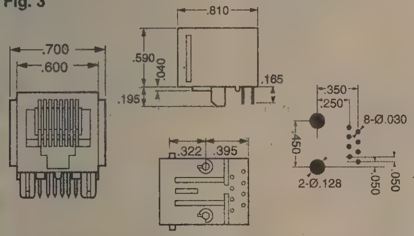
RJ11 SERIES, Unshielded: • Inductive filtering in a direct retrofit size to standard, unfiltered jacks • L models are offered with both standard (ferrite sleeves) and higher performance (ferrite block) inductive filtering.

Fig. 2



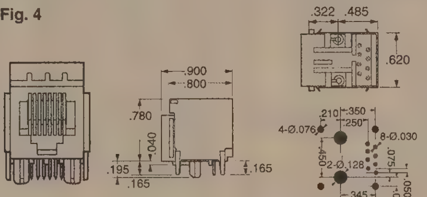
RJ11 SERIES, Shielded: • The metal shield provides additional protection, and is available with RFI gasket style spring fingers to provide a low impedance ground path across the interface.
RJ11 SERIES, Inductance: • Inductive and capacitance filtering within a corrosion resistant metal shield • LC models are additionally offered with RFI gasket style spring fingers to provide a low impedance ground path across the interface.

Fig. 3



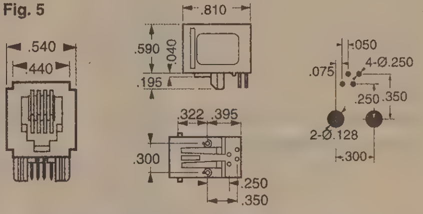
RJ45 SERIES, Unshielded: • Inductive filtering in a direct retrofit size to standard, unfiltered jacks • L models are offered with both standard (ferrite sleeves) and higher performance (ferrite block) inductive filtering.

Fig. 4



RJ45 SERIES, Shielded: • The metal shield provides additional protection, and is available with RFI gasket style spring fingers to provide a low impedance ground path across the interface.
RJ45 SERIES, Inductance: • Inductive and capacitance filtering within a corrosion resistant metal shield • LC models are additionally offered with RFI gasket style spring fingers to provide a low impedance ground path across the interface.

Fig. 5



RJH SERIES: • The filtered handset jack prevents noise or classified data from getting onto the handset cord and radiating. The filter built into the RJ connector provides interference suppression at its optimal location, solving radiated emissions problems in telecommunications equipment and keyboards. Jack design and component selection compatible with equipment registered under FCC Part 68. UL Recognized and CSA certified.

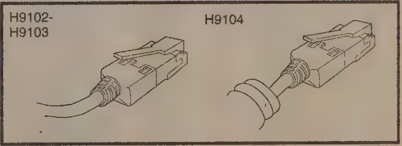
Fig. No.	Description	No. of Pos.	No. of Terminals Loaded	Ferrites	Digi-Key Part No.	Price Each 1	25	50	100	250	Corcom Part No.
					RJ11 Series						
1	Modular Jack, Unshielded	6	2	Sleeves	CCM9000-ND	2.49	1.74	1.59	1.45	1.34	RJ11-2L-S
1	Modular Jack, Unshielded	6	4	Sleeves	CCM9001-ND	2.77	1.94	1.77	1.62	1.50	RJ11-4L-S
1	Modular Jack, Unshielded	6	6	Sleeves	CCM9002-ND	3.06	2.14	1.95	1.78	1.65	RJ11-6L-S
1	Modular Jack, Unshielded	6	2	Block	CCM9003-ND	2.63	1.84	1.68	1.53	1.42	RJ11-2L-B
1	Modular Jack, Unshielded	6	4	Block	CCM9004-ND	2.77	1.94	1.77	1.62	1.50	RJ11-4L-B
1	Modular Jack, Unshielded	6	6	Block	CCM9005-ND	2.91	2.04	1.86	1.70	1.57	RJ11-6L-B
2	Modular Jack, Shielded	6	4	Sleeves*	CCM9010-ND	3.69	2.58	2.35	2.15	1.99	RJ11-4L2-S
2	Modular Jack, Shielded	6	6	Sleeves*	CCM9011-ND	3.97	2.78	2.53	2.31	2.14	RJ11-6L2-S
2	Modular Jack, Shielded	6	4	Block*	CCM9012-ND	3.69	2.58	2.35	2.15	1.99	RJ11-4L2-B
2	Modular Jack, Shielded	6	6	Block*	CCM9013-ND	3.83	2.68	2.44	2.23	2.07	RJ11-6L2-B
2	Modular Jack, Inductance	6	2	Sleeves*	CCM9020-ND	4.63	3.24	2.95	2.69	2.50	RJ11-2LC2-S
2	Modular Jack, Inductance	6	4	Sleeves*	CCM9021-ND	5.89	4.12	3.75	3.42	3.17	RJ11-4LC2-S
2	Modular Jack, Inductance	6	6	Sleeves*	CCM9022-ND	7.29	5.10	4.64	4.24	3.93	RJ11-6LC2-S
2	Modular Jack, Inductance	6	2	Block*	CCM9023-ND	4.77	3.34	3.04	2.78	2.57	RJ11-2LC2-B
2	Modular Jack, Inductance	6	4	Block*	CCM9024-ND	5.89	4.12	3.75	3.42	3.17	RJ11-4LC2-B
2	Modular Jack, Inductance	6	6	Block*	CCM9025-ND	7.14	5.00	4.55	4.15	3.85	RJ11-6LC2-B
					RJ45 Series						
3	Modular Jack, Unshielded	8	8	Sleeves	CCM9050-ND	3.54	2.48	2.26	2.06	1.91	RJ45-8L-S
3	Modular Jack, Unshielded	8	8	Block	CCM9052-ND	3.23	2.26	2.06	1.88	1.74	RJ45-8L-B
4	Modular Jack, Shielded	8	8	Sleeves*	CCM9051-ND	4.66	3.26	2.97	2.71	2.51	RJ45-8L2-S
4	Modular Jack, Shielded	8	8	Block*	CCM9053-ND	4.34	3.04	2.77	2.53	2.34	RJ45-8L2-B
4	Modular Jack, Inductance	8	8	Sleeves*	CCM9054-ND	9.06	6.34	5.77	5.27	4.88	RJ45-8LC2-S
4	Modular Jack, Inductance	8	8	Block*	CCM9055-ND	8.77	6.14	5.59	5.10	4.73	RJ45-8LC2-B
					RJH Series						
5	Modular Jack, Filtered	4	4	Block	CCM9060-ND	2.83	1.98	1.80	1.65	1.53	RJH-4L-B

* Board Ground (pins only).

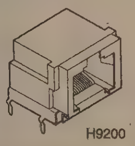
HRS HIROSE ELECTRIC CO.,LTD.

Data-Link Shielded Jack & Cable Assembly

TM11 "EMI" protection connector is designed to fulfill the requirement of noise and "ESD" protection. The design is in conformance with the F.C.C. regulation as specified in "476 C.F.R., Part 68, subpart F."



FEATURES: Plug; • One piece body struct. of the shell and cable clamp make perfect "EMI" protection • A metal shell offers "ESD" protection and a plastic cover is provided for enhanced aesthetics • Using the specified tooling, will provide quick and easy cable assembly. **Jack;** • In order to protect the circuit inside the equip., the jack is constructed to allow the shielding to engage first upon mating.



Standard Style Cable Assemblies

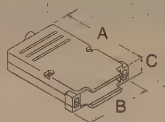
Positions-Contacts	Length	Cable Type	Termination	Digi-Key Part No.	Price
8-8	4 ft.	Straight	Double-Ended	H9102-ND	45.15
8-8	7 ft.	Straight	Double-Ended	H9103-ND	51.81
8-8	6 ft.	Coiled	Double-Ended	H9104-ND	53.38

Shielded Jack — PCB Mount

Positions-Contacts	Digi-Key Part No.	Pricing 1	10	100
8-8	H9200-ND	6.11	57.30	525.25

NEW! ParaCon Filtered D-Subminiature Backshells

Para-Shell™ high performance filter backshell, provides the highest level of EMI/RFI noise suppression available for cable shield to ground applications. The Para-Shell™ backshells enclose the filter core within the connector backshell to form a distributed filter network, eliminating EMI/RFI noise at the connector! Para-Shell™ filter backshells are available in 9, 15, and 25 pin configurations, with either high performance PARITE™ or ferrite cores, to fit a variety of cable diameters. For use with the most standard D-Sub Connectors.



No. of Pins	Dimensions A	B	C
9	2.040	1.230	.745
15	2.040	1.570	.745
25	2.310	2.100	.745

Features: • High quality, fully shielded, nickel plated zinc construction • Protects filter core within metal backshell: no unsightly blob on cable • Encloses filter core in Faraday shield for improved video performance • Converts most standard D-Sub connectors to EMI/RFI filtered connector • Provides superior EMI/RFI filtering at the connector • Choice of either PARITE™ or ferrite cores • 360° ground connection

9 Pin D-Sub Ferrite & PARITE™ Filter Kits and 15 Pin D-Sub Ferrite & PARITE™ Kits – These kits contain four back shells, and ten ferrite filters to fit any size cable up to .350 dia. each. Also included is the required mechanical hardware and grommets for two complete cable assemblies.

10739-ND	9 Pin Ferrite Filter Kit	**50.00**
10740-ND	15 Pin Ferrite Filter Kit	**50.00**
10742-ND	9 Pin PARITE™ Filter Kit	**70.00**
10743-ND	15 Pin PARITE™ Filter Kit	**70.00**

Round Cable Clip on Filter Kit – 30 split ferrites for clip-on round cable applications. Six each of the most popular sizes, and eight each of our small cable size. This kit covers wire & cable diameter ranges from .100 to .500 inch.

10746-ND	Round Cable Ferrite Filter Kit	**98.00**

25 Pin D-Sub Ferrite & PARITE™ Filter Kits –

These kits contain four back shells, and ten ferrite filters to fit any size cable up to .500 dia. each. Also included is the required mechanical hardware and grommets for two complete cable assemblies.

10741-ND	25 Pin Ferrite Filter Kit	**60.00**
10744-ND	25 Pin PARITE™ Filter Kit	**70.00**

Flat Cable Clip on Filter Kit –

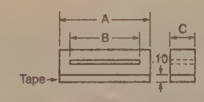
12 split ferrites for clip on ribbon cable applications. Two each of the most popular sizes. This kit covers 10 conductor through 50 conductor cables and comes with a variety of plastic and metal clips to hold the assemblies together.

10745-ND	Flat Cable Ferrite Filter Kit	**76.00**

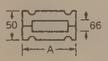
Type	OD of Cable Braid min.	max.	Digi-Key Part No.	Pricing 1	10	50	ParaCon Part No.
D-Sub 9 Position							
Ferrite	0.120	0.145	10649-ND	11.66	87.50	388.50	DF2509M
Ferrite	0.145	0.160	10650-ND	11.66	87.50	388.50	DF2609M
Ferrite	0.160	0.180	10651-ND	11.66	87.50	388.50	DF2709M
Ferrite	0.180	0.240	10652-ND	11.66	87.50	388.50	DF2809M
Ferrite	0.240	0.275	10653-ND	11.66	87.50	388.50	DF2909M
Parite™	0.120	0.145	10654-ND	13.65	102.50	455.10	DP2509M
Parite™	0.145	0.160	10655-ND	13.65	102.50	455.10	DP2609M
Parite™	0.160	0.180	10656-ND	13.65	102.50	455.10	DP2709M
Parite™	0.180	0.240	10657-ND	13.65	102.50	455.10	DP2809M
Parite™	0.240	0.275	10658-ND	13.65	102.50	455.10	DP2909M
D-Sub 15 Position							
Ferrite	0.120	0.145	10659-ND	12.65	95.00	421.80	DF2515M
Ferrite	0.145	0.160	10660-ND	12.65	95.00	421.80	DF2615M
Ferrite	0.160	0.180	10661-ND	12.65	95.00	421.80	DF2715M
Ferrite	0.180	0.240	10662-ND	12.65	95.00	421.80	DF2815M
Ferrite	0.240	0.275	10663-ND	12.65	95.00	421.80	DF2915M
Parite™	0.120	0.145	10664-ND	14.32	107.50	477.30	DP2515M
Parite™	0.145	0.160	10665-ND	14.32	107.50	477.30	DP2615M
Parite™	0.160	0.180	10666-ND	14.32	107.50	477.30	DP2715M
Parite™	0.180	0.240	10667-ND	14.32	107.50	477.30	DP2815M
Parite™	0.240	0.275	10668-ND	14.32	107.50	477.30	DP2915M
D-Sub 25 Position							
Ferrite	0.160	0.195	10669-ND	13.32	100.00	444.00	DF2525M
Ferrite	0.195	0.245	10670-ND	13.32	100.00	444.00	DF2625M
Ferrite	0.245	0.315	10671-ND	13.32	100.00	444.00	DF2725M
Ferrite	0.315	0.350	10672-ND	13.32	100.00	444.00	DF2825M
Ferrite	0.350	0.390	10673-ND	13.32	100.00	444.00	DF2925M
Parite™	0.160	0.195	10674-ND	15.32	115.00	510.60	DP2525M
Parite™	0.195	0.245	10675-ND	15.32	115.00	510.60	DP2625M
Parite™	0.245	0.315	10676-ND	15.32	115.00	510.60	DP2725M
Parite™	0.315	0.350	10677-ND	15.32	115.00	510.60	DP2825M
Parite™	0.350	0.390	10678-ND	15.32	115.00	510.60	DP2925M

NEW! ParaCon Ribbon Cable Ferrites

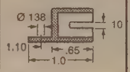
Solid Ferrite



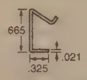
Split Ferrite



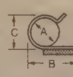
Plastic Mounting Clip



Metal Clip



Adhesive Clip



Ribbon Cable Solids: Rectangular shaped solid ferrites for ribbon cable, flat cable and flex cable. Note: Ribbon cable must be slid through the solid ferrite before ends are connected.

Ribbon Cable Solids with Tape Mounting: Rectangular shaped solid ferrites for ribbon cable, flat cable and flex cable. The pre-mounted industrial double sided adhesive tape allows for easy locating of the shape to the chassis.

Vinyl Dipped Ribbon Cable Solid: Rectangular shaped solid ferrite for ribbon cable, flat cable and flex cable. The ferrite is vinyl dipped to protect it from chipping and keep it from damaging other components.

Ribbon Cable Clip-On with Plastic Mounting Kit: Split ferrites for ribbon cable press fit into the plastic clamp ends protecting the ferrite and providing for secure retention. The plastic mounting clamps are designed to be attached with rivets, screws, nylon or other hardware.

Ribbon Cable Clip-On with Metal Clips: Split ferrites for ribbon cable clamp together with metal clips providing for secure retention of the two halves of ferrite.

Ribbon Cable Clip-On with Adhesive Mounting: Rectangular shaped split ferrites for ribbon cable, flat cable and flex cable. The plastic mounting clamps have industrial double sided adhesive tape for easy locating to virtually any surface.

Max # Cond.	Dimensions A	B	C	Typical Impedence @ 100 MHz	Digi-Key Part No.	Pricing 1	10	50	ParaCon Part No.
Ribbon Cable Ferrites Solid									
10	.880	.551	.750	171Ω	10679-ND	1.70	12.75	56.61	RS0880X
20	1.51	1.05	1.00	231Ω	10680-ND	5.03	37.75	167.61	RS1517X
26	1.78	1.36	1.12	293Ω	10681-ND	6.06	45.50	202.02	RS1775X
34	2.17	1.72	1.00	309Ω	10682-ND	7.16	53.75	238.65	RS2170X
34	2.17	1.72	.50	176Ω	10683-ND	5.26	39.50	175.38	RS2171X
40	2.50	2.05	1.12	295Ω	10684-ND	9.19	69.00	306.36	RS1779X
50	3.15	2.70	.50	93Ω	10685-ND	5.09	38.25	169.83	RS3149X
Ribbon Cable Ferrites Solid with Tape Mounting									
10	.880	.551	.750	171Ω	10686-ND	2.93	22.00	97.68	RS0880T
20	1.51	1.05	1.00	231Ω	10687-ND	5.93	44.50	197.58	RS1517T
26	1.78	1.36	1.12	293Ω	10688-ND	6.99	52.50	233.10	RS1775T
34	2.17	1.72	1.00	309Ω	10689-ND	7.33	55.00	244.20	RS2170T
34	2.17	1.72	.50	176Ω	10690-ND	3.60	27.00	119.88	RS2171T
40	2.50	2.05	1.12	295Ω	10691-ND	9.76	73.25	325.23	RS1779T
50	3.15	2.70	.50	93Ω	10692-ND	5.99	45.00	199.80	RS3149T
Vinyl Dipped Ribbon Cable Ferrites Solid									
10	1.00	.551	.90	171Ω	10693-ND	5.09	38.25	169.83	RV0880R
20	1.60	1.05	1.10	231Ω	10694-ND	8.42	63.25	280.83	RV1517R
26	1.90	1.36	1.20	293Ω	10695-ND	9.66	72.50	321.90	RV1775R
34	2.30	1.72	1.10	309Ω	10696-ND	10.52	79.00	350.76	RV2170R
34	2.30	1.72	.60	176Ω	10697-ND	8.66	65.00	288.60	RV2171R
40	2.60	2.05	1.20	295Ω	10698-ND	11.99	90.00	399.60	RV1779R
50	3.30	2.70	.60	93Ω	10699-ND	8.49	63.75	283.05	RV3149R
Ribbon Cable Ferrites with Plastic Mounting Kit									
20	1.50	1.05	.50	245Ω	10700-ND	7.36	55.25	245.31	RC2023P
26	1.77	1.35	.50	366Ω	10701-ND	9.29	69.75	309.69	RC2022P
40	2.50	2.05	.50	278Ω	10702-ND	11.56	86.75	385.17	RC2001P
50	3.00	2.57	.50	263Ω	10703-ND	12.22	91.75	407.37	RC2011P
60	3.50	3.08	.50	263Ω	10704-ND	14.65	110.00	488.40	RC2012P
Ribbon Cable Ferrites with Metal Clips									
20	1.50	1.05	.50	245Ω	10705-ND	6.56	49.25	218.67	RC2023M
26	1.77	1.35	.50	366Ω	10706-ND	8.39	63.00	279.72	RC2022M
40	2.50	2.05	.50	278Ω	10707-ND	10.92	82.00	364.08	RC2001M
50	3.00	2.57	.50	263Ω	10708-ND	11.66	87.50	388.50	RC2011M
60	3.50	3.08	.50	263Ω	10709-ND	13.49	101.25	449.55	RC2012M
Ribbon Cable Ferrites with Adhesive Mounting									
20	1.50	1.05	.50	245Ω	10710-ND	8.19	61.50	273.06	RC2023A
26	1.77	1.35	.50	366Ω	10711-ND	10.06	75.50	335.22	RC2022A
40	2.50	2.05	.50	278Ω	10712-ND	12.59	94.50	419.58	RC2001A
50	3.00	2.57	.50	263Ω	10713-ND	12.99	97.50	432.90	RC2011A
60	3.50	3.08	.50	263Ω	10714-ND	15.15	113.75	505.05	RC2012A

NEW! ParaCon Filter Blocks

Fig. 1

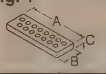


Fig. 2

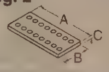


Fig. 3

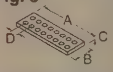


Fig. 4

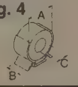
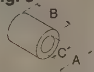


Fig. 5



Sub-D connector filter blocks: These low profile filter blocks are designed to fit the standard hole pattern of the Subminiature D connector design. Suppress EMI noise before it can couple with cables or other components that act as EMI antennas.

IC filter blocks: These low profile filter blocks are designed to fit under standard thru-hole .100 center IC's. Suppress EMI noise from the leads of IC's to keep signal lines clean. Designed for high frequency applications where low leakage currents or high voltage breakdown requirements exist.

Header filter blocks: These low profile filter blocks are designed to fit under the two most popular hole pattern headers; .100" x .100" and 2.00mm x 4.00mm. Suppress EMI noise from leaving or entering your circuit board via I/O headers, or to keep signal lines clean.

Cable Clip: A solid ferrite EMI bead in a nylon holder designed for convenient mounting to any surface with screw, rivet or nylon mounting hardware.

Tubular Bead: A solid ferrite EMI tubular bead for use in high volume applications where a plastic snap on a case is not required. Can be used in high volume over-mold applications where it is desired to have the filter molded in the same material as the connector backshell. Or can be covered with heat shrink and shrunk in place.

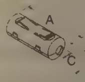
Fig. No.	Style	Dimensions A	B	C	D	Typical Impedence @ 100 MHz	Digi-Key Part No.	Pricing 1	10	50	ParaCon Part No.
Sub-D Connector Filter Blocks											
1	9 Pin	.57	.30	.135	—	245Ω	10715-ND	1.03	7.75	34.41	FB3567X
1	15 Pin	.89	.30	.135	—	366Ω	10716-ND	1.10	8.25	36.63	FB3888X
1	25 Pin	1.43	.30	.135	—	278Ω	10717-ND	1.13	8.50	37.74	FB3430X
IC Filter Blocks											
2	16 Pin	.85	.45	060	—	35Ω	10718-ND	1.50	11.25	49 95	FB3850X
2	20 Pin	1.05	.45	.060	—	48Ω	10719-ND	1.83	13.75	61.05	FB3105X
Header Filter Blocks											
3	16 Pin	.80	.40	.125	.100	53Ω	10720-ND	.67	5.00	22.20	FB3800X
3	24 Pin	1.20	.40	.20	.100	115Ω	10721-ND	1.10	8.25	36.63	FB2416X
3	24 Pin	1.47	.315	.157	.118	—	10722-ND	2.50	18.75	83.25	FB2431X
Cable Clip											
4	—	.87	.500	.540	—	80Ω	10723-ND	2.10	15.75	69.93	CC0870P
4	—	1.00	.500	.500	—	109Ω	10724-ND	4.06	30.50	135.42	CC1000P
Tubular Bead											
5	—	.562	1.125	.250	—	295Ω	10725-ND	2.00	15.00	66.60	TB0562X
5	—	.686	1.125	.375	—	219Ω	10726-ND	2.53	19.00	84.36	TB0686X
5	—	.735	1.125	.400	—	221Ω	10727-ND	3.13	23.50	104.34	TB0735X
5	—	1.02	1.125	.500	—	256Ω	10728-ND	5.73	43:00	190.92	TB1020X

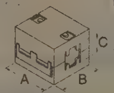
NEW! ParaCon Clamp-On Ferrites

Commonly called "bisected" or "split" components, clip on parts are generally associated with after market retrofit applications or for use in gaining compliance during the testing of a product. These parts provide excellent common mode EMI suppression in round cable applications and for use with network cables.

Cylinder Snap – A tube ferrite snap-on assembly designed for wires or small diameter cable.

Box Snap – A box shaped clip on ferrite assembly.





Color	Dimensions A	B	C	Typ. Impedence @ 100 MHz	Digi-Key Part No.	Pricing 1	10	50	ParaCon Part No.
Cylinder Snap									
White	1.15	.500	.200	131Ω	10729-ND	3.33	25.00	111.00	CS0392W
Grey	1.15	.500	.200	131Ω	10730-ND	3.33	25.00	111.00	CS0392G
Black	1.15	.500	.200	131Ω	10731-ND	3.33	25.00	111.00	CS0392B
Cream	1.15	.500	.200	131Ω	10732-ND	3.33	25.00	111.00	CS0392C
Box Snap									
White	1.30	.700	.250	151Ω	10733-ND	4.66	35.00	155.40	BS2025W
Black	1.30	.750	.250	151Ω	10734-ND	4.66	35.00	155.40	BS2025B
White	1.30	.900	.375	209Ω	10735-ND	5.66	42.50	188.70	BS2029W
Black	1.30	.950	.375	209Ω	10736-ND	5.66	42.50	188.70	BS2029B
White	1.30	1.20	.500	234Ω	10737-ND	9.32	70.00	310.80	BS2024W
Black	1.30	1.20	.500	234Ω	10738-ND	9.32	70.00	310.80	BS2024B

AMP Four Position Data Connector for the IEEE 802.5 Local Area Network

Kit Description: Connector (top and bottom cover assemblies), Stuffer Bux, Ferrule, Dust Cover, Latch Lock and Strain Relief Bushings for 45, 90 and 180 degree cable exit.
Cableless Balun Kit: A four position cableless balun kit is available which allows the customer to assemble his own electronic components which are required to convert the balanced twisted-pair cable to unbalanced coaxial cables. This kit contains a single BNC jack receptacle, but will accept a second BNC receptacle which can be ordered separately to provide the dual port version.
Material for A9105 & A9106: Stuffer Cap: Clear polycarbonate. **AMP-BARREL Terminal:** Tin plated phosphor bronze. **Label:** Adhesive backed polyester **Contacts:** Nickel plated high strength copper alloy having selective gold plating in contact area and selective tin plating in AMP-BARREL terminal area. **Housing:** Black thermoplastic, 94V-0 rated. **ConductorType:** Solid or stranded having .048 max. insulation O.D.

Fig. 1

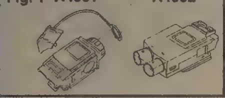
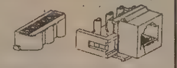
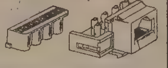


Fig. 2



Three Pair Modular Jack (6 Position)
IBM Equivalent P/N: 831575

Fig. 3



Four Pair Modular Jack (8 Position)
IBM Equivalent P/N 6091030

A9107-A9110

Compact couplers for two modular plugs; couplers snap into 0.585 x 0.765 (14.86 x 19.43) rectangular wallplate cutouts. Wired one-to-one.

Fig. 4

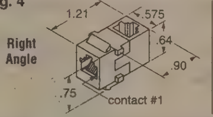


Fig. 5

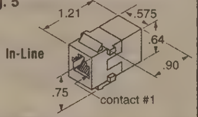
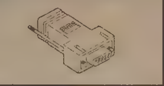


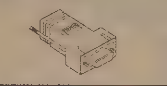
Fig.	Description	Digi-Key Part No.	Pricing 1	25	100	AMP Part No.
1	4-Position LAN Data Connector Kit	A4001-ND	5.84	116.80	423.40	554000-1
1	4-Position Cableless Balun Connector Kit	A4002-ND	16.81	404.06	1551.60	554560-1
1	BNC Receptacle For A4002 Kit	A4003-ND	4.28	85.60	310.30	554878-1
2	6-Position Modular Telephone Jack, IBM	A4004-ND	5.45	94.80	343.65	553983-1
3	8-Position Modular Telephone Jack, IBM	A4005-ND	5.61	97.60	353.80	554546-1
2	6-Position Modular Telephone Jack, Commercial	A9105-ND	5.85	117.00	374.40	554171-1
3	8-Position Modular Telephone Jack, Commercial	A9106-ND	6.00	120.00	384.00	554578-1
4	6-Position Coupler, Right Angle, Panel Mount	A9107-ND	4.75	95.00	304.00	555049-1
4	8-Position Coupler, Right Angle, Panel Mount	A9108-ND	4.98	99.50	318.40	555051-1
5	6-Position Coupler, In-Line, Panel Mount	A9109-ND	4.68	93.50	299.20	555050-1
5	8-Position Coupler, In-Line, Panel Mount	A9110-ND	4.75	95.00	304.00	555052-1

Cui Stack Modular Components

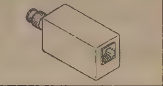
A



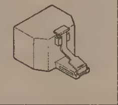
B



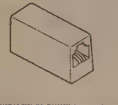
C



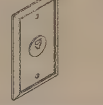
D



E



F



G

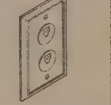


Fig.	Description	Digi-Key Part No.	Pricing 1	10	100	1,000
B	DB9P to RJ45 Jack (8-8)	046-0000-ND*	4.95	41.28	330.17	2475.00
A	DB9S to RJ45 Jack (8-8)	046-0001-ND*	4.95	41.28	330.17	2475.00
B	DB9P to RJ11 Jack (6-6)	046-0002-ND*	4.95	41.28	330.17	2475.00
A	DB9S to RJ11 Jack (6-6)	046-0003-ND*	4.95	41.28	330.17	2475.00
B	DB15P to RJ45 (8-8)	046-0004-ND*	5.55	46.29	370.19	2775.00
A	DB15S to RJ45 (8-8)	046-0005-ND*	5.55	46.29	370.19	2775.00
B	DB25P to RJ11 (6-6)	046-0008-ND*	5.25	43.79	350.18	2625.00
A	DB25S to RJ11 (6-6)	046-0009-ND*	5.25	43.79	350.18	2625.00
B	DB25P to RJ45 (8-8)	046-0010-ND*	5.25	43.79	350.18	2625.00
A	DB25S to RJ45 (8-8)	046-0011-ND*	5.25	43.79	350.18	2625.00
B	DB15P to RJ11 (6-6)	046-0016-ND*	5.55	46.29	370.19	2775.00
A	DB15S to RJ11 (6-6)	046-0017-ND*	5.55	46.29	370.19	2775.00
C	BNC RG62 to RJ11 Converter (6-6)	048-0000-ND	19.89	165.88	1326.66	9945.00
D	4 Wire TEE Adaptor 1M-2F	048-0050-ND	2.40	20.00	160.00	1200.00
D	6 Wire TEE Adaptor 1M-2F	048-0051-ND	3.57	29.75	238.00	1785.00
E	6-6 Modular Coupling (crossed) #1 to #6	048-0056-ND	1.80	15.00	120.00	900.00
E	6-6 Modular Coupling (straight) #1 to #1	048-0103-ND	1.80	15.00	120.00	900.00
F	4 Wire Wall Plate	048-0059-ND	2.07	17.25	138.00	1035.00
G	6 Wire Dual Wall Plate	048-0060-ND	3.03	25.25	202.00	1515.00
F	6 Wire Wall Plate	048-0061-ND	3.24	27.00	216.00	1620.00
F	8 Wire Wall Plate	048-0062-ND	4.02	33.50	268.00	2010.00

* User Configurable

CINCH Jones Plugs & Sockets

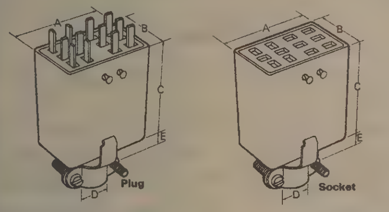
- Two-contact "Jones" connector is round, all others are rectangular.

Features:

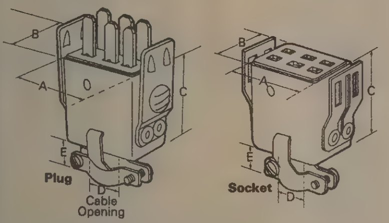
- Solder lug terminals with .093" x .062" wiring holes.
- For use in cable-to-panel applications.
- Plug prongs are .156" wide and .047" thick.
- Polarized to prevent wrong way insertion.

Performance Data:
Insulation Material: Molded monoblock, general purpose phenolic. **Contact Material:** Plug: Brass. Socket: Phosphor bronze. **Contact Plating:** Cadmium. **Operating Temperature:** Up to +105°C. **Hood Material:** UL 94V-0 rated thermo-plastic. **Withstanding Voltage:** 730VAC rms (@ sea level). **Current Rating:** 10 amps. **Contact Resistance:** 16 Milliohms maximum.

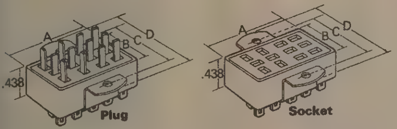
180° Clamp



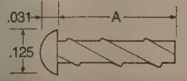
180° Clamp with Locks



Angle Bracket (Panel Mount)



Replacement Drive Pins



No. Contacts	Description	Dimensions (In.) A	B	C	D	E	Digi-Key Part No.	Pricing 1	25	50	100	250	500	Cinch Part No.
180° Clamp (Cable Mount)														
2	Plug	.691	—	.953	.375	.359	CJ102P-ND	2.63	50.01	90.97	164.40	390.45	728.84	P-302-CCT
3	Plug	1.034	.472	.953	.313	.359	CJ103P-ND	2.88	54.80	99.68	180.15	427.86	798.67	P-303-CCT
4	Plug	.786	.724	.953	.375	.469	CJ104P-ND	3.24	61.64	112.13	202.65	481.29	898.42	P-304-CCT
6	Plug	1.036	.724	1.078	.438	.484	CJ106P-ND	3.51	66.80	121.51	219.60	521.55	973.56	P-306-CCT
8	Plug	1.286	.724	1.078	.500	.484	CJ108P-ND	3.85	73.14	133.05	240.45	571.07	1066.00	P-308-CCT
10	Plug	1.592	.720	1.203	.500	.500	CJ110P-ND	4.17	79.25	144.17	260.55	618.81	1155.11	P-310-CCT
12	Plug	1.286	.974	1.203	.563	.469	CJ112P-ND	4.45	84.59	153.88	278.10	660.49	1232.91	P-312-CCT
2	Socket	.691	—	.953	.375	.359	CJ102S-ND	2.80	53.20	96.78	174.90	415.39	775.39	S-302-CCT
3	Socket	1.034	.472	.953	.313	.359	CJ103S-ND	3.25	61.87	112.55	203.40	483.08	901.74	S-303-CCT
4	Socket	.786	.724	.953	.375	.469	CJ104S-ND	3.29	62.60	113.88	205.80	488.78	912.38	S-304-CCT
6	Socket	1.036	.724	1.078	.438	.484	CJ106S-ND	3.75	71.31	129.73	234.45	556.82	1039.40	S-306-CCT
8	Socket	1.286	.724	1.078	.500	.484	CJ108S-ND	4.54	86.32	157.04	283.80	674.03	1258.18	S-308-CCT
10	Socket	1.592	.720	1.203	.500	.500	CJ110S-ND	5.11	97.18	176.79	319.50	758.81	1416.45	S-310-CCT
12	Socket	1.286	.974	1.203	.563	.469	CJ112S-ND	5.82	110.64	201.28	363.75	863.91	1612.63	S-312-CCT
180° Clamp with Locks (Cable Mount)														
2	Plug	.691	—	.953	.375	.359	CJ202P-ND	4.85	92.12	167.58	302.85	719.27	1342.64	P-302-CCT-L
3	Plug	1.034	.472	.953	.313	.359	CJ203P-ND	5.40	102.66	186.75	337.50	801.56	1496.25	P-303-CCT-L
4	Plug	.786	.724	.953	.375	.469	CJ204P-ND	5.27	100.10	182.10	329.10	781.61	1459.01	P-304-CCT-L
6	Plug	1.036	.724	1.078	.438	.484	CJ206P-ND	5.57	105.90	192.64	348.15	826.86	1543.47	P-306-CCT-L
8	Plug	1.286	.724	1.078	.500	.484	CJ208P-ND	5.85	111.19	202.27	365.55	868.18	1620.61	P-308-CCT-L
10	Plug	1.592	.720	1.203	.500	.500	CJ210P-ND	6.42	122.00	221.94	401.10	952.61	1778.21	P-310-CCT-L
12	Plug	1.286	.974	1.203	.563	.469	CJ212P-ND	6.90	131.22	238.71	431.40	1024.58	1912.54	P-312-CCT-L
2	Socket	.691	—	.953	.375	.359	CJ202S-ND	4.88	92.76	168.74	304.95	724.26	1351.95	S-302-CCT-K
3	Socket	1.034	.472	.953	.313	.359	CJ203S-ND	5.82	110.64	201.28	363.75	863.91	1612.63	S-303-CCT-K
4	Socket	.786	.724	.953	.375	.469	CJ204S-ND	5.64	107.17	194.97	352.35	836.83	1562.09	S-304-CCT-K
6	Socket	1.036	.724	1.078	.438	.484	CJ206S-ND	6.17	117.30	213.39	385.65	915.92	1709.72	S-306-CCT-K
8	Socket	1.286	.724	1.078	.500	.484	CJ208S-ND	6.95	132.13	240.37	434.40	1031.70	1925.84	S-308-CCT-K
10	Socket	1.592	.720	1.203	.500	.500	CJ210S-ND	8.34	158.60	288.53	521.44	1238.41	2311.71	S-310-CCT-K
12	Socket	1.286	.974	1.203	.563	.469	CJ212S-ND	8.23	156.54	284.77	514.65	1222.29	2281.62	S-312-CCT-K
Angle Bracket (Panel Mount)														
2	Plug	.656	—	.969	1.219	—	CJ302P-ND	1.43	27.15	49.39	89.25	211.97	395.68	P-302-AB
3	Plug	1.000	.438	.750	1.062	—	CJ303P-ND	1.54	29.20	53.12	96.00	228.00	425.60	P-303-AB
4	Plug	.750	.688	1.000	1.312	—	CJ304P-ND	1.65	31.34	57.02	103.05	244.74	456.86	P-304-AB
6	Plug	1.000	.688	1.000	1.312	—	CJ306P-ND	2.14	40.65	73.95	133.65	317.42	592.52	P-306-AB
8	Plug	1.250	.688	1.000	1.312	—	CJ308P-ND	2.47	47.04	85.57	154.65	367.29	685.62	P-308-AB
10	Plug	1.562	.688	1.000	1.312	—	CJ310P-ND	2.63	50.01	90.97	164.40	390.45	728.84	P-310-AB
12	Plug	1.250	.938	1.250	1.562	—	CJ312P-ND	2.85	54.25	98.69	178.35	423.58	790.69	P-312-AB
2	Socket	.656	—	.969	1.219	—	CJ302S-ND	1.48	28.11	51.13	92.40	219.45	409.64	S-302-AB
3	Socket	1.000	.438	.750	1.062	—	CJ303S-ND	1.82	34.58	62.91	113.70	270.04	504.07	S-303-AB
4	Socket	.750	.688	1.000	1.312	—	CJ304S-ND	1.90	36.14	65.74	118.80	282.15	526.68	S-304-AB
6	Socket	1.000	.688	1.000	1.312	—	CJ306S-ND	2.51	47.68	86.74	156.75	372.28	694.93	S-306-AB
8	Socket	1.250	.688	1.000	1.312	—	CJ308S-ND	2.95	56.16	102.17	184.65	438.54	818.62	S-308-AB
10	Socket	1.562	.688	1.000	1.312	—	CJ310S-ND	3.57	67.94	123.59	223.35	530.46	990.19	S-310-AB
12	Socket	1.250	.938	1.250	1.562	—	CJ312S-ND	6.80	129.26	235.14	424.95	1009.26	1883.95	S-312-AB
Contact Drive Pins														
2	Pins	.687	—	—	—	—	CJ302R-ND	.54	10.27	18.68	33.75	80.16	149.63	302R
3	Pins	.468	—	—	—	—	CJ303R-ND	.53	10.13	18.43	33.30	79.09	147.63	303R
4, 6, 8, 10*	Pins	.718	—	—	—	—	CJ304R-ND	.54	10.27	18.68	33.75	80.16	149.63	304R
12	Pins	.953	—	—	—	—	CJ312R-ND	.59	11.13	20.25	36.60	86.93	162.26	312R

* 10 contact size requires 2 pins per unit, all other sizes require only 1.

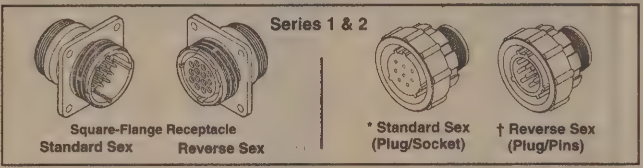
AMP

Circular Plastic Connectors

Component Diameter	
Arangement/ Shell Size	**Overall Diameter**
11	.942
13	1.315
17	1.315
23	1.743

• Lightweight, all-plastic connectors. • CPC connectors made of UL recognized, high-grade black thermoplastic material. • 94V-1 rated, heat-stabilized, fire-resistant, self-extinguishing • Two connector series for different connection needs: • Series 1 — Standard density applications with Multimate contacts. • Series 2 — High-density applications with size 20 DM and 20 DF contacts, .040" (1.02 mm) dia. • Available in panel-mount, chassis-mount and free hanging versions. • Quick-connect/disconnect capability with thread assist, positive detent coupling. • Built-in pin and socket protection. Plug or socket half can be "hot", depending on connector sex. • 5-key polarization for proper mating of connector halves. • Full complement of optional accessories.

Note: *Contacts (pins and sockets) must be ordered separately.*



* Standard Sex: Pin contacts in receptacle housings; socket contacts in plug housings.
† Reverse Sex: Socket contacts in receptacle housings; pin contacts in plug housings.

Circular Plastic Connectors – Series 1 (Shell Only)

Arrange-ment No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	100	AMP Part No.
Series 1								
11-4	Rev.	Receptacle-Sq. Flanged	A1360-ND	1.66	38.48	67.23	119.07	206430-1
		Receptacle-Free Hanging	A1361-ND	1.66	38.48	67.23	119.07	206430-2
		Plug	A1357-ND	2.05	47.50	83.00	147.00	206429-1
	Std.	Receptacle-Sq. Flanged	A1301-ND	1.60	—	—	114.66	206061-1
		Receptacle-Free Hanging	A1351-ND	1.66	38.48	67.23	119.07	206153-1
		Plug	A1300-ND	2.03	47.03	82.17	145.53	206060-1
13-9	Std.	Receptacle-Sq. Flanged	A1303-ND	1.74	40.38	70.55	124.95	206705-1
		Receptacle-Free Hanging	A1352-ND	1.78	41.33	72.21	127.89	206705-2
		Plug	A1302-ND	2.23	51.78	90.47	160.23	206708-1
17-14	Rev.	Receptacle-Sq. Flanged	A1362-ND	1.85	42.75	74.70	132.30	206043-1
		Receptacle-Free Hanging	A1363-ND	2.36	54.63	95.45	169.05	206043-3
		Plug	A1358-ND	2.32	53.68	93.79	166.11	206044-1
17-16	Std.	Receptacle-Sq. Flanged	A1305-ND	1.85	42.75	74.70	132.30	206036-1
		Receptacle-Free Hanging	A1353-ND	1.85	42.75	74.70	132.30	206036-3
		Plug	A1304-ND	2.32	53.68	93.79	166.11	206037-1
23-24	Std.	Receptacle-Sq. Flanged	A1354-ND	2.32	53.68	93.79	166.11	206838-1
		Receptacle-Free Hanging	A1355-ND	3.14	72.68	126.99	224.91	206838-2
		Plug	A1350-ND	2.97	68.88	120.35	213.15	206837-1
23-37	Rev.	Receptacle-Sq. Flanged	A1364-ND	2.11	48.93	85.49	151.41	206306-1
		Receptacle-Free Hanging	A1365-ND	2.93	67.93	118.69	210.21	206306-2
		Plug	A1359-ND	2.64	61.28	107.07	189.63	206305-1
	Std.	Receptacle-Sq. Flanged	A1307-ND	2.11	48.93	85.49	151.41	206151-1
		Receptacle-Free Hanging	A1356-ND	2.34	54.15	94.62	167.58	206151-2
		Plug	A1306-ND	2.64	61.28	107.07	189.63	206150-1

VDE Tested Connectors – Series 1 (Shell Only)

Designed to meet requirements of VDE as shown in DIN Specification 57627. Recognized under the Component Program of Underwriters Laboratories Inc. for 600 VAC and 600 VDC service, File No. E28476. Certified by Canadian Standards Association, File No. LR7189.

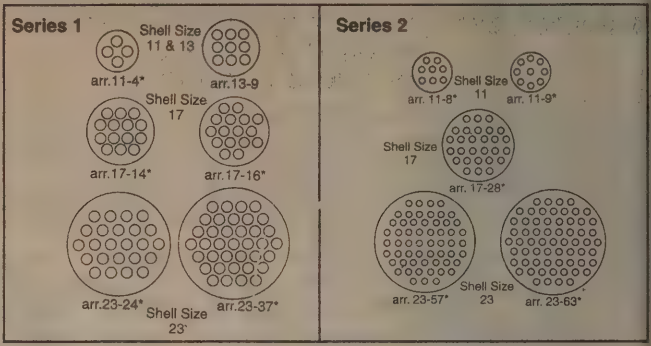
Arrange-ment No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	100	AMP Part No.
Series 1								
13-7	Std.	Receptacle-Sq. Flanged	A1635-ND	2.99	69.35	121.18	214.62	211401-1
		Plug	A1638-ND	2.69	62.23	108.73	192.57	211399-1
	Rev.	Receptacle-Sq. Flanged	A1641-ND	2.60	60.33	105.41	186.69	211398-1
		Plug	A1644-ND	3.12	72.20	126.16	223.44	211400-1
17-9	Std.	Receptacle-Sq. Flanged	A1636-ND	2.73	63.18	110.39	195.51	211767-1
		Plug	A1639-ND	3.59	83.13	145.25	257.25	211766-1
	Rev.	Receptacle-Sq. Flanged	A1642-ND	3.03	70.30	122.84	217.56	211769-1
		Plug	A1645-ND	3.24	75.05	131.14	232.26	211768-1
23-19	Std.	Receptacle-Sq. Flanged	A1637-ND	3.57	82.65	144.42	255.78	211771-1
		Plug	A1640-ND	4.37	101.18	176.79	313.11	211770-2
	Rev.	Receptacle-Sq. Flanged	A1643-ND	3.03	70.30	122.84	217.56	211773-1
		Plug	A1646-ND	3.63	84.08	146.91	260.19	211772-1

Sealed Connectors – Series 1 (Shell Only)

Sealed CPC connectors are designed to meet the requirements of UL, CSA, and VDE for environmentally sealed connectors used in industrial applications.

Operating Temperature Range: -50°C - 125°C. **Voltage Rating:** 600 V (AC or DC), **Contacts:** 13 amps., single contact rating at 30°C T-Rise. **Flammability Rating:** UL 94V-0 rated. **Sealing Capability:** Per IP 66 and IP 67. **Housing Material:** Black, high strength, impact resistant thermoplastic. **Seal:** Gray Elastomer. **Fluid Resistance:** Diesel fuel, gear and engine fuel, gasoline, anti-freeze, hydraulic fluid, water.

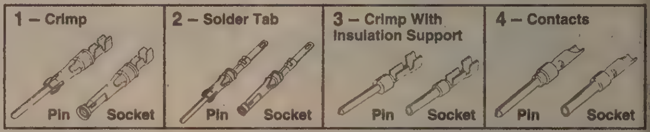
Arrange-ment No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	100	AMP Part No.
Series 1								
11-4	Rev.	Square Flange	A1675-ND	2.44	56.53	98.77	174.93	206430-3
		Free-Hanging	A1676-ND	2.44	56.53	98.77	174.93	206430-4
13-9	Std.	Square Flange	A1669-ND	2.62	60.80	106.24	188.16	206705-3
		Free-Hanging	A1670-ND	2.67	61.75	107.90	191.10	206705-4
17-14	Rev.	Square Flange	A1677-ND	2.60	60.33	105.41	186.69	206043-4
		Free-Hanging	A1678-ND	3.12	72.20	126.16	223.44	206043-5
17-16	Std.	Square Flange	A1671-ND	3.01	69.83	122.01	216.09	206036-4
		Free-Hanging	A1672-ND	2.60	60.33	105.41	186.69	206036-5
23-24	Std.	Square Flange	A1673-ND	3.08	71.25	124.50	220.50	206838-3
		Free-Hanging	A1674-ND	4.86	112.58	196.71	348.39	206838-4



Circular Plastic Connectors – Series 2 (Shell Only)

Arrange-ment No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	100	AMP Part No.
Series 2								
11-8	Std.	Receptacle-Sq. Flanged	A1366-ND	3.05	70.78	123.67	219.03	205841-1
		Receptacle-Free Hanging	A1367-ND	3.03	70.30	122.84	217.56	205841-2
		Plug	A1368-ND	3.67	85.03	148.57	263.13	205838-1
	Rev.	Receptacle-Sq. Flanged	A1369-ND	3.10	71.73	125.33	221.97	206433-1
		Receptacle-Free Hanging	A1370-ND	3.10	71.73	125.33	221.97	206433-2
		Plug	A1371-ND	3.67	85.03	148.57	263.13	206434-1
11-9	Std.	Receptacle-Sq. Flanged	A1372-ND	2.99	69.35	121.18	214.62	206486-1
		Receptacle-Free Hanging	A1373-ND	3.10	71.73	125.33	221.97	206486-2
		Plug	A1374-ND	3.59	83.13	145.25	257.25	206485-1
17-28	Std.	Receptacle-Sq. Flanged	A1375-ND	3.32	76.95	134.46	238.14	205840-3
		Receptacle-Free Hanging	A1376-ND	3.90	90.25	157.70	279.30	206152-1
		Plug	A1377-ND	3.90	90.25	157.70	279.30	205839-3
	Rev.	Receptacle-Sq. Flanged	A1378-ND	3.22	74.58	130.31	230.79	206038-1
		Receptacle-Free Hanging	A1379-ND	3.94	91.20	159.36	282.24	206038-2
		Plug	A1380-ND	3.81	88.35	154.38	273.42	206039-1
23-57	Rev.	Receptacle-Sq. Flanged	A1381-ND	5.08	117.80	205.84	364.56	206438-1
		Receptacle-Free Hanging	A1382-ND	8.14	188.58	329.51	583.59	206438-2
		Plug	A1383-ND	5.25	121.60	212.48	376.32	206437-1
23-63	Std.	Receptacle-Sq. Flanged	A1384-ND	4.88	113.05	197.54	349.86	205843-1
		Receptacle-Free Hanging	A1385-ND	5.64	130.63	228.25	404.25	205843-2
		Plug	A1386-ND	5.21	120.65	210.82	373.38	205842-1

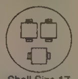
Contacts (Pins and Sockets) – Series 1 and Series 2

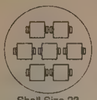


Desc.	Dia-gram	Type	Wire Size AWG	Contact Finish	Digi-Key Part No.	Pricing 10	100	1,000	5,000	AMP Part No.
Series 1										
Pin	1	Crimp	18-14	Tin	A1320-ND	3.12	21.77	153.44	124.67/M	66361-2
Pin	1	Crimp	18-14	SG†	A1340-ND	4.76	33.26	234.45	190.49/M	66099-4
Socket	1	Crimp	18-14	Tin	A1321-ND	3.67	25.61	180.51	146.67/M	66360-2
Socket	1	Crimp	18-14	SG†	A1341-ND	7.11	49.66	350.03	284.41/M	66360-4
Pin	1	Crimp	18-14	SG†	A1650-ND	4.80	33.54	236.43	192.11/M	66361-4
Socket	1	Crimp	18-16	SG†	A16080-ND	5.69	39.75	280.18	227.65/M	66101-4
Pin	1	Crimp	18-16	Tin	A1649-ND	3.15	21.98	154.94	125.90/M	66099-2
Socket	1	Crimp	18-16	Tin	A1665-ND	3.73	26.04	183.54	149.13/M	66101-2
Pin	1	Crimp	24-20	SG†	A1648-ND	4.76	33.26	234.45	190.49/M	66400-4
Socket	1	Crimp	24-20	SG†	A1661-ND	5.69	39.71	279.89	227.41/M	66399-4
Pin	1	Crimp	24-20	Tin	A1647-ND	3.15	21.98	154.94	125.90/M	66400-1
Socket	1	Crimp	24-20	Tin	A1656-ND	3.73	26.04	183.54	149.13/M	66399-1
Socket	1	Crimp	26-24	Tin	A1654-ND	5.74	40.12	282.80	229.78/M	66109-2
Pin	1	Crimp	24-20	Tin	A1322-ND	3.15	21.98	154.94	125.90/M	66103-2
Pin	1	Crimp	24-20	SG†	A1342-ND	4.76	33.23	234.19	190.29/M	66103-4
Socket	1	Crimp	24-20	Tin	A1323-ND	3.73	26.04	183.54	149.13/M	66105-2
Socket	1	Crimp	24-20	SG†	A1343-ND	5.69	39.71	279.89	227.41/M	66105-4
Pin	1	Crimp	28-24	Tin	A1324-ND	3.18	22.20	156.48	127.14/M	66107-2
Pin	1	Crimp	28-24	SG†	A1344-ND	4.75	33.20	233.98	190.12/M	66107-4
Socket	1	Crimp	28-24	SG†	A1345-ND	5.68	39.68	279.71	227.27/M	66109-4
Pin	2	Solder	—	Tin	A1629-ND	6.23	43.52	306.72	249.21/M	202236-2
Socket	2	Solder	—	Tin	A1631-ND	6.82	47.67	335.97	272.98/M	202237-2
Pin	2	Solder	—	Duplex‡	A16081-ND	11.03	77.07	543.20	441.35/M	202236-1
Socket	2	Solder	—	Duplex‡	A1668-ND	12.28	85.80	604.78	491.39/M	202237-1
Signal Contact – Series 2										
Pin	3	Crimp	24-20	SG†	A1008-ND	2.69	16.55	132.38	107.57/M	1-66506-0
Socket	3	Crimp	24-20	SG†	A1009-ND	2.99	18.39	147.09	119.51/M	1-66504-0
Pin	3	Crimp	24-20	SG†	A1679-ND	2.92	20.41	143.82	116.86/M	66506-9
Socket	3	Crimp	24-20	SG†	A1680-ND	3.25	22.68	159.82	129.86/M	66504-9
Pin	4	Solder	24-20	SG†	A1028-ND	3.52	21.63	173.06	140.61/M	66570-3
Socket	4	Solder	24-20	SG†	A1029-ND	4.23	26.01	208.05	169.04/M	66569-3

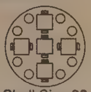
† Selective gold. Gold flash over .000050 nickel on entire contact, with .000030 gold on electrical engagement area.
‡ Duplex plated .000030 gold in mating area over .000050 nickel on contact body; bright tin-lead on solder tab.

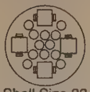
Series 3

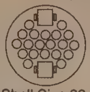

Shell Size 17
Arrangement 17-3


Shell Size 23
Arrangement 23-7

Series 4


Shell Size 23
Arr. 23-13M

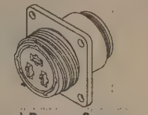

Shell Size 23
Arr. 23-16M

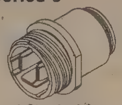

Shell Size 23
Arr. 23-22M

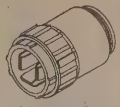
Circular Plastic Connectors – Series 3 (Shell Only)

Note:
Contacts (pins and sockets) must be ordered separately.

Series 3


† Reverse Sex
Square Flange Receptacle


*** Standard Sex**
Free-Hang. Receptacle


† Reverse Sex
Plug

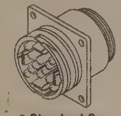
* Standard Sex: Pin contacts in receptacle housings; socket contacts in plug housings.
† Reverse Sex: Socket contacts in receptacle housings; pin contacts in plug housings.

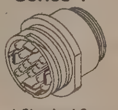
Arrangement No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	100	AMP Part No.
Series 3								
17-3	Std.	Receptacle-Sq. Flanged	A1681-ND	2.09	48.45	84.66	149.94	206036-2
		Receptacle-Free Hanging	A1683-ND	2.09	48.45	84.66	149.94	206207-1
		Plug	A1685-ND	2.69	62.23	108.73	192.57	206037-2
	Rev.	Receptacle-Sq. Flanged	A16015-ND	2.09	48.45	84.66	149.94	206425-1
		Receptacle-Free Hanging	A16017-ND	2.81	65.08	113.71	201.39	206425-2
		Plug	A16019-ND	3.71	85.98	150.23	266.07	206426-1
23-7	Std.	Receptacle-Sq. Flanged	A1682-ND	3.22	74.58	130.31	230.79	206137-1
		Receptacle-Free Hanging	A1684-ND	3.30	76.48	133.63	236.67	206137-2
		Plug	A1686-ND	2.95	68.40	119.52	211.68	206136-1
	Rev.	Receptacle-Sq. Flanged	A16016-ND	2.56	59.38	103.75	183.75	206227-1
		Receptacle-Free Hanging	A16018-ND	3.71	85.98	150.23	266.07	206227-2
		Plug	A16020-ND	3.01	69.83	122.01	216.09	206226-1

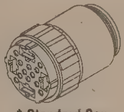
Circular Plastic Connectors – Series 4 (Shell Only)

Note:
Contacts (pins and sockets) must be ordered separately.

Series 4


*** Standard Sex**
Square Flange Receptacle


*** Standard Sex**
Free-Hang. Receptacle


*** Standard Sex**
Plug

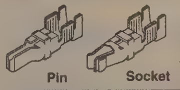
* Standard Sex: Pin contacts in receptacle housings; socket contacts in plug housings.

Arrangement No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	100	AMP Part No.
Series 4								
23-13	Std.	Receptacle-Sq. Flanged	A16029-ND	3.81	88.35	154.38	273.42	211825-1
		Receptacle-Free Hanging	A16032-ND	2.81	65.08	113.71	201.39	211825-2
		Plug	A16035-ND	4.04	93.58	163.51	289.59	211824-1
23-16	Std.	Receptacle-Sq. Flanged	A16030-ND	2.50	57.95	101.26	179.34	207486-1
		Receptacle-Free Hanging	A16033-ND	3.57	82.65	144.42	255.78	207486-2
		Plug	A16036-ND	2.89	66.98	117.03	207.27	207485-1
23-22	Std.	Receptacle-Sq. Flanged	A16031-ND	2.44	56.53	98.77	174.93	206613-1
		Receptacle-Free Hanging	A16034-ND	3.32	76.95	134.46	238.14	206613-3
		Plug	A16037-ND	3.46	80.28	140.27	248.43	206612-1

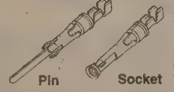
Contacts – Series 3 and 4

Series 4 requires a combination of Fig. 5 & 6.

5 – Power Contacts



6 – Crimp



Desc.	Fig.	Type	Wire Size AWG	Contact Finish	Digi-Key Part No.	Pricing 10	100	1,000	AMP Part No.
Series 3									
Pin	5	Crimp	16 & 14-12	Tin	A16021-ND	12.16	84.93	598.64	66261-1
Socket	5	Crimp	16 & 14-12	Tin	A16025-ND	22.10	154.39	1088.24	66740-8
Pin	5	Crimp	16 & 14-12	SG†	A16022-ND	30.57	213.55	1505.18	66261-2
Socket	5	Crimp	16 & 14-12	SG†	A16026-ND	37.69	263.23	1855.34	66740-6
Pin	5	Crimp	10	Tin	A16023-ND	12.16	84.93	598.59	66259-1
Socket	5	Crimp	10	Tin	A16027-ND	29.29	204.55	1441.74	66741-8
Pin	5	Crimp	10	SG†	A16024-ND	31.71	221.51	1561.31	66259-2
Socket	5	Crimp	10	SG†	A16028-ND	41.74	291.56	2055.06	66741-6
Series 4 requires a combination of Fig. 5 & 6.									
Pin	6	Crimp	18-14	Tin	A1320-ND	3.12	21.77	153.44	66361-2
Pin	6	Crimp	18-14	SG†	A1340-ND	4.76	33.26	234.45	66099-4
Socket	6	Crimp	18-14	Tin	A1321-ND	3.67	25.61	180.51	66360-2
Socket	6	Crimp	18-14	SG†	A1341-ND	7.11	49.66	350.03	66360-4
Pin	6	Crimp	18-14	SG†	A1650-ND	4.80	33.54	236.43	66361-4
Socket	6	Crimp	18-16	SG†	A16080-ND	5.69	39.75	280.18	66101-4
Pin	6	Crimp	18-16	Tin	A1649-ND	3.15	21.98	154.94	66099-2
Socket	6	Crimp	18-16	Tin	A1665-ND	3.73	26.04	183.54	66101-2
Pin	6	Crimp	24-20	SG†	A1648-ND	4.76	33.26	234.45	66400-4
Socket	6	Crimp	24-20	SG†	A1661-ND	5.69	39.71	279.89	66399-4
Pin	6	Crimp	24-20	Tin	A1647-ND	3.15	21.98	154.94	66400-1
Socket	6	Crimp	24-20	Tin	A1656-ND	3.73	26.04	183.54	66399-1
Socket	6	Crimp	26-24	Tin	A1654-ND	5.74	40.12	282.80	66109-2
Pin	6	Crimp	24-20	Tin	A1322-ND	3.15	21.98	154.94	66103-2
Pin	6	Crimp	24-20	SG†	A1342-ND	4.76	33.23	234.19	66103-4
Socket	6	Crimp	24-20	Tin	A1323-ND	3.73	26.04	183.54	66105-2
Socket	6	Crimp	24-20	SG†	A1343-ND	5.69	39.71	279.89	66105-4
Pin	6	Crimp	28-24	Tin	A1324-ND	3.18	22.20	156.48	66107-2
Pin	6	Crimp	28-24	SG†	A1344-ND	4.75	33.20	233.98	66107-4
Socket	6	Crimp	28-24	SG†	A1345-ND	5.68	39.68	279.71	66109-4

† Selective gold. .000030 selective gold over .000030 nickel.

Circular Plastic Connector Sealing Accessories

Fig. 1 Sealing Cap

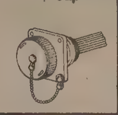


Fig. 2 Cable Entry Seal

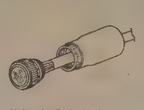


Fig. 3 Cable Grip and Boot

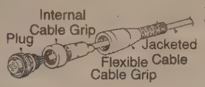


Fig. 4 Plug and Coupling Ring

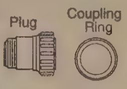


Fig. 5 Jacketed Cable Seal

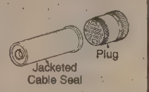


Fig. 6 Rubber Boot

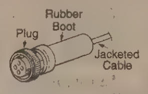


Fig. 7 Back Shell Extender

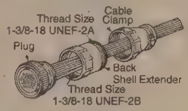


Fig. 8 Seal

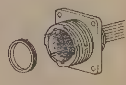
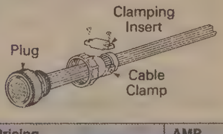


Fig. No.	Description	Shell Size	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
Sealing Caps (For Receptacles Only)							
1	Plastic Strap	11	A16038-ND	2.50	57.95	101.26	206903-1
1	Plastic Strap	13	A16039-ND	2.28	52.73	92.13	211870-1
1	Plastic Strap	17	A16040-ND	2.67	61.75	107.90	207445-1
1	Plastic Strap	23	A16041-ND	3.10	71.73	125.33	207446-1
1	Metal Bead Chain	11	A16042-ND	4.16	96.43	168.49	208800-1
1	Metal Bead Chain	13	A16043-ND	4.92	114.00	199.20	213485-1
1	Metal Bead Chain	17	A16044-ND	4.00	92.63	161.85	208652-1
1	Metal Bead Chain	23	A16045-ND	4.80	111.15	194.22	208680-1
Cable Entry Seals							
2	Heat Shrinkable Sealing Boots	11	A16046-ND	5.66	131.10	229.08	54010-1
2	Heat Shrinkable Sealing Boots	13	A16047-ND	6.27	145.35	253.98	54123-1
2	Heat Shrinkable Sealing Boots	17	A16048-ND	6.17	142.98	249.83	54011-1
2	Heat Shrinkable Sealing Boots	23	A16049-ND	6.91	160.08	279.71	54012-1
Flexible Cable Boot and Internal Cable Grip							
3	Cable Boot, Black Thermoplastic	11	A16050-ND	1.62	37.53	65.57	207489-1
3	Cable Boot, Black Thermoplastic	17	A16052-ND	2.95	68.40	119.52	207241-1
3	Cable Grip, Black Thermoplastic	11	A16051-ND	1.76	40.85	71.38	207490-1
3	Cable Grip, Blk. Thermoplastic .325	17	A16053-ND	2.48	57.48	100.43	207387-1
3	Cable Grip, Blk. Thermoplastic .385	17	A16054-ND	2.40	55.58	97.11	207387-2
Replacement Coupling Rings							
4	Replacement Coupling Ring	11	A16055-ND	.70	16.11	28.16	213811-1
4	Replacement Coupling Ring	13	A16056-ND	.98	22.67	39.61	213813-1
4	Replacement Coupling Ring	17	A16057-ND	.78	18.10	31.63	213810-1
4	Replacement Coupling Ring	23	A16058-ND	1.25	28.96	50.60	213812-1
5	Jacketed Cable Seals, Cable Dia. .300	23	A16063-ND	14.92	345.80	604.24	207052-1
5	Jacketed Cable Seals, Cable Dia. .450	23	A16064-ND	16.17	374.78	654.87	207052-2
5	Jacketed Cable Seals, Cable Dia. .600	23	A16065-ND	9.02	209.00	365.20	207052-3
6	Rubber Boots*	11	A16059-ND	3.17	73.53	128.49	206304-1
6	Rubber Boots*	17	A16060-ND	1.80	41.80	73.04	206398-1
7	Back Shell Extenders	23	A16062-ND	2.95	68.40	119.52	207055-1
Peripheral Seals							
8	For Receptacles Only	11	A1335-ND	.54	10.73	17.82	206403-1
8	For Receptacles Only	13	A1336-ND	.79	15.86	26.32	206403-4
8	For Receptacles Only	17	A1337-ND	.61	12.18	20.22	206403-2
8	For Receptacles Only	23	A1338-ND	1.11	22.15	36.77	206403-3
Keying Plugs							
Series 1 & 4			A16066-ND	.13	3.12	5.45	200821-1
Series 2			A16067-ND	.34	7.90	13.80	206509-1
Series 3 & 4 (Socket Cavities)			A16068-ND	.50	11.67	20.39	206508-1
Series 3 & 4 (Pin Cavities)			A16069-ND	1.69	39.19	68.49	207597-1

*Rubber Boots are used with jacketed cable to provide splashproof connections for Series 1 and Series 3 connectors. Black neoprene.

Cable Clamps – Plastic Shell

Cable clamps are used to prevent excessive strain on cable or wire from being transmitted to the contacts inside the connector housings.



Shell Size	Type, Cable O.D.	Digi-Key Part No.	Pricing 1	25	50	100	500	AMP Part No.
11	Plastic Shell, .329	A1330-ND	2.22	52.65	99.45	184.86	789.75	206062-1
13	Plastic Shell, .453	A1331-ND	2.24	53.10	100.30	186.44	796.50	206966-1
17	Plastic Shell, .453	A1332-ND	2.24	53.10	100.30	186.44	796.50	206070-1
23	Plastic Shell, .703	A1334-ND	2.32	54.90	103.70	192.76	823.50	206138-1
11	Plastic Shell, .453	A1687-ND	2.22	52.65	99.45	184.86	789.75	206358-1
13	Plastic Shell, .703	A1688-ND	2.34	55.35	104.55	194.34	830.25	207008-1
17	Plastic Shell, .703	A1689-ND	2.47	58.50	110.50	205.40	877.50	206322-1
23	Plastic Shell, 1.125	A1690-ND	2.93	69.30	130.90	243.32	1039.50	206512-1
23	Plastic Shell, 1.125	A16061-ND*	3.65	84.55	147.74	261.66	1201.50	207774-1

* Self-Centering

AMP Circular Metal Shell Connectors

Note: Shell Only. Material and Finish: Receptacle: Insert: Black thermoplastic; **Outer Shell:** Aluminum alloy, zinc plated or unplated. **Plug: Insert:** Black thermoplastic; **Outer Shell and Coupling Ring:** Aluminum alloy, zinc plated; **Retainer Ring:** Stainless steel.

Note: *Contacts (pins and sockets) must be ordered separately.*

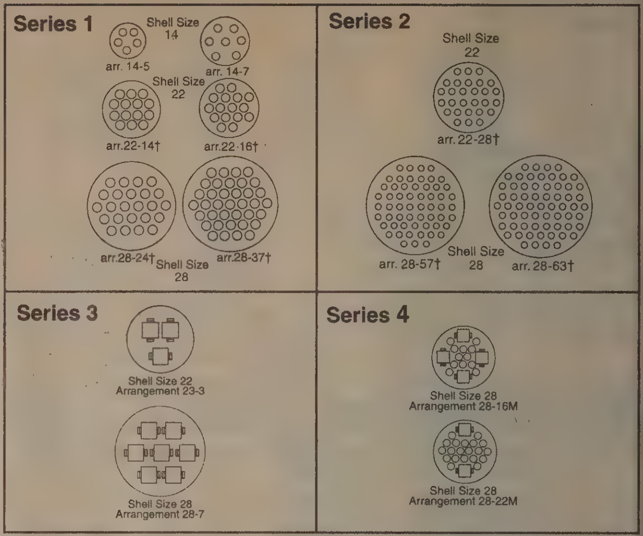
Component Diameter	
Arrangement/ Shell Size	Overall Diameter
14	1.225
22	1.750
28	2.170

Series 1 & 2
* Standard Sex (Plug/Socket)
† Reverse Sex (Plug/Pins)
Series 3
* Standard Sex Square Flange Receptacle
* Standard Sex Plug
Series 4
* Standard Sex Square Flange Receptacle
* Standard Sex Plug
Series 3
† Reverse Sex Square Flange Receptacle
† Reverse Sex Plug

* Standard Sex: Pin contacts in receptacle housings; socket contacts in plug housings.
† Reverse Sex: Socket contacts in receptacle housings; pin contacts in plug housings.

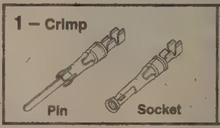
Arrangement No.	Sex	Description (Shell Only)	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
Series 1							
14-5	Std.	Receptacle-Sq. Flanged	A1600-ND	16.93	392.35	685.58	208719-1
		Plug	A1601-ND	40.65	941.93	1645.89	208718-1
	Rev.	Receptacle-Sq. Flanged	A1602-ND	19.29	446.98	781.03	208721-1
		Plug	A1603-ND	30.18	699.20	1221.76	208720-1
14-7	Std.	Receptacle-Sq. Flanged	A1604-ND	17.67	409.45	715.46	208715-1
		Plug	A1605-ND	28.21	653.60	1142.08	208714-1
	Rev.	Receptacle-Sq. Flanged	A1606-ND	19.29	446.98	781.03	208717-1
		Plug	A1607-ND	30.11	697.78	1219.27	208716-1
22-14	Rev.	Receptacle-Sq. Flanged	A1608-ND	20.81	482.13	842.45	208487-1
		Plug	A1609-ND	27.33	633.18	1106.39	208486-1
22-16	Std.	Receptacle-Sq. Flanged	A1610-ND	23.23	538.18	940.39	208489-1
		Plug	A1611-ND	26.30	609.43	1064.89	208488-1
28-24	Std.	Receptacle-Sq. Flanged	A1612-ND	26.61	616.55	1077.34	208459-1
		Plug	A1613-ND	33.60	778.53	1360.37	208457-1
28-37	Std.	Receptacle-Sq. Flanged	A1614-ND	26.59	616.08	1076.51	208471-1
		Plug	A1615-ND	33.60	778.53	1360.37	208470-1
	Rev.	Receptacle-Sq. Flanged	A1616-ND	26.59	616.08	1076.51	208473-1
		Plug	A1617-ND	32.21	746.23	1303.93	208472-1
Series 2							
22-28	Std.	Receptacle-Sq. Flanged	A1618-ND#	19.29	446.98	781.03	208491-1
		Plug	A1619-ND	64.37	1491 50	2606.20	208490-1
	Rev.	Receptacle-Sq. Flanged	A1620-ND#	18.57	430.35	751.98	208493-1
		Plug	A1621-ND	81.73	1893.83	3309.21	208492-1
28-57	Rev.	Receptacle-Sq. Flanged	A1622-ND#	28 37	657.40	1148.72	208475-1
		Plug	A1623-ND	95.49	2212.55	3866.14	208474-1
28-63	Std	Receptacle-Sq. Flanged	A1624-ND#	28.37	657 40	1148 72	208477-1
		Plug	A1625-ND	89.67	2077.65	3630.42	208476-1
Series 3							
22-3	Std.	Receptacle-Sq. Flanged	A16070-ND	23.10	535.33	935.41	208495-1
		Plug	A16071-ND	35.88	831 25	1452.50	208494-1
28-7	Std.	Receptacle-Sq. Flanged	A16072-ND	25.24	584.73	1021.73	208483-1
		Plug	A16073-ND	37.37	865.93	1513.09	208482-1
28-7	Rev.	Receptacle-Sq. Flanged	A16074-ND	25.87	599.45	1047.46	208485-1
		Plug	A16075-ND	32.74	758.58	1325.51	208484-1
Series 4							
28-16	Std.	Receptacle-Sq. Flanged	A16076-ND	29.11	674.50	1178.60	208479-1
		Plug*	A16077-ND	40.80	945.25	1651.70	208478-1
28-22	Std.	Receptacle-Sq. Flanged	A16078-ND	29.11	674.50	1178.60	208481-1
		Plug.	A16079-ND	40.18	931.00	1626.80	208480-1

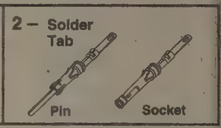
# Aluminum alloy, unplated.

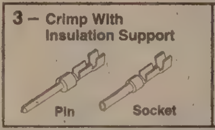


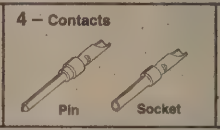
Contacts (Pins and Sockets)

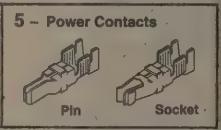
Series 4 requires a combination of Fig. 1 & 5.


1 – Crimp


2 – Solder Tab


3 – Crimp With Insulation Support


4 – Contacts

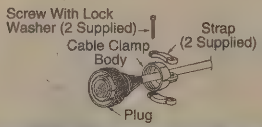

5 – Power Contacts

Desc.	Fig.	Type	Wire Size AWG	Contact Finish	Digi-Key Part No.	Pricing 10	100	1,000	AMP Part No.
Series 1									
Pin	1	Crimp	18-14	Tin	A1320-ND	3.12	21.77	153.44	66361-2
Pin	1	Crimp	18-14	SG†	A1340-ND	4.76	33.26	234.45	66099-4
Socket	1	Crimp	18-14	Tin	A1321-ND	3.67	25.61	180.51	66360-2
Socket	1	Crimp	18-14	SG†	A1341-ND	7.11	49.66	350.03	66360-4
Pin	1	Crimp	24-20	Tin	A1322-ND	3.15	21.98	154.94	66103-2
Pin	1	Crimp	24-20	SG†	A1342-ND	4.76	33.23	234.19	66103-4
Socket	1	Crimp	24-20	Tin	A1323-ND	3.73	26.04	183.54	66105-2
Socket	1	Crimp	24-20	SG†	A1343-ND	5.69	39.71	279.89	66105-4
Pin	1	Crimp	28-24	Tin	A1324-ND	3.18	22.20	156.48	66107-2
Pin	1	Crimp	28-24	SG†	A1344-ND	4.75	33.20	233.98	66107-4
Socket	1	Crimp	28-24	SG†	A1345-ND	5.68	39.68	279.71	66109-4
Pin	2	Solder	—	Tin	A1629-ND	6.23	43.52	306.72	202236-2
Socket	2	Solder	—	Tin	A1631-ND	6.82	47.67	335.97	202237-2
Pin	2	Solder	—	Duplex‡	A16081-ND	11.03	77.07	543.20	202236-1
Socket	2	Solder	—	Duplex‡	A1668-ND	12.28	85.80	604.78	202236-1
Series 2									
Pin	3	Crimp	28-24	SG†	A1630-ND	2.99	20.87	147.09	66507-9
Socket	3	Crimp	28-24	SG†	A1632-ND	3.20	22.33	157.39	66505-9
Pin	3	Crimp	24-20	SG†	A1008-ND	2.69	16.55	132.38	1-66506-0
Socket	3	Crimp	24-20	SG†	A1009-ND	2.99	18.39	147.09	1-66504-0
Pin	4	Solder	24-20	SG†	A1028-ND	3.52	21.63	173.06	66570-3
Socket	4	Solder	24-20	SG†	A1029-ND	4.23	26.01	208.05	66569-3
Series 3									
Pin	5	Crimp	16 & 14-12	Tin	A16021-ND	12.16	84.93	598.64	66261-1
Socket	5	Crimp	16 & 14-12	Tin	A16025-ND	22.10	154.39	1088.24	66740-8
Pin	5	Crimp	16 & 14-12	SG†	A16022-ND	30.57	213.55	1505.18	66261-2
Socket	5	Crimp	16 & 14-12	SG†	A16026-ND	37.69	263.23	1855.34	66740-6
Pin	5	Crimp	10	Tin	A16023-ND	12.16	84.93	598.59	66259-1
Socket	5	Crimp	10	Tin	A16027-ND	29.29	204.55	1441.74	66741-8
Pin	5	Crimp	10	SG†	A16024-ND	31.71	221.51	1561.31	66259-2
Socket	5	Crimp	10	SG†	A16028-ND	41.74	291.56	2055.06	66741-6
Series 4 is a combination of Fig. 1 & 5.									

† Selective gold. Gold flash over .000050 nickel on entire contact, with .000030 gold on electrical engagement area.
‡ Duplex plated .000030 gold in mating area over .000050 nickel on contact body; bright tin-lead on solder tab.

Cable Clamps – Metal Shell

Cable clamps are used to prevent excessive strain on cable or wire from being transmitted to the contacts inside the connector housings.



Shell Size	Type, Cable	Digi-Key Part No.	Pricing 1	25	50	100	500	AMP Part No.
14	Metal Shell	A1626-ND	7.56	179.10	338.30	628.84	2686.50	208945-5
22	Metal Shell	A1627-ND	11.59	274.50	518.50	963.80	4117.50	208945-7
28	Metal Shell	A1628-ND	17.88	423.45	799.85	1486.78	6351.75	208945-8
22	Protective Cap	A1633-ND	21.93	519.30	980.90	1823.32	7789.50	211903-1
28	Protective Cap	A1634-ND	23.52	557.10	1052.30	1956.04	8356:50	211904-1

Tools

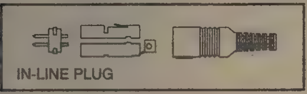
Description	Digi-Key Part No.	Price
Contact Extraction Tool (for use with Series 1 Contacts)	A1329-ND	16.80
Contact Insertion/Extraction Tool (for use with Series 2 Contacts)	A1010-ND	4.88
Crimp Tool, Procrimper II w/Dies (for use with Series 1 & 2 Contacts)	A9920-ND	117.04
Hand Tool, Procrimper, Handle Only, w/o Dies	A9996-ND	63.75
Die Set CPC Conn (for use with Series 1 & 2 Contacts)	A9919-ND	78.00
Crimp Tool, 18-14 AWG Certi. – Crimp (for use with Series 1 & 2 Contacts)	A9913-ND	451.54
Crimp Tool, 24-20 AWG Certi. – Crimp (for use with Series 1 & 2 Contacts)	A9917-ND	397.67
Crimp Tool, 28-24 AWG Certi. – Crimp (for use with Series 1 & 2 Contacts)	A9918-ND	371.07
Contact Extraction Tool (for use with Series 3 Contacts)	A9912-ND	104.05
Crimp Tool, 10 AWG (for use with Series 3 Contacts)	A9910-ND	543.97
Crimp Tool, 12-16 AWG (for use with Series 3 Contacts)	A9911-ND	543.97
Universal Crimp Tool (Crimps all Series Contacts)	A9999-ND	39.15

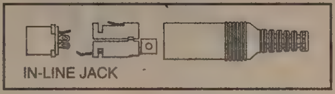
Cui STACK

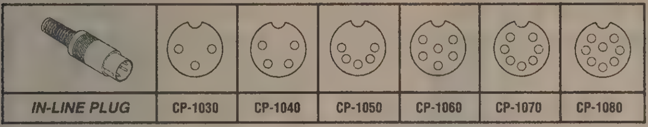
Circular DIN Connectors

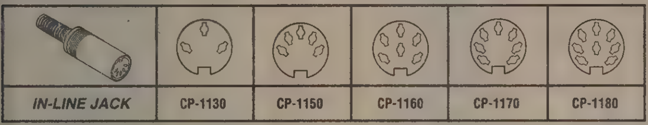
APPLICATIONS: Circular DIN connectors combine low contact resistance with relatively high ampacity which make them an excellent choice for signal or power applications. Ideal for use with computers, peripheral devices, office equipment, power supplies, etc., their low cost and compact, durable design have made them a proven value.

GENERAL SPECIFICATIONS: • **Ratings:** 100V AC 2A MAX • **Insulation Resistance:** MIN 100 MEGΩ @ 500V DC • **Voltage Withstand:** 1000V AC, 1 minute • **Contact Resistance:** Pins - 10 mΩ @ MAX, Shell - 50 mΩ MAX (All accessories included)

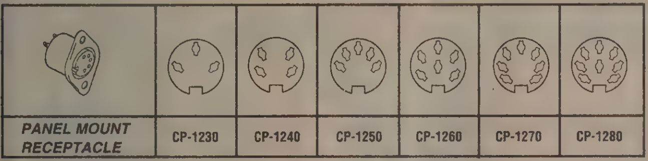

IN-LINE PLUG

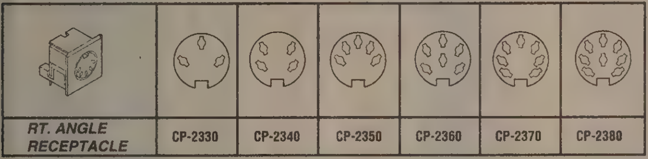

IN-LINE JACK


IN-LINE PLUG
CP-1030
CP-1040
CP-1050
CP-1060
CP-1070
CP-1080


IN-LINE JACK
CP-1130
CP-1150
CP-1160
CP-1170
CP-1180

Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Circular Din Connectors					
3-Pin In-Line Plug	CP-1030-ND	.53	4.55	35.00	SD-30
4-Pin In-Line Plug	CP-1040-ND	.54	4.68	36.00	SD-40
5-Pin In-Line Plug	CP-1050-ND	.61	5.25	40.40	SD-50
6-Pin In-Line Plug	CP-1060-ND	.64	5.56	42.80	SD-60
7-Pin In-Line Plug	CP-1070-ND	.72	6.27	48.20	SD-70
8-Pin In-Line Plug	CP-1080-ND	.76	6.60	50.80	SD-80
3-Pin In-Line Jack	CP-1130-ND	.65	5.59	43.00	SD-30J
5-Pin In-Line Jack	CP-1150-ND	.73	6.29	48.40	SD-50J
6-Pin In-Line Jack	CP-1160-ND	.77	6.63	51.00	SD-60J
7-Pin In-Line Jack	CP-1170-ND	.83	7.18	55.20	SD-70J
8-Pin In-Line Jack	CP-1180-ND	.89	7.75	59.60	SD-80J


PANEL MOUNT RECEPTACLE
CP-1230
CP-1240
CP-1250
CP-1260
CP-1270
CP-1280

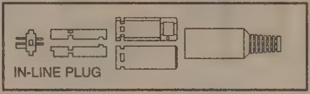

RT. ANGLE RECEPTACLE
CP-2330
CP-2340
CP-2350
CP-2360
CP-2370
CP-2380

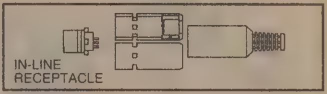
Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Circular Din Connectors					
3-Pin Panel Mount Receptacle	CP-1230-ND	.62	5.33	41.00	SD-30SN
4-Pin Panel Mount Receptacle	CP-1240-ND	.65	5.59	43.00	SD-40SN
5-Pin Panel Mount Receptacle	CP-1250-ND	.70	6.03	46.40	SD-50SN
6-Pin Panel Mount Receptacle	CP-1260-ND	.74	6.37	49.00	SD-60SN
7-Pin Panel Mount Receptacle	CP-1270-ND	.80	6.92	53.20	SD-70SN
8-Pin Panel Mount Receptacle	CP-1280-ND	.86	7.49	57.60	SD-80SN
3-Pin Right Angle Receptacle	CP-2330-ND	.86	7.49	57.60	SDS-30J
4-Pin Right Angle Receptacle	CP-2340-ND	.92	7.96	61.20	SDS-40J
5-Pin Right Angle Receptacle	CP-2350-ND	.92	7.96	61.20	SDS-50J
6-Pin Right Angle Receptacle	CP-2360-ND	1.24	10.76	82.80	SDS-60J
7-Pin Right Angle Receptacle	CP-2370-ND	1.40	12.17	93.60	SDS-70J
8-Pin Right Angle Receptacle	CP-2380-ND	1.51	13.10	100.80	SDS-80J

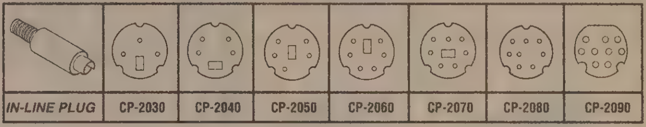
Miniature DIN Connectors

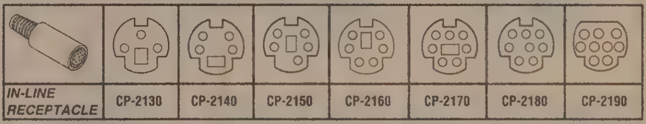
APPLICATIONS: Because of their compact size and durable design, mini-din connectors are ideal for signal applications where space is at a premium. A variety of configurations including vertical, horizontal and in-line models allows for most requirements. Their concentric, cylindrical ground shell make these connectors an excellent choice where EMI/RFI is a concern. Typical applications include computers, peripheral devices, office, audio and video equipment.

GENERAL SPECIFICATIONS: • **Rating:** 100V AC 1A MAX, 12V DC 2A MAX • **Insulation Resistance:** MIN 50 MEGΩ @ 250V DC • **Voltage Withstand:** 250V AC, 1 minute • **Contact Resistance:** Pins - 30 mΩ MAX, Shell - 50 mΩ MAX (All accessories included)

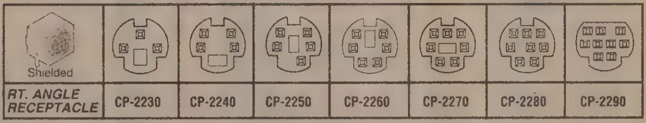

IN-LINE PLUG

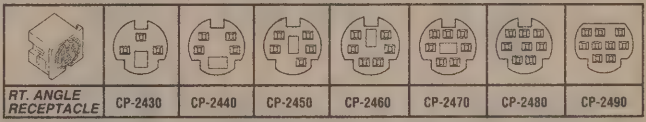

IN-LINE RECEPTACLE


IN-LINE PLUG
CP-2030
CP-2040
CP-2050
CP-2060
CP-2070
CP-2080
CP-2090


IN-LINE RECEPTACLE
CP-2130
CP-2140
CP-2150
CP-2160
CP-2170
CP-2180
CP-2190

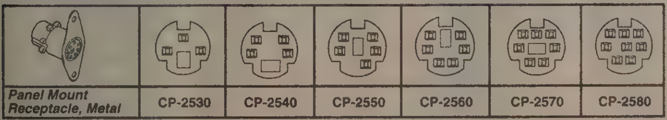
Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Miniature Din Connectors					
3-Pin In-Line Plug	CP-2030-ND	.92	8.01	61.60	MD-30
4-Pin In-Line Plug	CP-2040-ND	1.03	8.92	68.60	MD-40
5-Pin In-Line Plug	CP-2050-ND	1.06	9.18	70.60	MD-50
6-Pin In-Line Plug	CP-2060-ND	1.10	9.54	73.40	MD-60
7-Pin In-Line Plug	CP-2070-ND	1.16	10.06	77.40	MD-70
8-Pin In-Line Plug	CP-2080-ND	1.22	10.58	81.40	MD-80
9-Pin In-Line Plug	CP-2090-ND	1.65	14.33	110.20	MD-90
3-Pin In-Line Receptacle	CP-2130-ND	1.47	12.71	97.80	MD-30J
4-Pin In-Line Receptacle	CP-2140-ND	1.48	12.79	98.40	MD-40J
5-Pin In-Line Receptacle	CP-2150-ND	1.50	13.03	100.20	MD-50J
6-Pin In-Line Receptacle	CP-2160-ND	1.55	13.39	103.00	MD-60J
7-Pin In-Line Receptacle	CP-2170-ND	1.57	13.57	104.40	MD-70J
8-Pin In-Line Receptacle	CP-2180-ND	1.61	13.99	107.60	MD-80J
9-Pin In-Line Receptacle	CP-2190-ND	1.98	17.19	132.20	MD-90J
Crimp Pin	CP-9999-ND	—	.85	4.68	T-0006

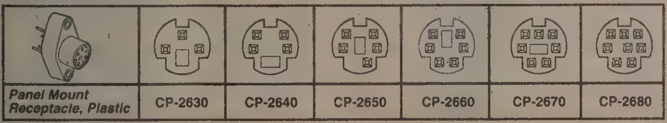

Shielded
RT. ANGLE RECEPTACLE
CP-2230
CP-2240
CP-2250
CP-2260
CP-2270
CP-2280
CP-2290


RT. ANGLE RECEPTACLE
CP-2430
CP-2440
CP-2450
CP-2460
CP-2470
CP-2480
CP-2490

Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Miniature Din Connectors					
3-Pin Shielded Right Angle Receptacle	CP-2230-ND	1.19	10.30	79.20	MD-30SM
4-Pin Shielded Right Angle Receptacle	CP-2240-ND	1.30	11.23	86.40	MD-40SM
5-Pin Shielded Right Angle Receptacle	CP-2250-ND	1.42	12.30	94.60	MD-50SM
6-Pin Shielded Right Angle Receptacle	CP-2260-ND	1.51	13.10	100.80	MD-60SM
7-Pin Shielded Right Angle Receptacle	CP-2270-ND	1.64	14.20	109.20	MD-70SM
8-Pin Shielded Right Angle Receptacle	CP-2280-ND	1.78	15.44	118.80	MD-80SM
9-Pin Shielded Right Angle Receptacle	CP-2290-ND	2.16	18.72	144.00	MD-90SM
3-Pin Right Angle PCB Mount Receptacle	CP-2430-ND	.96	8.35	64.20	MD-30S
4-Pin Right Angle PCB Mount Receptacle	CP-2440-ND	1.06	9.15	70.40	MD-40S
5-Pin Right Angle PCB Mount Receptacle	CP-2450-ND	1.18	10.24	78.80	MD-50S
6-Pin Right Angle PCB Mount Receptacle	CP-2460-ND	1.31	11.36	87.40	MD-60S
7-Pin Right Angle PCB Mount Receptacle	CP-2470-ND	1.42	12.27	94.40	MD-70S
8-Pin Right Angle PCB Mount Receptacle	CP-2480-ND	1.58	13.70	105.40	MD-80S
9-Pin Right Angle PCB Mount Receptacle	CP-2490-ND	1.98	17.13	131.80	MD-90S

Mini-DIN Panel Mount Connectors

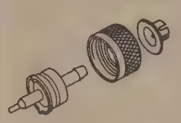

Panel Mount Receptacle, Metal
CP-2530
CP-2540
CP-2550
CP-2560
CP-2570
CP-2580

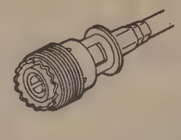

Panel Mount Receptacle, Plastic
CP-2630
CP-2640
CP-2650
CP-2660
CP-2670
CP-2680

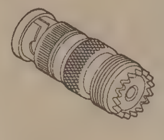
Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Panel Mount Mini-din Connectors					
3 Position, Panel Mount, Metal	CP-2530-ND	1.10	9.54	73.40	MD-30SN
4 Position, Panel Mount, Metal	CP-2540-ND	1.16	10.09	77.60	MD-40SN
5 Position, Panel Mount, Metal	CP-2550-ND	1.25	10.82	83.20	MD-50SN
6 Position, Panel Mount, Metal	CP-2560-ND	1.38	11.93	91.80	MD-60SN
7 Position, Panel Mount, Metal	CP-2570-ND	1.46	12.61	97.00	MD-70SN
8 Position, Panel Mount, Metal	CP-2580-ND	1.53	13.29	102.20	MD-80SN
3 Position, Panel Mount, Plastic	CP-2630-ND	1.16	10.09	77.60	MD-30SP
4 Position, Panel Mount, Plastic	CP-2640-ND	1.25	11.04	83.00	MD-40SP
5 Position, Panel Mount, Plastic	CP-2650-ND	1.33	11.52	88.60	MD-50SP
6 Position, Panel Mount, Plastic	CP-2660-ND	1.46	12.64	97.20	MD-60SP
7 Position, Panel Mount, Plastic	CP-2670-ND	1.54	13.62	102.40	MD-70SP
8 Position, Panel Mount, Plastic	CP-2680-ND	1.61	13.99	107.60	MD-80SP

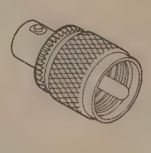
AMP

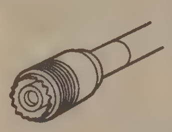
RF Connectors

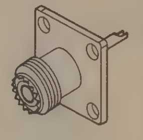
1


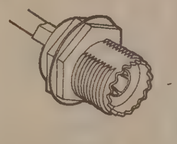
2


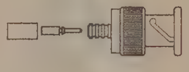
3


4


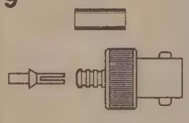
5


6


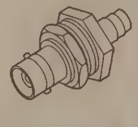
7


8


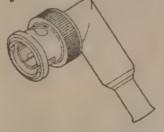
Commercial Type

9


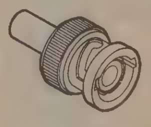
Commercial Type

10


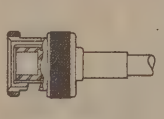
Commercial Type

11


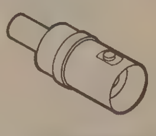
Commercial Type

12


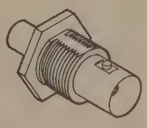
Commercial Type

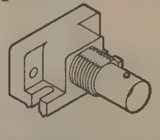
13


Commercial Type

14


Commercial Type

15


16


Right Angle PCB Receptacle

UHF Connectors

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
				1	25	50	100	
Standard UHF Connectors								
1	Plug (Single Crimp), Tin Plated	58, 58A, 58B, 58C	A1107-ND	2.55	54.83	96.90	173.40	226279-1
1	Plug (Single Crimp), Tin Plated	59, 59A, 59B	A1106-ND	3.13	67.19	118.75	212.50	226279-3
2	Jack (Single Crimp), Tin Plated	58, 58A, 58B, 58C	A1132-ND	6.23	133.84	236.55	423.30	226694-1
3	Adapter, UHF Jack to BNC Jack	—	A1134-ND	15.43	331.64	586.15	1048.90	222319-1
4	Adapter, UHF Plug to BNC Jack	—	A1135-ND	11.03	237.04	418.95	749.70	222320-1
Miniature UHF Connectors								
5	Jack (Crimp)	58, 58A, 58B, 58C	A1104-ND	2.98	63.96	113.05	202.30	226602-1
6	Panel Solder Jack	—	A1131-ND	2.60	55.90	98.80	176.80	226601-1
7	Bulkhead Jack (Crimp)	58, 58A, 58B, 58C	A1105-ND	2.65	56.98	100.70	180.20	414045-1

BNC Hex Crimp Connectors 50 Ohm

Collar & outer contacts - nickel plated. Center contacts - gold MIL-G-45204

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
				1	25	50	100	
8	Plug	58	A1164-ND	2.40	51.60	91.20	163.20	1-221128-0
8	Plug	59, 62	A1165-ND	2.40	51.60	91.20	163.20	1-221128-1
8	Plug	174, 188, 316	A1166-ND	2.60	55.90	98.80	176.80	2-221128-1
8	Plug	179, 187, Belden 9221	A1167-ND	2.60	55.90	98.80	176.80	2-221128-3
8	Plug	180, 195	A1168-ND	2.60	55.90	98.80	176.80	2-221128-5
8	Plug	Belden 9907, 89907	A1169-ND	2.60	55.90	98.80	176.80	2-221128-7
8	Plug	174, 188, 316 DB*	A1172-ND	2.48	53.21	94.05	168.30	2-221128-9
8	Plug	Belden 8281, 9231	A1170-ND	2.40	51.60	91.20	163.20	1-221128-2
8	Plug	Belden 9266, 9259	A1171-ND	2.40	51.60	91.20	163.20	1-221128-7
9	Cable Jack	58	A1801-ND	3.15	67.73	119.70	214.20	413779-1
9	Cable Jack	59, 62	A1802-ND	3.15	67.73	119.70	214.20	413779-2
9	Cable Jack	174, 188, 316	A1803-ND	3.45	74.18	131.10	234.60	413779-3
9	Cable Jack	179, 187	A1804-ND	3.45	74.18	131.10	234.60	413779-4
9	Cable Jack	180, 195	A1805-ND	3.45	74.18	131.10	234.60	413779-5
9	Cable Jack	Belden 9907, 89907	A1806-ND	3.45	74.18	131.10	234.60	413779-6
10	Bulkhead Jack	58	A1811-ND	3.78	81.16	143.45	256.70	413771-1
10	Bulkhead Jack	59, 62	A1812-ND	3.78	81 16	143.45	256.70	413771-2
10	Bulkhead Jack	174, 188, 316	A1813-ND	4.15	89.23	157.70	282.20	413771-3
10	Bulkhead Jack	179, 187	A1814-ND	4.15	89.23	157.70	282.20	413771-4
10	Bulkhead Jack	180, 195	A1815-ND	4.15	89.23	157.70	282.20	413771-5
10	Bulkhead Jack	Belden 9907, 89907	A1816-ND	4.15	89.23	157.70	282.20	413771-6
11	Plug, Right Angle	58	A1181-ND	10.33	221.99	392.35	702.10	413959-1
11	Plug, Right Angle	59, 62	A1182-ND	10.33	221.99	392.35	702.10	413959-2
11	Plug, Right Angle	174, 188, 316	A1183-ND	10.80	232.20	410.40	734.40	413959-3
11	Plug, Right Angle	179, 187	A1184-ND	10.80	232.20	410.40	734.40	413959-4
11	Plug, Right Angle	180, 195	A1185-ND	10.80	232.20	410.40	734.40	413959-5
11	Plug, Right Angle	Belden 9907, 89907	A1186-ND	10.80	232.20	410.40	734.40	413959-6
11	Plug, Right Angle	188, 174, 316 DB*	A1187-ND	10.20	219.30	387.60	693.60	413959-7

* Double Braid

BNC Hex Crimp Connectors 75 Ohm

Collar & outer contacts - nickel plated. Center contacts - gold MIL-G-45204

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
				1	25	50	100	
8	Plug	AT&T 735A	A1820-ND	3.60	77.40	136.80	244.80	1-413589-0
8	Plug	Belden 88241	A1821-ND	3.28	70.41	124.45	222.70	413589-1
8	Plug	59, 62	A1822-ND	3.28	70.41	124.45	222.70	413589-2
8	Plug	Belden 8218	A1823-ND	3.60	77.40	136.80	244.80	413589-3
8	Plug	AT&T KS Cable	A1824-ND	3.88	83.31	147.25	263.50	413589-4
8	Plug	Belden 8281	A1825-ND	3.28	70.41	124.45	222.70	413589-5
8	Plug	59 DB*	A1826-ND	3.28	70.41	124.45	222.70	413589-6
8	Plug	AT&T 734A	A1827-ND	3.28	70.41	124.45	222.70	413589-7
8	Plug	179, 187	A1828-ND	3.60	77.40	136.80	244.80	413589-8
8	Plug	Belden 9266, 9259	A1829-ND	3.28	70.41	124.45	222.70	413589-9
9	Cable Jack	Belden 88241	A1831-ND	4.40	94.60	167.20	299.20	413760-1
9	Cable Jack	59, 62	A1832-ND	4.40	94.60	167.20	299.20	413760-2
9	Cable Jack	Belden 8218	A1833-ND	4.83	103.74	183.35	328.10	413760-3
9	Cable Jack	AT&T KS Cable	A1834-ND	5.23	112.34	198.55	355.30	413760-4
9	Cable Jack	Belden 8281	A1835-ND	4.40	94.60	167.20	299.20	413760-5
9	Cable Jack	59 DB*	A1836-ND	4.40	94.60	167.20	299.20	413760-6
9	Cable Jack	AT&T 734A	A1837-ND	4.40	94.60	167.20	299.20	413760-7
9	Cable Jack	179, 187	A1838-ND	4.83	103.74	183.35	328.10	413760-8
9	Cable Jack	Belden 9266, 9259	A1839-ND	4.40	94.60	167.20	299.20	413760-9
10	Bulkhead Jack	Belden 88241	A1841-ND	5.30	113.95	201.40	360.40	413590-1
10	Bulkhead Jack	59, 62	A1842-ND	5.30	113.95	201.40	360.40	413590-2
10	Bulkhead Jack	Belden 8218	A1843-ND	5.80	124.70	220.40	394.40	413590-3
10	Bulkhead Jack	AT&T KS Cable	A1844-ND	6.30	135.45	239.40	428.40	413590-4
10	Bulkhead Jack	Belden 8281	A1845-ND	5.30	113.95	201.40	360.40	413590-5
10	Bulkhead Jack	59 DB*	A1846-ND	5.30	113.95	201.40	360.40	413590-6
10	Bulkhead Jack	AT&T 734A	A1847-ND	5.30	113.95	201.40	360.40	413590-7
10	Bulkhead Jack	179, 187	A1848-ND	5.80	124.70	220.40	394.40	413590-8
10	Bulkhead Jack	Belden 9266, 9259	A1849-ND	5.30	113.95	201.40	360.40	413590-9
11	Plug, Right Angle	59, 62	A1872-ND	14.43	310.14	548.15	980.90	413588-2
11	Plug, Right Angle	179	A1873-ND	15.83	340.24	601.35	1076.10	413588-8
11	Plug, Right Angle	Belden 88241	A1874-ND	14.43	310.14	548.15	980.90	413588-1
11	Plug, Right Angle	Belden 8218	A1875-ND	15.83	340.24	601.35	1076.10	413588-3
11	Plug, Right Angle	AT&T KS Cable	A1876-ND	15.15	325.73	575.70	1030.20	413588-4
11	Plug, Right Angle	Belden 8281	A1877-ND	14.43	310.14	548.15	980.90	413588-5
11	Plug, Right Angle	59 DB*	A1878-ND	14.43	310.14	548.15	980.90	413588-6
11	Plug, Right Angle	AT&T 734A	A1879-ND	14.43	310.14	548.15	980.90	413588-7
11	Plug, Right Angle	Belden 9266	A1880-ND	14.43	310.14	548.15	980.90	413588-9
11	Plug, Right Angle	AT&T 735A	A1881-ND	15.83	340.24	601.35	1076.10	1-413588-0

* Double Braid

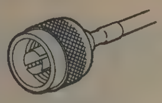
BNC Coaxial Connectors Dual Crimp

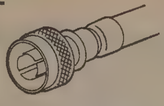
MIL-C-39012 Class II - Cat. B

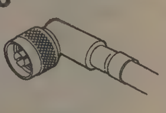
Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
				1	25	50	100	
12	Plug	58	A1100-ND	2.90	62.35	110.20	197.20	225395-1
12	Plug	59, 62	A1101-ND	2.90	62.35	110.20	197.20	225395-2
13	Plug, Tin	58	A1117-ND	2.10	45.15	79.80	142.80	227079-1
13	Plug, Silver	58	A1118-ND	2.10	45.15	79.80	142.80	227079-9
13	Plug, Gold	58	A1119-ND	2.10	45.15	79.80	142.80	227079-5
13	Plug, Tin	59, 62	A1120-ND	2.10	45.15	79.80	142.80	227079-3
13	Plug, Silver	59, 62	A1121-ND	2.10	45.15	79.80	142.80	1-227079-1
13	Plug, Gold	59, 62	A1122-ND	2.10	45.15	79.80	142.80	227079-7
14	Cable Jack	58	A1102-ND	4.70	101.05	178.60	319.60	225396-1
14	Cable Jack	59, 62	A1103-ND	4.70	101.05	178.60	319.60	225396-2
15	Bulkhead Jack	58	A1111-ND	4.78	102.66	181.45	324.70	225398-1
15	Bulkhead Jack	59, 62	A1112-ND	4.78	102.66	181.45	324.70	225398-2
16	Receptacle, Tin	50 Ohm	A1123-ND	5.08	109.11	192.85	345.10	226978-1
—	Hex Nut for A1123-ND	—	A1128-ND	.28	5.91	10.45	18.70	1-329631-2
—	Lockwasher for A1123-ND	—	A1129-ND	.23	4.84	8.55	15.30	1-329632-2

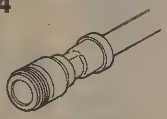
AMP

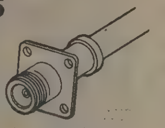
RF Connectors

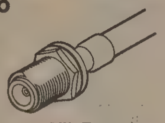
1

MIL Type

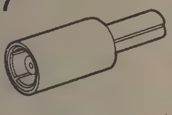
2

Commercial Type

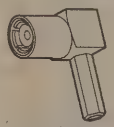
3

MIL Type

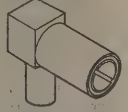
4

MIL Type

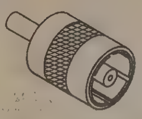
5

MIL Type

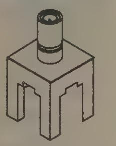
6

MIL Type

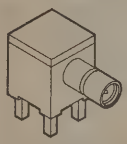
7

MIL-Type

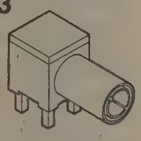
8

MIL-Type

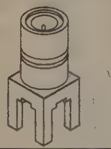
9

Commercial Type

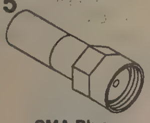
10


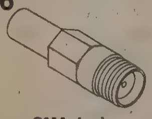
11


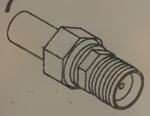
12


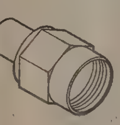
13


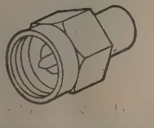
14


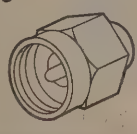
15

SMA Plug

16

SMA Jack

17

SMA Bulkhead Jack

18


19


20


Type N Dual Crimp Connectors

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
				1	25	50	100	
1	Plug (Nickel)	58, 58A	A1147-ND	10.48	225.21	398.05	712.30	1-225661-2
1	Plug (Silver)	58, 58A	A1148-ND	13.10	281.65	497.80	890.80	225361-1
1	Plug (Nickel)	223, 55A	A1149-ND	10.48	225.21	398.05	712.30	1-225661-3
1	Plug (Nickel)	142, 142A, 142B, 400	A1150-ND	10.48	225.21	398.05	712.30	1-225661-5
1	Plug (Silver)	142, 142A, 142B, 400	A1151-ND	13.10	281.65	497.80	890.80	225361-4
1	Plug (Nickel)	8,8A, 213	A1152-ND	8.05	173.08	305.90	547.40	225661-2
1	Plug (Silver)	8, 8A, 213	A1153-ND	11.98	257.46	455.05	814.30	51692-2
1	Plug (Nickel – Weatherproof)	8, 8A, 213	A1154-ND	9.95	213.93	378.10	676.60	225662-2
1	Plug (Silver – Weatherproof)	8, 8A, 213	A1155-ND	13.85	297.78	526.30	941.80	225092-2
1	Plug (Nickel)	393, Belden 89292,	A1156-ND	9.95	213.93	378.10	676.60	1-225662-1
1	Plug (Silver)	8213, 9292, Alpha 9847	A1157-ND	11.98	257.46	455.05	814.30	1-225092-1
1	Plug (Nickel)	9, 9A, 9B, 214	A1158-ND	8.05	173.08	305.90	547.40	225661-1
1	Plug (Silver)	9, 9A, 9B, 214	A1159-ND	11.98	257.46	455.05	814.30	51692-1
1	Plug (Nickel – Weatherproof)	9, 9A, 9B, 214	A1160-ND	9.95	213.93	378.10	676.60	225662-1
1	Plug (Silver – Weatherproof)	9, 9A, 9B, 214	A1161-ND	14.88	319.81	565.25	1011.50	225092-1
2	Plug (Nickel)	8, 8A, 213	A1162-ND	6.20	133.30	235.60	421.60	1-227086-0
2	Plug (Nickel)	9, 9A, 9B, 214	A1163-ND	6.20	133.30	235.60	421.60	1-227086-1
3	Right Angle Plug (Silver)	8, 8A, 213	A1137-ND	32.10	690.15	1219.80	2182.80	225014-2
3	Right Angle Plug (Silver – Weatherproof)	8, 8A, 213	A1138-ND	34.00	731.00	1292.00	2312.00	225389-2
3	Right Angle Plug (Nickel)	9, 9A, 9B, 214	A1139-ND	24.18	519.76	918.65	1643.90	225669-1
3	Right Angle Plug (Silver)	9, 9A, 9B, 214	A1140-ND	32.10	690.15	1219.80	2182.80	225014-3
3	Right Angle Plug (Silver – Weatherproof)	9, 9A, 9B, 214	A1141-ND	34.00	731.00	1292.00	2312.00	225389-4
4	Jack (Silver)	8, 8A, 213	A1142-ND	21.93	471.39	833.15	1490.90	225093-2
5	Panel Jack (Silver-Weatherproof)	8, 8A, 213	A1143-ND	24.93	535.89	947.15	1694 90	225089-2
5	Panel Jack (Silver-Weatherproof)	9, 9A, 9B, 214	A1144-ND	24.93	535.89	947.15	1694.90	225089-1
6	Bulkhead Jack (Silver-Weatherproof)	223, 55, 55A, 55B	A1145-ND	24.15	519.23	917.70	1642.20	225393-1
6	Bulkhead Jack (Silver-Weatherproof)	9, 9A, 9B, 214	A1146-ND	20.90	449.35	794.20	1421.20	225094-1

SMB Connectors

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
				1	25	50	100	
7	Plug, Gold	178, 196	A4020-ND	5.68	122.01	215.65	385.90	413985-5
7	Plug, Nickel	178, 196	A4021-ND	4.55	97.83	172.90	309.40	413985-6
7	Plug, Gold	174, 188, 316	A4026-ND	5.40	116.10	205.20	367.20	413985-1
7	Plug, Nickel	174, 188, 316	A4027-ND	4.33	92.99	164.35	294.10	413985-3
7	Plug, Gold	179, 161, 187	A4031-ND	5.40	116.10	205.20	367.20	1-413985-0
7	Plug, Nickel	179, 161, 187	A4032-ND	4.33	92.99	164.35	294.10	1-413985-1
7	Plug, Gold	188, 316 DB*	A4034-ND	5.40	116.10	205.20	367.20	413985-2
7	Plug, Nickel	188, 316 DB*	A4035-ND	4.33	92.99	164.35	294.10	413985-4
8	Plug, Right Angle, Gold	178, 196	A4022-ND	7.20	154.80	273.60	489.60	414002-7
8	Plug, Right Angle, Nickel	178, 196	A4023-ND	5.75	123.63	218.50	391.00	414002-8
8	Plug, Right Angle, Gold	174, 188, 316	A4028-ND	6.85	147.28	260.30	465.80	414002-1
8	Plug, Right Angle, Nickel	174, 188, 316	A4029-ND	5.48	117.71	208.05	372.30	414002-3
8	Plug, Right Angle, Gold	188, 316 DB*	A4036-ND	6.85	147.28	260.30	465.80	414002-2
8	Plug, Right Angle, Nickel	188, 316 DB*	A4037-ND	5.48	117.71	208.05	372.30	414002-4
9	Plug, Right Angle, Gold, Zinc Die Cast	178, 196	A4024-ND	3.88	83.31	147.25	263.50	414363-8
9	Plug, Right Angle, Nickel, Zinc Die Cast	178, 196	A4025-ND	3.73	80.09	141.55	253.30	414363-9
9	Plug, Right Angle, Gold, Zinc Die Cast	174, 188, 316	A4030-ND	3.68	79.01	139.65	249.90	414363-3
9	Plug, Right Angle, Nickel, Zinc Die Cast	174, 188, 316	A4033-ND	3.58	76.86	135.85	243.10	414363-5
9	Plug, Right Angle, Gold, Zinc Die Cast	174, 188, 316 DB*	A4038-ND	3.68	79.01	139.65	249.90	414363-4
9	Plug, Right Angle, Nickel, Zinc Die Cast	174, 188, 316 DB*	A4039-ND	3.58	76.86	135.85	243.10	414363-6
10	Plug, Nickel	179, 187	A4040-ND	7.93	170.39	301.15	538.90	414618-2
—	Pro Crimper Hand Tool	—	A9996-ND	63.75 each				354940-1
—	Die Set, Mil Type	—	A9968-ND	47.25 each				58483-1
11	Jack, Vertical, Gold	—	A4041-ND	3.43	73.64	130.15	232.90	413990-1
11	Jack, Vertical, Nickel	—	A4042-ND	2.75	59.13	104.50	187.00	413990-2
12	Jack, Right Angle, Gold, Low Profile	—	A4043-ND	7.35	158.03	279.30	499.80	413996-2
12	Jack, Right Angle, Nickel, Low Profile	—	A4044-ND	4.25	91.38	161.50	289.00	414026-3
12	Jack, Right Angle, Gold, Zinc Die Cast	—	A4045-ND	3.63	77.94	137.75	246.50	414337-1
13	Plug, Right Angle, Gold, Zinc Die Cast	—	A4046-ND	4.75	102.13	180.50	323.00	414338-1
14	Jack, Vert., Gold, Zinc Die Cast, 75Ohms	—	A4047-ND	5.15	110.73	195.70	350.20	414244-1
14	Jack, Vert.,Gold, 50µ AU, Zinc Die Cast, 75Ohms	—	A4049-ND	5.70	122.55	216.60	387.60	414244-3
14	Jack, Vert., Tin, Zinc Die Cast, 75Ohms	—	A4050-ND	4.10	88.15	155.80	278.80	414244-4

SMA Connectors

Fig.	Description	Die Set	Locator Plug	Cable Group RG/U	Digi-Key Part No.	Pricing				AMP Part No.
						1	25	50	100	
15	Plug, Hex Crimp	—	—	142	A4010-ND	3.75	80.63	142.50	255.00	447647-2
15	Plug, Hex Crimp	—	—	174, 188, 316	A4011-ND	3.95	84.93	150.10	268.60	447647-3
16	Jack, Hex Crimp	—	—	142	A4006-ND	12.68	272.51	481.65	861.90	447648-2
16	Jack, Hex Crimp	—	—	174, 188, 316	A4007-ND	5.85	125.78	222.30	397.80	447648-3
17	Bulkhead Jack, Crimp	—	—	142	A4008-ND	17.08	367.11	648.85	1161.10	447650-2
17	Bulkhead Jack, Crimp	—	—	174, 188, 316	A4009-ND	8.25	177.38	313.50	561.00	447650-3
18	Solderless Plug, w/ Center Contact	A9964	A9961	405 (.086)	A4012-ND	8.88	190.81	337.25	603.50	227868-1
18	Solderless Plug, w/ Center Contact	A9964	A9961	405 (.086)	A4013-ND	8.95	192.43	340.10	608.60	228639-1
19	Solderless Plug, w/ Center Contact	A9965	A9961	402 (.141)	A4014-ND	10.88	233.81	413.25	739.50	227743-1
19	Solderless Plug, w/ Center Contact	A9965	A9961	402 (.141)	A4015-ND	10.95	235.43	416.10	744.60	228634-1
19	Solderless Plug, w/o Center Contact	A9965	A9962	402 (.141)	A4016-ND	2.95	63.43	112.10	200.60	227531-1
19	Solderless Plug, w/o Center Contact	A9965	A9962	402 (.141)	A4017-ND	2.95	63.43	112.10	200.60	228635-1
20	Plug, Retractable Collar	A9963	A9962	402 (.141)	A4018-ND	3.65	78.48	138.70	248.20	227531-5
—	Crimp Tool, w/o Dies	—	—	—	A9966-ND	612.75 each				59980-1
—	Die Set	—	—	402	A9965-ND	108.00 each				312253-1
—	Die Set	—	—	405	A9964-ND	116.25 each				312253-2
—	Die Set	—	—	402	A9963-ND	161.25 each				312962-1
—	Locator Plug w/o Contact*	—	—	—	A9962-ND	79.50 each				220220-2
—	Locator Plug w/ Contact*	—	—	—	A9961-ND	55.50 each				220221-2

*Must use a locator with die set

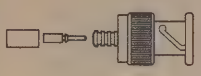
Hand Tool & Die Sets

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing 1	AMP Part No.
—	Pro Crimper Hand Tool	—	A9996-ND	63.75	354940-1
—	BNC 50 Ohm Hex Crimp Die Set	RG/U Cable 174, 179, 180, 195	A9995-ND	35.25	58436-3
—	BNC 50 Ohm Hex Crimp Die Set	RG/U Cable 58, 62, 59	A9994-ND	35.25	58436-1
—	BNC 75 Ohm Hex Crimp Die Set	RG/U Cable 179, 161, 187	A9993-ND	33.75	58425-2
—	BNC 75 Ohm Hex Crimp Die Set	RG/U Cable 62, 59	A9992-ND	33.75	58425-1
—	N-Type, Hex Crimp Die Set	—	A9975-ND	43.50	58485-1
—	50 Ohm Die Set	Belden 8281	A9960-ND	35.25	59436-2
—	50 Ohm Die Set	RG/59 DB	A9959-ND	33.75	58425-3
—	50 Ohm, Jack Die Set	RG/58	A9972-ND	35.25	58465-1
—	75 Ohm, Conn. Die Set	AT&T 735A	A9971-ND	33.00	852922-2
—	75 Ohm, Conn. Die Set	RG/59 DB	A9969-ND	33.75	852922-3
—	Crimping Tool	RG/58	A1108-ND	30.71	220146-1
—	Crimping Tool	RG/59	A1109-ND	39.01	220147-1
—	UHF Crimp Tool, Super Champ	RG/58, 59	A9934-ND	27.75	220148-1
—	Crimp Tool, General	RG/58, 166	A9933-ND	27.75	58124-1
—	Cable Stripping Tool	RG/58, 59	A1110-ND	60.92	603995-1

Amphenol® RF

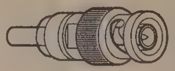
RF & RFX Connectors

1



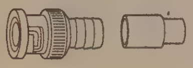
MIL-Crimp 3 Piece

2



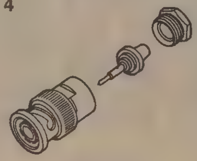
Original Crimp

3



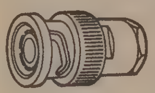
Single Crimp 2 Piece

4



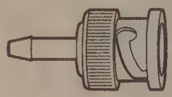
Quick Trim

5



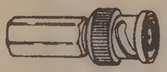
MIL-Clamp

6



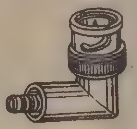
FCP

7



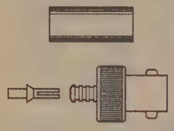
Suretwist®

8



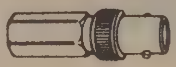
Angle Plug

9



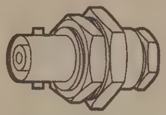
MIL-Crimp Jack

10



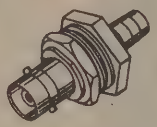
Suretwist® Jack

11



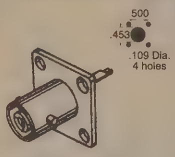
MIL-Clamp Jack

12



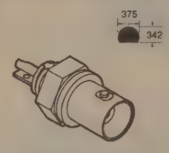
MIL-Crimp Bulkhead Jack

13



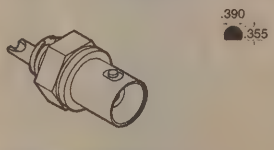
Panel Receptacle

14



Bulkhead Jack Isolated

15



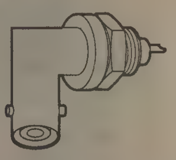
Bulkhead Receptacle

BNC Coaxial Connectors

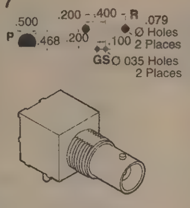
Fig.	Description	Cable Group RG/U	Crimp Tool Part No.	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
1	Plug (MIL-Crimp)	58, 141, 142	CTL-1	ARF1039-ND	3.98	77.85	256.91	31-320
1	Plug (MIL-Crimp)			ARFX1039-ND*	1.31	25.65	84.65	31-320-RFX
1	Plug (Quick-Crimp)	Plenum 58	CTL-1	ARFX1041-ND*	1.79	35.10	115.83	36650-3RFX
1	Plug (MIL-Crimp)	59, 62	CTL-1	ARF1042-ND	4.07	79.65	262.85	31-321
1	Plug (MIL-Crimp)			ARFX1042-ND*	1.31	25.65	84.65	31-321-RFX
1	Plug (MIL-Crimp)	59, 62, 71, 140, 210, 302	CTL-1	ARF1156-ND	3.70	72.45	239.09	68175
1	Plug (MIL-Crimp)	Belden 9259		ARF1052-ND	3.77	73.80	243.54	68175-1003
1	Plug (MIL-Crimp)	59 (20AWG Ctr. Cond.)	CTL-1	ARF1046-ND	4.09	80.10	264.33	68175-1005
1	Plug (MIL-Crimp)			ARFX1046-ND*	1.33	26.10	86.13	68175-5RFX
1	Plug (MIL-Crimp)	Plenum 59, 62	CTL-1	ARFX1047-ND*	1.33	26.10	86.13	68175-11RFX
1	Plug (MIL-Crimp)	174, 188, 316	CTL-2	ARF1049-ND	4.42	86.40	285.12	31-315
1	Plug (MIL-Crimp)			ARFX1049-ND*	1.79	35.10	115.83	31-315-RFX
1	Plug (MIL-Crimp)	179, 187	CTL-2	ARF1050-ND	5.43	106.20	350.46	31-242
1	Plug (MIL-Crimp)	Belden 8281	CTL-2	ARF1051-ND	4.65	90.90	299.97	31-321-1000
1	Plug (MIL-Crimp)			ARFX1051-ND*	1.79	35.10	115.83	31-321-10RFX
1	Plug (MIL-Crimp)	Belden 9907, 89907	CTL-1	ARF1054-ND	3.77	73.80	243.54	31-320-1006
1	Plug (MIL-Crimp)	59, 62	CTL-1	ARFX1123-ND*	2.14	41.85	138.11	31-71008-RFX
1	***NEW!*** Plug (MIL-Crimp), 75Ω	59, 62	CTL-1	ARF1175-ND	5.29	103.50	341.55	31-71008
1	***NEW!*** Plug (MIL-Crimp), 75Ω	59, 62 (20 GACC)	CTL-1	ARF1176-ND	8.90	174.15	574.70	31-71008-1000
1	***NEW!*** Plug (MIL-Crimp), 75Ω	179, 187	CTL-2	ARF1174-ND	6.85	134.10	442.53	31-71013
1	***NEW!*** Plug (MIL-Crimp), 75Ω	Belden 8218	CTL-2	ARF1173-ND	3.29	64.35	212.36	31-71033
1	***NEW!*** Plug (MIL-Crimp), 75Ω	Belden 8281, 88281	CTL-2	ARF1172-ND	4.67	91.35	301.46	31-71032
1	***NEW!*** Plug (Thinnet/Ethernet)	58	CTL-1	ARF1181-ND	1.54	30.15	99.50	31-5800
1	***NEW!*** Plug (IBM/Arcnet)	59, 62	CTL-1	ARF1182-ND	1.54	30.15	99.50	31-5900
2	Plug (Original Crimp)	174, 179, 187, 188, 316	—	ARF1143-ND	11.02	215.55	711.32	31-371
3	Plug (Single Crimp)	59, 62	CTL-2	ARFX1124-ND*	2.42	47.25	155.93	31-5556-RFX
4	Plug (Quicktrim®)	59, 62	CTL-1	ARF1045-ND	4.81	94.05	310.37	31-4541
4	Plug (Quicktrim®)			ARFX1045-ND*	3.50	68.40	225.72	31-4541-RFX
4	Plug (Quicktrim®)	Belden 9268	CTL-1	ARF1053-ND	6.00	117.45	387.59	31-4542
5	Plug (MIL-Clamp)	58	—	ARF1040-ND	3.04	59.40	196.02	31-202
5	Plug (MIL-Clamp)	59, 62	—	ARF1043-ND	3.13	61.20	201.96	31-212
5	Plug (MIL-Clamp)			ARFX1043-ND*	2.81	54.90	181.17	31-212-RFX
5	Plug (Standard Clamp)	8, 9, 11, 213, 214	—	ARF1155-ND	9.32	182.25	601.43	6775
5	Plug (Standard Clamp)	55, 58, 141,	—	ARF1126-ND	3.22	63.00	207.90	31-2
5	Plug (Standard Clamp)	142, 223, 400	—	ARFX1119-ND*	1.82	35.55	117.32	31-2-RFX
5	Plug (Standard Clamp)	59, 62, 71, 140, 210, 302	—	ARF1123-ND	3.89	76.05	250.97	31-12
5	Plug (MIL-Clamp)	174, 179, 187, 188, 316	—	ARF1157-ND	6.07	118.80	392.04	69475
5	Plug (Standard Clamp)	178, 196	—	ARF1120-ND	5.84	114.30	377.19	15875
6	Plug (FCP)	58, 141	—	ARF1145-ND	4.60	90.00	297.00	31-4700
6	Plug (FCP)	59	—	ARF1146-ND	4.28	83.70	276.21	31-4702
7	Plug (Suretwist®)	59, 62	—	ARF1044-ND	3.61	70.65	233.15	31-5136
7	Plug (Suretwist®)			ARFX1044-ND*	1.68	32.85	108.41	31-5136-RFX
7	Plug (Suretwist®)	58, 141, 142	—	ARF1147-ND	5.08	99.45	328.19	31-5137
7	Plug (Suretwist®)			ARFX1147-ND*	1.68	32.85	108.41	31-5137-RFX
7	Plug (Suretwist®)	Plenum 59, 62	—	ARF1048-ND	5.59	109.35	360.86	31-5369
8	Angle Plug (MIL-Crimp)	58, 141, 142A	CTL-1	ARF1055-ND	18.58	363.60	1199.88	31-335
8	Angle Plug (MIL-Crimp)			ARFX1055-ND*	6.12	119.70	395.01	31-335-RFX
8	Angle Plug (MIL-Crimp)	59, 62	CTL-1	ARF1056-ND	15.07	294.75	972.68	31-336
9	Jack (Quick-Crimp)	59, 62, 140, 210	CTL-1	ARF1058-ND	5.93	116.10	383.13	36150
10	Jack (Suretwist®)	Belden 8281	—	ARF1059-ND	4.90	95.85	316.31	31-5152
11	Bulkhead Jack (Clamp)	55, 58, 141, 142, 223, 400	—	ARF1127-ND	6.12	119.70	395.01	31-206
12	Bulkhead Jack (MIL-Crimp)	55, 58, 141, 142, 223, 400	CTL-1	ARF1060-ND	5.64	110.25	363.83	31-342
12	Bulkhead Jack (MIL-Crimp)			ARFX1060-ND*	3.89	76.05	250.97	31-342-RFX
12	Bulkhead Jack (MIL-Crimp)	59, 62, 140, 210	CTL-1	ARFX1061-ND*	3.70	72.45	239.09	31-343-RFX
12	Bulkhead Jack (MIL-Crimp)	174, 179, 188, 316	CTL-2	ARF1139-ND	8.10	158.40	522.72	31-318
12	Bulkhead Jack (MIL-Crimp)			ARFX1139-ND*	2.97	58.05	191.57	31-318-RFX

* RFX connectors. RFX™ is specifically designed for applications that do not require performance above 1 to 3 GHz. RFX™ connectors are not for use in military system applications. RFX™ connectors are generally less expensive than MIL-Spec and industry standard connectors.

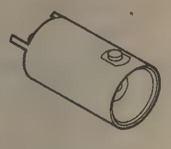
16



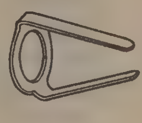
17



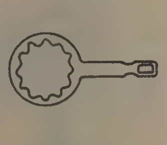
18



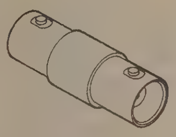
19



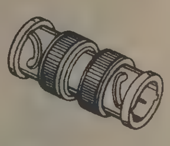
20



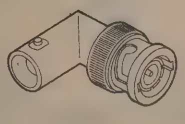
21



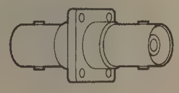
22



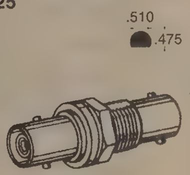
23



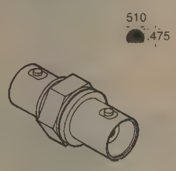
24



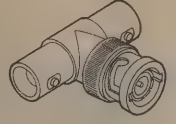
25



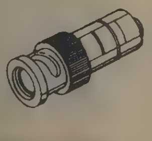
26



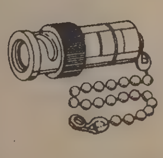
27



28



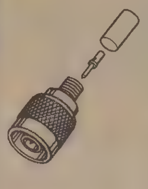
29

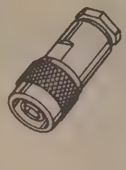


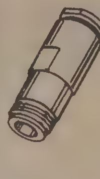
BNC Coaxial Connectors

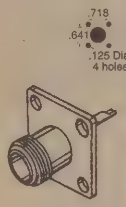
		Cable Group	Military	Digi-Key	Pricing			Amphenol
Fig.	Description	RG/U	Part No.	Part No.	1	25	100	Part No.
13	Panel Receptacle (Solder)	—	UG-290A	ARF1062-ND	5.18	101.25	334.13	31-203
13	Panel Receptacle (Solder)	—	—	ARFX1062-ND*	3.50	68.40	225.72	31-203-RFX
14	Bulkhead Recept. Isolated (Solder)	—	IBM 925390	ARF1063-ND	4.07	79.65	262.85	31-10
14	Bulkhead Recept. Isolated (Solder)	—		ARFX1063-ND*	2.97	58.05	191.57	31-10-RFX
14	Bulkhead Isolated Recept.	—	—	ARF1121-ND	4.30	84.15	277.70	31-10-75
15	Bulkhead Recept. Pressurized	—	UG-625B	ARF1134-ND	2.09	40.95	135.14	31-236
15	Bulkhead Recept.	—	UG-1094/U	ARF1064-ND	1.89	36.90	121.77	31-221
15	Bulkhead Recept. (Solder)	—	—	ARFX1064-ND*	1.50	29.25	96.53	31-221-RFX
15	Bulkhead Recept.	—	UG-1094A	ARF1131-ND	2.23	43.65	144.05	31-2221
15	Bulkhead Recept.	—	—	ARF1149-ND	5.34	104.40	344.52	31-70018
15	Bulkhead Recept. Pressurized	—	UG-657	ARF1122-ND	4.30	84.15	277.70	31-102
15	Bulkhead Recept. Pressurized	—	UG-912	ARF1136-ND	9.68	189.45	625.19	31-238
16	Angle Bulkhead Recept.	—	UG-1098	ARF1130-ND	20.88	430.65	1479.00	31-222
17	Rt. Angle Bulkhead Recept.	—	—	ARF1065-ND	4.16	81.45	268.79	31-5431
17	***NEW!*** Rt. Ang. Bulkhead Recept. With Hardware	—	—	ARF1065NW-ND	5.70	111.60	368.28	31-5431-2010
17	***NEW!*** Rt. Angle Bulkhead Recept.	75Ω	—	ARF1177-ND	4.16	81.45	268.79	31-71047-1010
17	***NEW!*** Rt. Angle Bulkhead Recept.	50Ω	—	ARF1178-ND	4.35	85.05	280.67	31-5640-1010
17	***NEW!*** Rt. Angle Bulkhead Recept. Metal	75Ω	—	ARF1179-ND	4.35	85.05	280.67	31-71043-1010
17	***NEW!*** Rt. Angle Bulkhead Recept. Low Profile	50Ω	—	ARF1180-ND	4.16	81.45	268.79	31-5486-1010
18	Receptacle Vertical PC	—	—	ARF1066-ND	4.72	92.25	304.43	31-5329
19	Shield Grounding Lug	—	—	ARF1067-ND	.44	8.55	28.22	31-759
20	Grounding Lug	—	—	ARF1068-ND	.41	8.10	26.73	31-10152
21	Straight/Jack-Jack	—	UG-914/U	ARF1069-ND	3.96	77.40	255.42	31-219
21	Straight/Jack-Jack	—	—	ARFX1069-ND*	1.91	37.35	123.26	31-219-RFX
21	Straight/Jack-Jack	75Ω	—	ARF1150-ND	4.39	85.95	283.64	31-70019
22	Straight/Plug-Plug	—	UG-491A/U	ARF1070-ND	6.83	133.65	441.05	31-218
22	Straight/Plug-Plug	—	—	ARFX1070-ND*	2.30	45.00	148.50	31-218-RFX
23	Angle/Jack-Plug	—	UG-306/U	ARF1071-ND	9.80	191.70	632.61	31-9
23	Angle/Jack-Plug	—	—	ARFX1071-ND*	8.03	157.05	518.27	31-9-RFX
23	Angle/Jack-Plug	—	UG-306A	ARF1128-ND	10.70	209.25	690.53	31-209
24	Panel/Jack-Jack	—	UG-414	ARF1154-ND	9.32	182.25	601.43	47000
25	Bulkhead/Jack-Jack, Gasketed	50Ω	—	ARFX1130-ND*	3.98	77.85	256.91	31-220G-RFX
25	Bulkhead/Jack-Jack (Sealed)	50Ω	UG-492A	ARF1129-ND	6.74	131.85	435.11	31-220H
25	Bulkhead/Jack-Jack, Non-Gasketed	50Ω	—	ARF1072-ND	5.84	114.30	377.19	31-220N
25	Bulkhead/Jack-Jack	—	—	ARFX1072-ND*	3.47	67.95	224.24	31-220N-RFX
25	Bulkhead/Jack-Jack (Sealed)	—	UG-492D	ARF1140-ND	8.60	168.30	555.39	31-3220
25	Bulkhead/Jack-Jack, Gasketed	75Ω	—	ARF1151-ND	12.31	240.75	794.48	31-70020
26	Bulkhead/Jack-Jack (Ins.)	—	—	ARF1073-ND	13.60	267.80	865.20	31-4803
27	Tee/Jack-Plug-Jack	—	UG-274	ARF1152-ND	9.29	181.80	599.94	31-8
27	Tee/Jack-Plug-Jack	50Ω	UG-274A/U	ARF1074-ND	7.73	151.20	498.96	31-208
27	Tee/Jack-Plug-Jack	50Ω	—	ARFX1074-ND*	3.38	66.15	218.30	31-208-RFX
28	Res. Cap, 50 Ohm	—	—	ARF1075-ND	11.34	221.85	732.11	46650-50
28	Res. Cap, 50 Ohm	—	—	ARFX1075-ND*	2.58	50.40	166.32	46650-51-RFX
28	Res. Cap, 75 Ohm	—	—	ARFX1076-ND*	2.85	55.80	184.14	46650-75-RFX
28	Res. Cap, 93 Ohm	—	—	ARF1077-ND	13.94	272.70	899.91	46650-93
28	Res. Cap, 93 Ohm	—	—	ARFX1077-ND*	3.17	62.10	204.93	46650-93-RFX
29	Res. Cap & Chain, 50 Ohm	—	—	ARF1078-ND	11.71	229.05	755.87	35650-50
29	Res. Cap & Chain, 75 Ohm	—	—	ARF1079-ND	11.71	229.05	755.87	35650-75

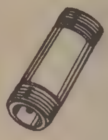
* RFX connectors. RFX™ is specifically designed for applications that do not require performance above 1 to 3 GHz. RFX™ connectors are not for use in military system applications. RFX™ connectors are generally less expensive than MIL-Spec and industry standard connectors.

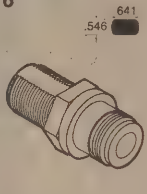
1


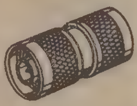
2


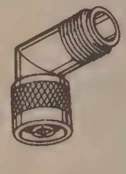
3


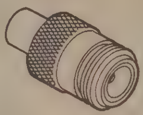
4


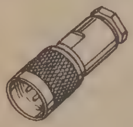
5


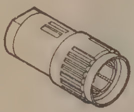
6


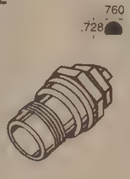
7


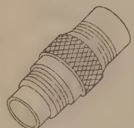
8


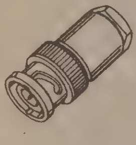
9


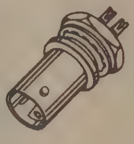
10


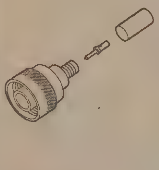
11


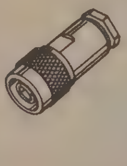
12


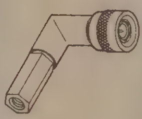
13


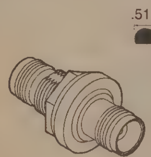
14


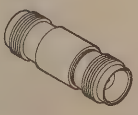
15


16


17


18


19


20


Type N Coaxial Connectors

Fig.	Description	Cable Group RG/U	Military Part No.	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
1	Plug (Crimp)‡	8, 213	M39012/10B-0007	ARF1013-ND	7.41	144.90	478.17	82-340
1	Plug (Crimp)	9, 214	—	ARF1163-ND	7.94	155.25	512.33	82-332
1	Plug (Crimp)	55, 142, 223	—	ARF1164-ND	7.66	149.85	494.51	82-5370
1	Plug (Crimp)‡	11, 48	M39012/01B-0013	ARF1015-ND	23.99	469.35	1548.86	82-342
1	Plug (Crimp)‡	214, 225, 393	M39012/01-0501	ARF1018-ND	10.05	196.65	648.95	82-4425
1	Plug (Crimp)‡	Ethernet	—	ARF1019-ND	8.69	170.10	561.33	82-4426-1001
2	Plug (Clamp)	8, 9, 144, 165, 213 214. 216. 225	UG-21D/U	ARF1014-ND	5.29	103.50	341.55	82-202
2	Plug (Clamp)	8, 9, 144, 165, 213, 214, 216, 225	UG-1185	ARF1161-ND	6.39	125.10	412.83	82-312
2	Plug (Clamp)	58, 141, 142	UG-536B/U	ARF1016-ND	6.00	117.45	387.59	34025
2	Plug (Clamp)	58, 141, 142	UG-536B	ARFX1016-ND*	5.41	105.75	348.98	34025-RFX
2	Plug (Clamp)	Belden 9913	—	ARF1020-ND	6.69	130.95	432.14	82-202-1006
2	Plug (Clamp)	8, 9, 144, 165, 213, 214, 216, 225	UG-21D	ARFX1183-ND*	4.39	85.95	283.64	82-202-RFX
3	Jack (Clamp)	8, 9, 87A, 144, 165.	UG-23B/U	ARF1021-ND	7.89	154.35	509.36	82-63
3	Jack (Clamp)	8, 9, 87A, 144, 165, 213, 214, 216, 225	UG-1186	ARF1162-ND	8.00	156.60	516.78	82-313
4	Panel Receptacle	—	UG-58A/U	ARF1023-ND	4.39	85.95	283.64	82-97
4	Panel Receptacle	—	UG-58A	ARFX1023-ND*	3.34	65.25	215.33	82-97-RFX
4	Panel Receptacle	—	UG-58	ARF1160-ND	4.49	87.75	289.58	82-24
5	Straight/Jack-Jack	—	UG-29B/U	ARF1025-ND	6.74	131.85	435.11	82-101
5	Straight/Jack-Jack	—	UG-29B	ARFX1025-ND*	4.49	87.75	289.58	82-101-RFX
6	Bulkhead/Jack-Jack	—	UG-30/U	ARF1026-ND	17.55	343.35	1133.06	82-66
7	Straight/Plug-Plug	—	UG-57B/U	ARF1027-ND	8.10	158.40	522.72	82-100
7	Straight/Plug-Plug	—	UG-57B	ARFX1027-ND*	7.64	149.40	493.02	82-100-RFX
8	Angle/Jack-Plug	—	UG-27A	ARF1028-ND	19.02	372.15	1228.10	82-64
9	Female Terminator 49.9Ω	—	—	ARF1030-ND	22.79	445.95	1471.64	82-5721-1000

* RFX connectors. ‡ Crimp tools are listed within the RF & RFX Connectors section.

Twinaxial Connectors

Fig.	Description	Cable Group RG/U	Military Part No.	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
10	Plug (Clamp)	Times AA-6026, AA-6076, AA-6079	—	ARF1031-ND	11.76	210.70	627.20	82-5589
10	Plug (Clamp)		—	ARFX1031-ND*	5.18	101.25	334.13	82-5589-RFX1
11	Plug (Clamp) Plastic Body	Belden 8227, 9207, IBM 7362211	—	ARF1033-ND	13.59	243.49	724.80	82-GB635-CR
12	Receptacle			ARFX1035-ND*	7.22	141.30	466.29	82-5590-RFX
13	Adapter/Jack-Jack	IBM 7362230	—	ARF1036-ND	23.34	418.18	1244.80	82-5588
13	Adapter/Jack-Jack			ARFX1036-ND*	5.57	108.90	359.37	82-5588-RFX
14	BNC Plug/Twinax - Noryl	108A	—	ARF1037-ND	9.60	172.00	512.00	31-224
14	BNC Plug/Twinax - TFE	108A	—	ARF1133-ND	10.07	197.10	650.43	31-2226
15	BNC Bulkhead/Twinax - Noryl	—	—	ARF1038-ND	18.24	326.80	972.80	31-223
15	BNC Bulkhead/Twinax - TFE	—	—	ARF1132-ND	10.13	209.01	717.83	31-2225

‡ Crimp tools are listed within the RF & RFX Connectors section.

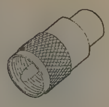
TNC Coaxial Connectors

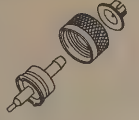
Fig.	Description	Cable Group RG/U	Military Part No.	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
16	Plug (Quick Crimp)‡	—	—	ARF1081-ND	4.12	80.55	265.82	36825
16	Plug (MIL-Crimp)	142, 223	—	ARF1135-ND	4.00	78.30	258.39	31-2373
16	Plug (Crimp)‡	59, 62	M23329/4-05	ARF1084-ND	3.89	76.05	250.97	31-2368
17	Plug (Clamp)	58, 141	—	ARF1082-ND	12.03	235.35	776.66	79875
17	Plug (Clamp)	58, 141, 142A	—	ARFX1082-ND*	2.65	51.75	170.78	79875-RFX
18	Angle Plug (Suretwist®)	—	—	ARF1083-ND	10.33	202.05	666.77	31-5242
19	Bulkhead/Jack-Jack	—	—	ARF1089-ND	40.30	788.40	2601.72	79100
20	Straight/Jack-Jack	—	—	ARF1090-ND	9.61	188.10	620.73	31-4791

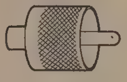
‡ Crimp tools are listed within the RF & RFX Connectors section.

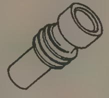
*RFX™, is specifically designed for applications that do not require performance above 1 to 3 GHz. RFX™ connectors are not for use in military system applications. RFX™ connectors are generally less expensive than MIL-Spec and industry standard connectors.

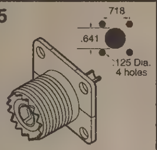
Amphenol®RF RF & RFX Connectors

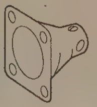
1


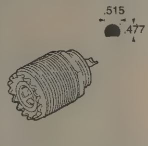
2


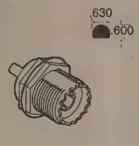
3


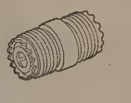
4


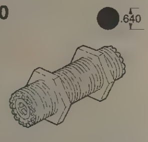
5


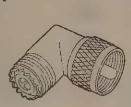
6


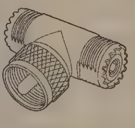
7


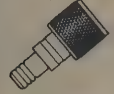
8


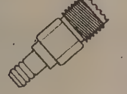
9


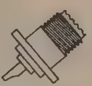
10


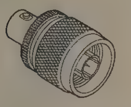
11


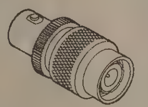
12


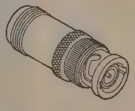
13


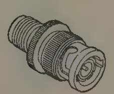
14


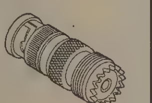
15


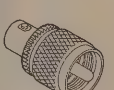
16


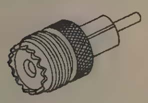
17


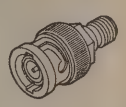
18


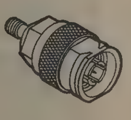
19


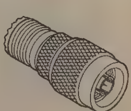
20


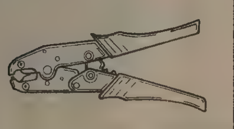
21


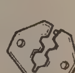
22


23


24


25


26


27


UHF Coxial Connectors

Fig.	Description	Cable Group RG/U	Military Part No.	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
1	Plug	8, 9, 11, 13,	PL-259/U	ARF1000-ND	1.77	34.65	114.35	83-1SP-1050
1	Plug (TFE Insul.)	213, 214,	PL-259	ARF1001-ND	2.94	57.60	190.08	83-822
1	Plug (UG Standard)	59, 62, 140, 210	—	ARF1166-ND	3.31	64.80	213.84	83-750
2	Plug	58, 141	—	ARF1002-ND	2.78	54.45	179.69	83-58FCP
2	Plug (Crimp)	58, 141, 142	—	ARFX1002-ND*	2.53	49.50	163.35	83-58FCP-RFX
3	Plug (Crimp)	58, 141	—	ARF1165-ND	3.45	67.50	222.75	83-58SP
4	Reducing Adapter	55, 58, 141, 142	UG-175/U	ARF1003-ND	.58	11.25	37.13	83-185
4	Reducing Adapter	58, 141, 142	UG-175	ARFX1003-ND*	.32	6.30	20.79	83-185-RFX
4	Reducing Adapter	59, 62, 71, 140, 210	UG-176/U	ARF1004-ND	.55	10.80	35.64	83-168
4	Reducing Adapter	59, 62, 71, 140, 210	UG-176	ARFX1004-ND*	.32	6.30	20.79	83-168-RFX
5	Panel Receptacle	—	SO-239/U	ARF1005-ND	2.05	40.05	132.17	83-1R
5	Panel Receptacle	—	SO-239	ARFX1005-ND*	1.93	37.80	124.74	83-1R-RFX
5	Panel Mount (TFE Insul.)	—	SO-239/A	ARF1168-ND	3.84	75.15	248.00	83-798
6	Panel Mount Hood	58, 141	UG-177	ARF1167-ND	1.89	36.90	121.77	83-765
7	Bulkhead Receptacle	—	—	ARF1006-ND	6.81	133.20	439.56	83-875-1002
8	Bulkhead Receptacle	—	—	ARF1007-ND	2.46	48.15	158.90	83-878
8	Bulkhead Receptacle	—	—	ARFX1007-ND*	2.32	45.45	149.99	83-878-RFX
9	Straight/Jack-Jack	—	PL-258/U	ARF1008-ND	3.13	61.20	201.96	83-1J
10	Bulkhead/Jack-Jack	—	UG-363/U	ARF1009-ND	9.50	185.85	613.31	83-1F
11	Angle/Jack-Plug	—	UG-646/U	ARF1010-ND	5.43	106.20	350.46	83-1AP
12	Tee/Jack-Plug-Jack	—	M-358	ARF1011-ND	7.91	154.80	510.84	83-1T

* RFX connectors. RFX™, is specifically designed for applications that do not require performance above 1 to 3 GHz. RFX ™ connectors are not for use in military system applications. RFX™ connectors are generally less expensive than MIL-Spec and industry standard connectors.

Mini UHF Connectors

Fig.	Description	Cable Group RG/U	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
13	Plug (Crimp)•	58	ARF1092-ND	2.09	40.95	135.14	81-115
14	Jack (Crimp)•	58	ARF1093-ND	2.90	56.70	187.11	81-116
15	Panel Receptacle	—	ARF1094-ND	4.16	81.45	268.79	81-118

• Crimp tools are listed below.

Between Series Adapters

Fig.	Description	Military Part No.	Digi-Key Part No.	Pricing 1	25	100	Amphenol Part No.
16	BNC Jack to N Plug	UG-201A/U	ARF1096-ND	10.42	203.85	672.71	31-216
16	BNC Jack to N Plug	UG-201A/U	ARFX1096-ND*	9.36	183.15	604.40	31-216-RFX
17	BNC Jack to TNC Plug	—	ARF1098-ND	20.54	401.85	1326.11	79675
21	BNC Jack to UHF Plug	UG-273/U	ARF1099-ND	8.51	166.50	549.45	31-28
21	BNC Jack to UHF Plug	UG-273/U	ARFX1099-ND*	7.68	150.30	495.99	31-28-RFX
22	UHF Jack to RCA Plug	—	ARF1101-ND	8.23	161.10	531.63	83-10
18	BNC Plug to N Jack	UG-349A/U	ARF1102-ND	10.26	200.70	662.31	31-217
18	BNC Plug to N Jack	UG-349A/U	ARFX1102-ND*	14.05	274.95	907.34	31-217-RFX
23	BNC Plug to SMA Jack	—	ARF1103-ND	33.75	662.89	2370.33	901-165
19	BNC Plug to TNC Jack	—	ARF1104-ND	24.84	486.00	1603.80	79025
20	BNC Plug to UHF Jack	UG-255/U	ARF1105-ND	9.04	176.85	583.61	2900
24	N Plug to SMA Jack	—	ARF1106-ND	52.49	1026.90	3388.77	901-294
25	N Plug to UHF Jack	UG-146/U	ARF1107-ND	12.51	244.80	807.84	4400

* RFX adapters.

ECONOHEX™ Crimp Tools and Dies

Fig.	Description	Digi-Key Part No.	Price	Amphenol Part No.
	CTL Series Crimp Tools			
26	Crimp Tool – RG 58, 59, 62, Plenum 59, 62	ARF1116-ND†	47.27	CTL-1
26	Crimp Tool – RG 174, Belden 8281	ARF1117-ND†	47.27	CTL-2
26	Crimp Tool – RG 58, 8, 213	ARF1118-ND†	47.27	CTL-3
26	Crimp Tool – Belden 8227, IBM 7362211	ARF1119-ND†	47.27	CTL-4
26	***NEW!*** Crimp Tool – RG 55, 58, 59, 62, 140, 141, 142, 210, 223, 303, 400, Plenum 59, 62	ARF1183-ND†	47.27	CTL-5
	Crimp Tool and Dies			
26	Tool Handle without Dies	ARF1108-ND	74.97	227-987
27	Crimp Die Set – Twin AX	ARF1110-ND	70.44	227-1417
27	Crimp Die Set – BNC, TNC	ARF1111-ND	54.90	227-1418
27	Crimp Die Set – RG 58, 59	ARF1112-ND	54.90	227-1419
27	Crimp Die Set – "N" Type	ARF1113-ND	54.90	227-1420

† CTL Series crimp tools are sold complete as a tool handle with die set included.

Weidmüller Paladin Tools Crimp Tools

1300 Series Crimp Tool and Dies

Fig.	Description	Digi-Key Part No.	Price	Paladin Part No.
26	Crimp Tool – Frame Only – without Dies	PAL1302-ND‡	40.53	PA1302
27	Crimp Die Set – RG/U Cable 58, 59, 62A	PAL2034-ND	30.57	PA2034
27	Crimp Die Set – RG/U Cable RG8, 213, 216	PAL2039-ND	30.57	PA2039
—	(2) Die Screws – EZI Change for PAL 1302-ND	PAL2303-ND	5.78	PA2303
27	Crimp Die Set – RG58/174, Both 50/75 Ohm Center Pins	PA2046-ND	18.85	PA2046
27	Crimp Die Set – RG59/8281, Both 50/75 Ohm Center Pins	PA2047-ND	18.85	PA2047
27	Die Set for AMP BNC/TNC RG58	PA2027-ND	18.85	PA2027
27	Die Set for AMP BNC/TNC RG59/62AU	PA2028-ND	18.85	PA2028

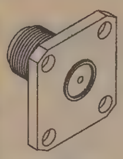
1600 Series Crimp Tool and Dies

Fig.	Description	Connector Series	Digi-Key Part No.	Price	Paladin Part No.
26	Crimp Tool – Frame Only – without Dies	—	PAL1600-ND‡	78.73	PA1600
27	Crimp Die Set – Combination RG 58,59/62	BNC, TNC, UHF, MHV, SMA	PAL2005-ND	53.82	PA2005
27	Crimp Die Set – RG/U Cable 59, 62AU	BNC, TNC, UHF, MHV, SMA	PAL2002-ND	53.82	PA2002
27	Crimp Die Set – RG/U Cable Belden 8281	BNC, TNC, UHF, MHV, SMA	PAL2009-ND	53.82	PA2009
27	Crimp Die Set – Dual Crimp RG58	BNC, TNC	PA2001-ND	34.58	PA2001
27	Crimp Die Set – Dual Crimp RG59	BNC, TNC	PA2003-ND	34.58	PA2003

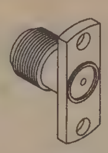
‡ Must Order Die Separately

JOHNSON Components™ *Formerly EFJohnson Components*

RF SMA Connectors Field Replaceable Type



4-Hole Jack



2-Hole Jack

SPECIFICATIONS: Mechanically captivated; Low RF leakage

Electrical: Impedance: 50 Ohms. **Frequency Range:** 0-26.5 GHz. **Working Voltage:** 335 VRMS max at sea level.

Mechanical: Engage/Disengage Torque: 2 inch-pounds max. **Mating Torque:** 7-10 inch-pounds. **Contact Retention:** 6 lbs. min. axial force. **Durability:** 500 cycles min.

Fig. 2

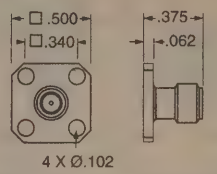


Fig. 3

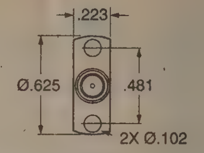


Fig. 4

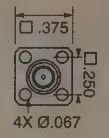
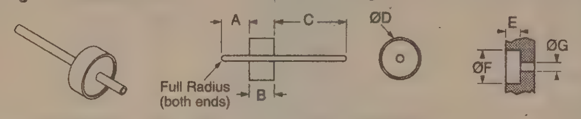


Fig.	Flange Style	Plating	Use With Pin Dia.	Digi-Key Part No.	Pricing 1	10	50	Johnson Part No.
2	4 Hole x .500	Gold	.012"	J550-ND	7.51	65.84	282.98	142-1701-501
2	4 Hole x .500	Nickel	.012"	J551-ND	7.15	62.70	269.50	142-1701-506
3	2 Hole x .223	Gold	.012"	J560-ND	7.67	67.26	289.10	142-1701-601
3	2 Hole x .223	Nickel	.012"	J561-ND	7.41	64.98	279.30	142-1701-606
2	4 Hole x .500	Gold	.015"	J552-ND	7.51	65.84	282.98	142-1701-511
2	4 Hole x .500	Nickel	.015"	J553-ND	7.15	62.70	269.50	142-1701-516
4	4 Hole x .375	Gold	.015"	J556-ND	8.09	70.97	305.03	142-1701-561
4	4 Hole x .375	Nickel	.015"	J557-ND	7.77	68.12	292.78	142-1701-566
3	2 Hole x .223	Gold	.015"	J562-ND	7.67	67.26	289.10	142-1701-611
3	2 Hole x .223	Nickel	.015"	J563-ND	7.41	64.98	279.30	142-1701-616
2	4 Hole x .500	Gold	.018"	J554-ND	7.51	65.84	282.98	142-1701-521
2	4 Hole x .500	Nickel	.018"	J555-ND	7.15	62.70	269.50	142-1701-526
4	4 Hole x .375	Gold	.018"	J558-ND	8.09	70.97	305.03	142-1701-571
4	4 Hole x .375	Nickel	.018"	J559-ND	7.77	68.12	292.78	142-1701-576
3	2 Hole x .223	Gold	.018"	J564-ND	7.67	67.26	289.10	142-1701-621
3	2 Hole x .223	Nickel	.018"	J565-ND	7.41	64.98	279.30	142-1701-626

Fig. 1 HERMETIC SEAL **Feed-Through**



HERMETIC SEAL

Specifications: • Microwave performance • .012", .015" and .018" Pin diameter

Electrical: Impedance: 50 Ohms. **Frequency Range:** DC to 0-26.5 GHz. **Working Voltage:** 250 VRMS max at sea level.

Environmental: Hermeticity: $1x10^{-8}$ cc/sec at one atmosphere. **Solderability:** MIL-STD-202, Method 209. **Operating Temperature:** -55°C to 165°C. **Plating:** Gold.

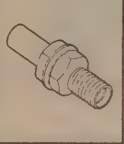
Fig.	Pin Dia.	Dimensions (In.) A	B	C	D	E	F	G	Digi-Key Part No.	Pricing 1	10	50	Johnson Part No.
1	.012	.070	.0625	.180	.0985	.063	.102	.028	J566-ND	5.04	44.18	189.88	142-1000-001
1	.015	.072	.0625	.180	.0985	.063	.102	.035	J567-ND	4.81	42.18	181.30	142-1000-002
1	.018	.072	.0600	.180	.1100	.060	.114	.042	J568-ND	4.58	40.19	172.73	142-1000-003

JOHNSON Components™ *Formerly EFJohnson Components*

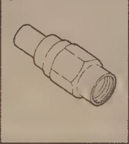
RF Connectors

SMA/SMB Type

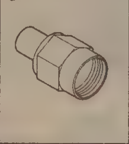
A



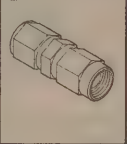
B



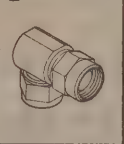
C



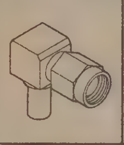
D



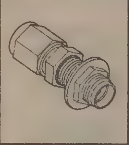
E



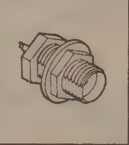
F



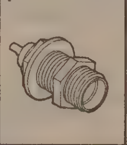
G



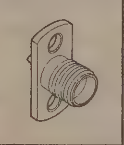
H



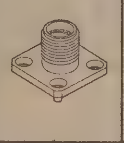
I



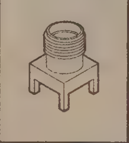
J



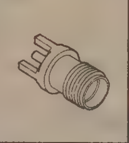
K



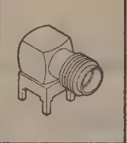
L



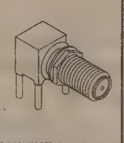
M



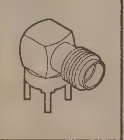
N



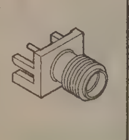
O



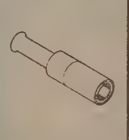
P



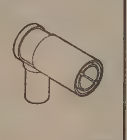
Q



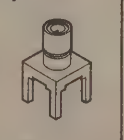
R



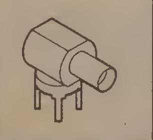
S



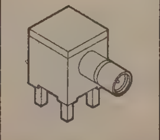
T



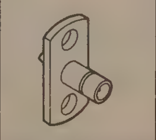
U



V



W



X

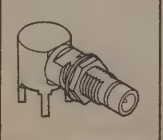


Fig. No.	Type (Desc.)	Cable Group	Plating	Digi-Key Part No.	Pricing 1	10	50	Johnson Part No.
SMA Type								
A	Crimp	2*	Gold	J523-ND	7.50	65.76	282.63	142-0303-411
	Crimp	2*	Nickel	J524-ND	7.31	64.07	275.39	142-0303-416
B	Crimp	2*	Gold	J525-ND	6.25	54.80	235.53	142-0403-011
	Crimp	2*	Nickel	J526-ND	5.67	49.74	213.79	142-0403-016
C	Solder	RG-402	Gold	J485-ND	1.54	13.49	57.98	142-0694-011
	Solder	RG-402	Nickel	J486-ND	1.08	9.44	40.58	142-0694-016
	Solder	RG-405	Gold	J487-ND	3.75	32.88	141.32	142-0693-001
	Solder	RG-405	Nickel	J488-ND	3.36	29.51	126.82	142-0693-006
D	Clamp	2*	Gold	J474-ND	11.92	104.54	449.32	142-0203-011
	Clamp	2*	Nickel	J475-ND	11.34	99.48	427.57	142-0203-016
	Clamp	3**	Gold	J480-ND	11.92	104.54	449.32	142-0207-011
	Clamp	3**	Nickel	J481-ND	11.34	99.48	427.57	142-0207-016
E	Clamp	2*	Nickel	J477-ND	8.46	74.19	318.87	142-0203-106
	Clamp	3**	Nickel	J484-ND	8.94	78.40	336.99	142-0207-106
F	Crimp	2*	Gold	J510-ND	7.64	67.02	288.07	142-0403-101
G	Clamp	2*	Gold	J478-ND	11.63	102.01	438.45	142-0103-401
H	Panel Mt.	—	Gold	J490-ND	5.86	51.43	221.04	142-0701-401
I	Panel Mt.	—	Gold	J489-ND	6.63	58.17	250.02	142-0701-411
J	Flange Mt.	—	Gold	J492-ND	6.57	57.58	247.49	142-0701-621
K	Flange Mt	—	Gold	J493-ND	6.49	56.91	244.60	142-0701-631
L	PC Mt.	—	Gold	J494-ND	7.16	62.81	269.95	142-0701-211
	PC Mt.	—	Nickel	J495-ND	6.73	59.01	253.65	142-0701-216
M	PC Mt.	—	Gold	J500-ND	6.01	52.69	226.48	142-0701-201
N	PC Mt.	—	Gold	J496-ND	10.77	94.42	405.84	142-0701-321
	PC Mt.	—	Nickel	J497-ND	10.09	88.52	380.47	142-0701-326
O	PC Mt.	—	Gold	J569-ND	10.47	91.77	394.45	142-0701-501
P	PC Mt.	—	Gold	J501-ND	8.70	76.29	327.93	142-0701-301
Q	PC Mt	—	Gold	J502-ND	6.49	56.91	244.60	142-0701-801
SMB Type								
R	Crimp	2*	Nickel	J464-ND	4.66	40.89	175.74	131-1403-016
S	Crimp	2*	Gold	J465-ND	5.05	44.26	190.24	131-1403-101
	Crimp	2*	Nickel	J466-ND	4.33	37.94	163.06	131-1403-116
T	PC Mt.	—	Gold	J467-ND	2.16	18.97	81.54	131-1701-201
	PC Mt.	—	Nickel	J468-ND	2.02	17.70	76.10	131-1701-206
	PC Mt.	—	Nickel	J469-ND	2.12	18.55	79.72	131-1701-216
U	PC Mt.	—	Gold	J472-ND	4.84	42.41	182.27	131-3701-301
V	PC Mt.	—	Gold	J470-ND	4.33	37.94	163.06	131-1701-371
	PC Mt.	—	Nickel	J471-ND	4.13	36.25	155.81	131-1701-376
W	Panel Mt.	—	Gold	J520-ND	6.87	60.28	259.09	131-3701-621
X	Panel Mt.	—	Gold	J522-ND	6.15	53.95	231.90	131-3701-341
Crimp Tool Frame				J572-ND	54.74	—	—	140-0000-952
Die Set for SMA, SMB Type (RG178, 316, 316DS, 58)				J573-ND	48.74	—	—	140-0000-951

***Group 2 Cables:** RG-161/U, RG-174/U, RG-179/U, RG-187/U, RG-188/U, RG-316/U

****Group 3 Cables:** RG-58/U, RG-141/U, RG-303/U

Johnson Components™ Formerly EFJohnson Components

RF Connectors MCX Type

FEATURES: • 30% Smaller than SMB. • Rugged snap-on mating design. • Captivated contact.
Electrical: Impedance: 50 Ohms **Frequency Range:** 0-6 GHz **Working Voltage at sea level:** 335 VRMS; 250 VRMS (J531-ND and J532-ND).
Mechanical: Engage/Disengage Force: 3.4 lbs. max engagement/5 lbs. typical disengagement **Contact Retention Force:** 4 lbs. min. axial force **Durability:** 500 cycles min.

Fig.	Cable Type	Plating	Dim. A	Digi-Key Part No.	Pricing 1	10	50	100	Johnson Part No.
1	RG 178	Gold	—	J531-ND	5.43	47.60	204.58	350.70	133-3402-101
1	RG 316	Gold	—	J535-ND	5.43	47.60	204.58	350.70	133-3403-101
1	RG 178	Nickel	—	J532-ND	5.23	45.89	197.23	338.10	133-3402-106
1	RG 316	Nickel	—	J536-ND	5.23	45.89	197.23	338.10	133-3403-106
2	RG 316	Gold	—	J533-ND	6.14	53.87	231.53	396.90	133-3403-001
2	RG 316	Nickel	—	J534-ND	5.95	52.16	224.18	384.30	133-3403-006
3	—	Gold	.155"	J537-ND	3.97	34.77	149.45	256.20	133-3701-201
3	—	Nickel	.155"	J538-ND	3.90	34.20	147.00	252.00	133-3701-206
3	—	Gold	.110"	J539-ND	3.90	34.20	147.00	252.00	133-3701-211
3	—	Nickel	.110"	J540-ND	3.87	33.92	145.78	249.90	133-3701-216
4	—	Gold	.155"	J541-ND	8.61	75.53	324.63	556.50	133-3701-301
4	—	Nickel	.155"	J542-ND	8.39	73.53	316.05	541.80	133-3701-306
4	—	Gold	.110"	J543-ND	8.84	77.52	333.20	571.20	133-3701-311
4	—	Nickel	.110"	J544-ND	8.61	75.53	324.63	556.50	133-3701-316
5	—	Gold	—	J545-ND	6.86	60.14	258.48	443.10	133-3701-401
5	—	Nickel	—	J546-ND	6.76	59.28	254.80	436.80	133-3701-406
6	—	Gold	.068"	J547-ND	5.14	45.03	193.55	331.80	133-3701-801
7	—	Gold	—	J548-ND	5.07	44.46	191.10	327.60	133-3711-201
8	—	Gold	—	J549-ND	7.90	69.26	297.68	510.30	133-3711-301
Prototype Crimp Tool				J574-ND	86.45	—	—	—	141-0000-908
Production Tool				J572-ND	54.74	—	—	—	140-0000-952
Die Set (RG178, 316)				J573-ND	48.74	—	—	—	140-0000-951

Fig. 1 Right Angle Cable Plug

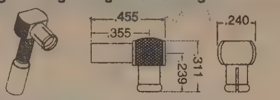


Fig. 2 Straight Cable Plug

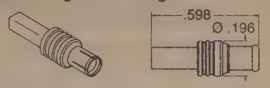


Fig. 3 Straight PC Mount Jack

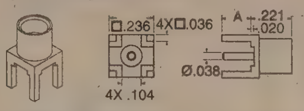


Fig. 4 Right Angle PC Mount Jack

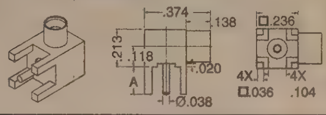


Fig. 5 Front Mount Bulkhead Jack Receptacle

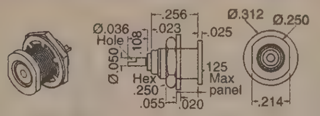


Fig. 6 End Launch Jack

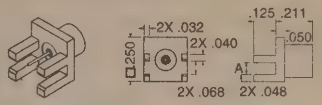


Fig. 7 SMT Straight Jack

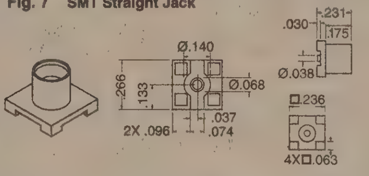
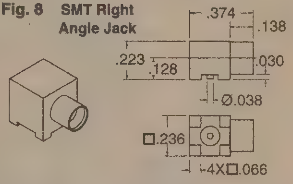


Fig. 8 SMT Right Angle Jack



HRS HIROSE ELECTRIC CO.,LTD.

Miniature RF Connectors

Fig. 1

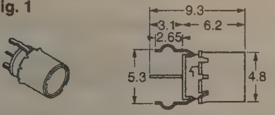


Fig. 2

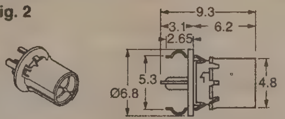


Fig. 3

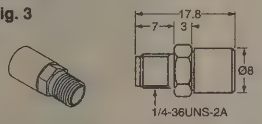


Fig. 4

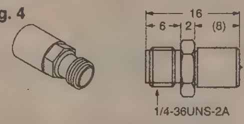


Fig. 5

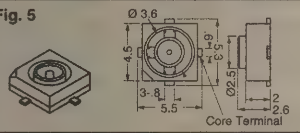


Fig. 6

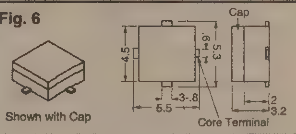


Fig. 7

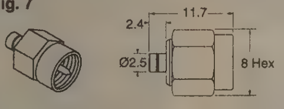


Fig. 8

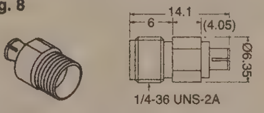


Fig. 9

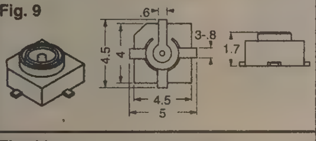


Fig. 10

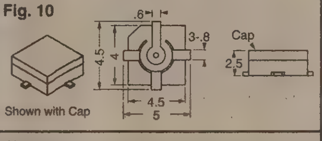


Fig. 11

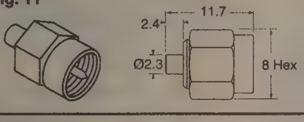


Fig. 12

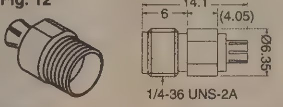


Fig. 13

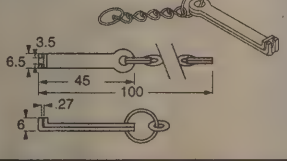


Fig. 14

Double End

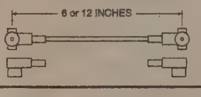
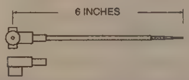


Fig. 15

Single End



FL (Finger-Lock) Series Coaxial Connectors:

Low-profile microminiature high-frequency connectors. The FL series connectors are low-profile microminiature coaxial connectors intended for high-density packaging of components on printed circuit boards. The FL series is ideal for high-density circuit board wiring in signal transmission applications at high frequencies up to 1 GHz.

Features: High-level matching: Maximum V.S.W.R is only 1.2 at frequencies up to 1 GHz. **Application:** Typical applications include cellular telephones, radio communications equipment, electronic measuring instruments, CATV, control units, etc. **Material and Finish:** • Shell: Brass or phosphor bronze, Silver plating • Center contact (male): Brass, Gold plating • Center contact (female): Phosphor bronze, Gold plating • Insulation: Polybutylene terephthalate (PBT), Black **Performance Characteristics:** • Characteristic impedance: 50Ω • Insulation resistance: 1000 MΩ or more (at 250 VDC) • Contact resistance: 10 mΩ or less for both center and outer conductors (at 1 ADC) • Withstanding voltage: 250 VAC (rms) for one minute • Coupling/removal force: 300 gf of more • Life of contacts: 50 times of use

S.FL2 Series Coaxial Connectors:

S.FL2 (Super FL Type 2 Coaxial Connector) Series is a Surface Mount, Low Profile, Miniature Coaxial Connector intended for high density packaging. Compared to HIROSE's FL series connectors, the S.FL2 Series offers a 50% reduced profile when assembled, achieving increased density of internal wiring for high frequency transmission applications.

Features: Highly flexible, offers high frequency performance below V.S.W.R 1.2 over 0-2000MHz range.

H.FL Series Coaxial Connectors:

The world's smallest low-profile coaxial connectors. The H.FL series of coaxial connectors consists of the world's smallest surface-mount low profile coaxial connectors. The H.FL connectors have a lower profile, with a mounted height of approximately 30% that of our S.FL2 connectors. They occupy 20% less board space, allowing higher density internal wiring.

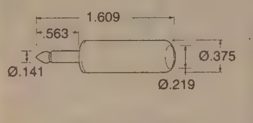
Features: • High frequency response of V.S.W.R 1.3 or less from D.C. to 3000 MHz. **Material and Treatment:** • Shell: Phosphor bronze, Silver plating • Insulator: PBT plastic (plug side), Black; Liquid crystal polymer (receptacle side), Black. • Male center contact: Bronze, Gold plating • Female center contact: Phosphor bronze, Gold plating. **Performance Characteristics:** • Characteristic impedance: 50Ω • Insulation resistance: 500 MΩ or greater at DC 250V • Contact resistance: 20mΩ (center), 10mΩ (exterior) at DC 10mA • Dielectric strength: AC 300V (r.m.s), 1 minute • Contact service life: 50 times • Voltage standing wave ratio: 1.3 or less, DC to 3000MHz (target value)

Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	100	Hirose Part No.
	FL SERIES					
1	Receptacle PC MT	H9142-ND	3.97	37.20	341.00	FL-R-PC(1)
2	Receptacle w/ Washer	H9143-ND	5.09	47.70	437.25	FL-R-PC(3)
3	Adapter Plug/SMA Plug	H9144-ND	85.28	799.50	7328.75	HRMJ-FLJ
4	Adapter Recept/SMA Plug	H9145-ND	61.57	577.20	5291.00	HRMJ-FLP-1
13	Removal Tool (FL Series)	H9146-ND	29.95	–	–	FL-LP-N
14	6" FL/FL Series Cable Assembly	10212-ND	12.03	112.80	1034.00	4189-06
14	12" FL/FL Series Cable Assembly	10213-ND	12.54	117.60	1078.00	4189-12
14	12" FL/SMA Series Cable Assembly	10214-ND	23.36	219.00	2007.50	4192-12
15	6" FL Single End Cable Assembly	10215-ND	8.80	82.50	756.25	4191-06
	S.FL2 SERIES					
5	Recept Coax SMT	H9152-ND	3.05	28.58	261.97	S.FL2-R-SMT(01)
6	Recept Coax w/ Cap SMT	H9153-ND	3.18	29.79	273.05	S.FL2-R-SMT(C)(10)
7	Adapter Plug/SMA Jack	H9154-ND	68.35	640.80	5874.00	HRMP-S.FLJ
8	Adapter Jack/SMA Plug	H9155-ND	70.75	663.30	6080.25	HRMJ-S.FLP
13	Removal Tool (S.FL2 Series)	H9156-ND	47.95	–	–	S.FL-LP-N
14	6" S.FL2/S.FL2 Cable Assembly	10220-ND	11.36	106.50	976.25	2189-06
14	12" S.FL2/S.FL2 Cable Assembly	10221-ND	12.70	119.10	1091.75	2189-12
14	12" S.FL2/SMA Cable Assembly	10222-ND	32.32	303.00	2777.50	2192-12
15	6" S.FL2 Single End Cable Assembly	10223-ND	8.48	79.50	728.75	2191-6
	H.FL SERIES					
9	Recept Coax SMT	H9147-ND	2.13	20.00	183.37	H.FL-R-SMT(01)
10	Recept Coax w/ Cap SMT	H9148-ND	2.24	20.96	192.10	H.FL-R-SMT(C)(10)
11	Adapter Jack/SMA Plug	H9150-ND	46.18	432.90	3968.25	HRMP-H.FLJ
12	Adapter Plug/SMA Jack	H9149-ND	52.03	487.80	4471.50	HRMJ-H.FLP
13	Removal Tool (H.FL Series)	H9151-ND	49.95	–	–	H.FL-LP-N
14	6" H.FL/H.FL Series Cable Assembly	10216-ND	10.62	99.60	913.00	1189-06
14	12" H.FL/H.FL Series Cable Assembly	10217-ND	11.97	112.20	1028.50	1189-12
14	12" H.FL/SMA Cable Assembly	10218-ND	31.01	290.70	2664.75	1192-12
15	6" H.FL Single End Cable Assembly	10219-ND	7.87	73.80	676.50	1191-06

Raytheon Electronics
Switchcraft

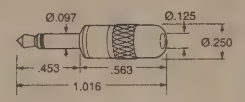
Phone, Power & Phono Plugs & Jacks

1


1.609
.563
Ø.375
Ø.141
Ø.219

3.5 mm Plug

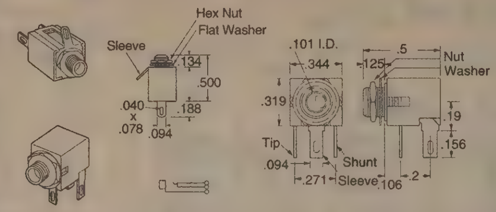
2


Ø.097
Ø.125
Ø.250
.453
.563
1.016

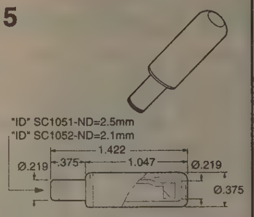
2.5 mm Plug

3

4

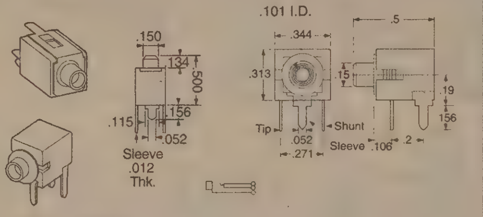

Hex Nut
Flat Washer
Sleeve
.134
.500
.040 x .078
.094
.188
.101 I.D.
.344
.319
Tip
.094
Shunt
.271
Sleeve
.106
.5
.125
Nut
Washer
.19
.156
.2

5


"ID" SC1051-ND=2.5mm
"ID" SC1052-ND=2.1mm
1.422
Ø.219
.375
1.047
Ø.219
Ø.375

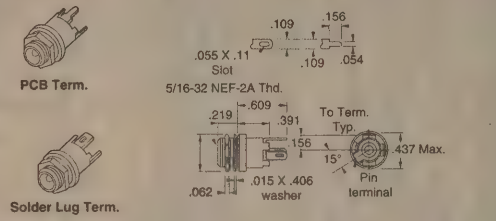
6

7

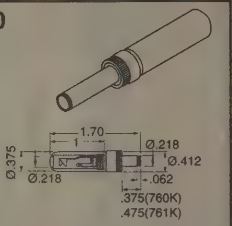

.101 I.D.
.150
.344
.5
.134
.500
.313
.15
.19
.156
.115
.156
.052
Tip
Shunt
.052
.271
Sleeve
.106
.2
Sleeve
.012
Thk.

8

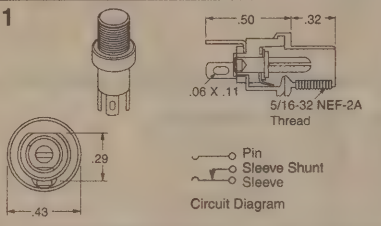
9


PCB Term.
.109
.156
.055 X .11
Slot
.109
.054
5/16-32 NEF-2A Thd.
.609
.219
.391
To Term.
Typ.
.156
15°
.437 Max.
.062
.015 X .406
washer
Pin
terminal
Solder Lug Term.

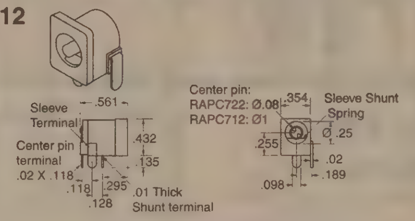
10


1.70
1
Ø.218
Ø.412
Ø.375
Ø.218
.062
.375(760K)
.475(761K)

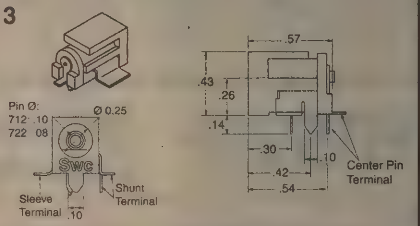
11


.50
.32
.06 X .11
5/16-32 NEF-2A
Thread
.29
.43
Pin
Sleeve Shunt
Sleeve
Circuit Diagram

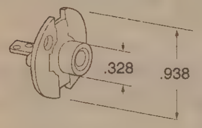
12


Sleeve
Terminal
.561
Center pin
terminal
.02 X .118
.432
.135
.118
.295
.128
.01 Thick
Shunt terminal
Center pin:
RAPC722: Ø.08
RAPC712: Ø1
.354
Sleeve Shunt
Spring
Ø .25
.255
.02
.189
.098

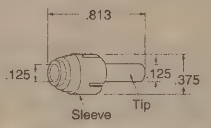
13


Pin Ø:
712 .10
722 .08
Ø 0.25
SWC
Sleeve
Terminal
.10
Shunt
Terminal
.57
.43
.26
.14
.30
.10
.42
.54
Center Pin
Terminal

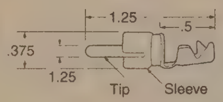
14



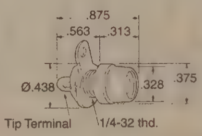
15


.813
.125
.125
.375
Tip
Sleeve

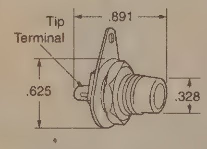
16


1.25
.5
.375
1.25
Tip
Sleeve

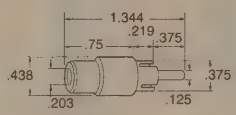
17


.875
.563
.313
Ø.438
.328
.375
Tip Terminal
1/4-32 thd.

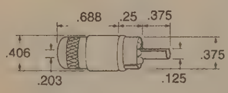
18


Tip
Terminal
.891
.625
.328

19


1.344
.219
.375
.75
.438
.375
.203
.125

20


.688
.25
.375
.406
.375
.203
.125

21

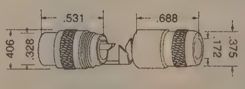
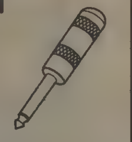

.531
.688
.406
.328
.172
.375

Fig.	Mates With	Description	Digi-Key Part No.	Pricing 1	10	25	Switchcraft Part No.
		"Tini Plug" Miniature Phone Plugs					
1	41	.141" Black w/ Screw Terminals	SC1053-ND	2.88	21.60	49.56	740
1	41	.141" Black w/ Solder Lug & Cable Clamp	SC1055-ND	2.79	20.96	48.09	750
1	41	.141" Red w/ Solder Lug & Cable Clamp	SC1056-ND	2.79	20.96	48.09	755
1	41	.141" Shielded w/ Solder Lug & Cable Clamp	SC1057-ND	3.82	28.65	65.75	780
		"Micro-plug" Subminiature Phone Plugs					
2	Fig. 3,4,6,7	.097" 2 Cond Black w/ Solder Lugs	SC1058-ND	2.82	21.17	48.58	850
2	Fig. 3,4,6,7	.097" 2 Cond Red w/ Solder Lugs	SC1059-ND	2.82	21.17	48.58	855
2	Fig. 3,4,6,7	.097" 2 Cond Natural w/ Solder Lugs	SC1060-ND	2.82	21.17	48.58	880
		"Micro-d Jax" Subminiature Enclosed Phone Jack					
3	850	Subminiature 2 Cond Closed Circuit Solder Lug	SC1043-ND	1.88	14.11	32.39	MDSL2A
6	850	Subminiature 2 Cond Closed Circuit PCB	SC1044-ND	1.88	14.11	32.39	MDPC2A
4	850	Subminiature Rt. Angle 2 Cond Solder Lug	SC1045-ND	2.08	15.61	35.82	MDSL2ARA
7	850	Subminiature Rt. Angle PCB	SC1046-ND	2.08	15.61	35.82	MDPC2ARA
		Power Plugs					
5	712A	Power Plug .1" Black Handle (2.5 mm Dia.)	SC1051-ND	2.82	21.17	48.58	760
5	722A	Power Plug .08" Black Handle (2.1 mm Dia.)	SC1052-ND	2.96	22.24	51.03	S760
10	L712A	***NEW!*** Conn Power Plug Locking 2.5 mm Blk	SC1148-ND	4.10	30.79	70.66	761K
10	712A	***NEW!*** Conn Power Plug Locking 2.5 mm Blk	SC1149-ND	4.10	30.79	70.66	760K
		Power Jacks					
8	760K	Panel Mount Jack .1" Dia. PC Terminals (2.5 mm Dia.)	SC1050-ND	2.82	21.17	48.58	PC712A
8	S760K	Panel Mount Jack .08" Dia. (2.1mm Dia.)	SC1047-ND	2.82	21.17	48.58	PC722A
9	760	Panel Mount Jack .1" Dia., Solder Lug (2.5 mm Dia.)	SC1048-ND	2.82	21.17	48.58	712A
9	S760	Panel Mount Jack .08" Dia., Solder Lug (2.1 mm Dia.)	SC1049-ND	2.82	21.17	48.58	722A
11	761K	***NEW!*** Conn Power Jack 2.5 mm Panel Mount Long	SC1150-ND	3.82	28.65	65.75	L712A
11	760k	***NEW!*** Conn Power Jack 2.1 mm Panel Mount Long	SC1151-ND	3.82	28.65	65.75	L722A
12	760	***NEW!*** Conn Power Jack Right Angle RCB 2.5 mm	SC1152-ND	1.08	8.13	18.65	RAPC712
12	S760	***NEW!*** Conn Power Jack Right Angle PCB 2.1 mm	SC1153-ND	1.08	8.13	18.65	RAPC722
13	760	***NEW!*** Conn Power Jack Hybrid SMT 2.5 mm	SC1154-ND	1.45	10.91	25.03	RASH712
13	S760	***NEW!*** Conn Power Jack Hybird SMT 2.1 mm	SC1155-ND	1.45	10.91	25.03	RASH722

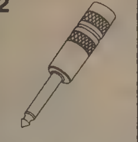
Fig.	Description	Digi-Key Part No.	Pricing 1	10	25	100	Switchcraft Part No.
	Phono Jacks and Plugs						
14	Phono Jack 2 Cond. Panel Mount	SC1130-ND	1.43	10.69	24.53	89.10	3501F
15	Phono Plug 2 Cond.	SC1131-ND	.48	3.64	8.34	30.29	3501M
16	Phono Plug 2 Cond. w/ Cable Clamp	SC1132-ND	.97	7.27	16.68	60.58	3501MC
17	Phono Jack 2 Cond. Panel Mount	SC1133-ND	1.31	9.84	22.57	81.97	3501FP
—	Insulated Washer Flat For SC1133-ND	SC1144-ND	.31	2.35	5.40	19.60	S-2207
—	Insulated Washer Extruded For SC1133-ND	SC1145-ND	.37	2.78	6.38	23.16	S-1564
18	Phono Jack 2 Cond. Panel Mount w/ Hardware	SC1134-ND	1.68	12.62	28.95	105.13	3501FR
—	Insulated Washer Flat For SC1134-ND	SC1146-ND	.20	1.43	2.67	9.81	S-1028
—	Insulated Washer Extruded For SC1134-ND	SC1147-ND	.37	2.78	6.38	23.16	S-1029
19	Phono Plug 2 Cond, Red Cable Clamp	SC1135-ND	1.40	10.48	24.04	87.31	3558-1
19	Phono Plug 2 Cond, Black Cable Clamp	SC1136-ND	1.40	10.48	24.04	87.31	3558-2
19	Phono Plug 2 Cond, White Cable Clamp	SC1137-ND	1.40	10.48	24.04	87.31	3558-5
20	Phono Plug 2 Cond, Shielded w/ Cable Clamp	SC1138-ND	1.88	14.11	32.39	117.61	3502
21	Phono Extension Jack 2 Cond, Shielded w/ Heavy Duty Clamp	SC1139-ND	2.62	19.67	45.14	163.93	3503

1/4" Plug Jacks & Audio Adapters

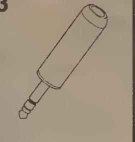
1



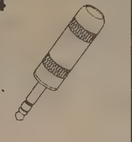
2



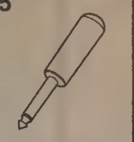
3



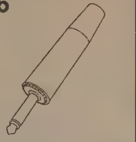
4



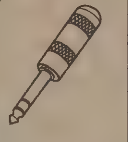
5



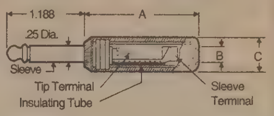
6



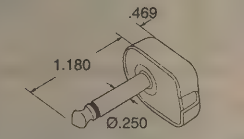
7



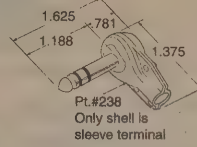
Dimensions for Figures 1-7


1.188
A
.25 Dia.
Sleeve
B
C
Tip Terminal
Insulating Tube
Sleeve
Terminal

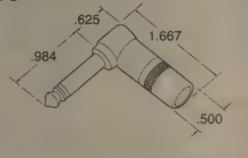
8


.469
1.180
Ø.250

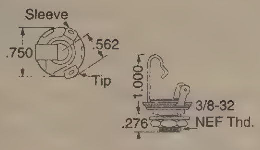
9


1.625
.781
1.188
1.375
Pt.#238
Only shell is
sleeve terminal

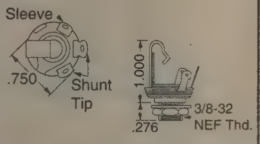
10


.625
1.667
.984
.500

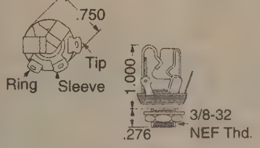
11


Sleeve
.750
.562
Tip
1.000
3/8-32
.276
NEF Thd.

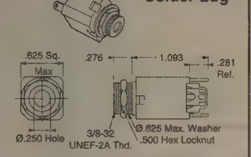
12


Sleeve
.750
Shunt
Tip
1.000
3/8-32
.276
NEF Thd.

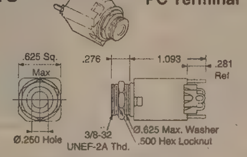
13


.750
Tip
Ring
Sleeve
1.000
3/8-32
.276
NEF Thd.

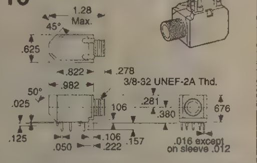
14


Solder Lug
.625 Sq.
Max
.276
1.093
.281
Ref.
Ø.250 Hole
3/8-32
UNEF-2A Thd.
Ø.625 Max. Washer
.500 Hex Locknut

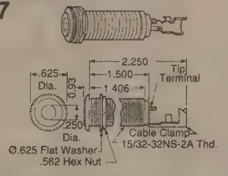
15


PC Terminal
.625 Sq.
Max
.276
1.093
.281
Ref
Ø.250 Hole
3/8-32
UNEF-2A Thd.
Ø.625 Max. Washer
.500 Hex Locknut

16

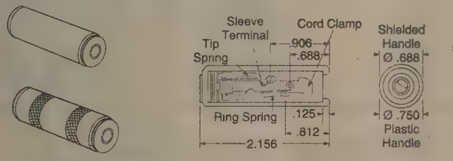

1.28
Max.
45°
.625
.822
.278
.982
3/8-32 UNEF-2A Thd.
50°
.025
106
.281
.380
676
.125
.050
.106
.222
.157
.016 except
on sleeve .012

17

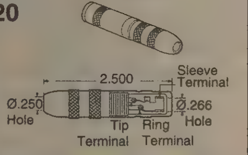

2.250
.625
Dia.
1.500
Tip
Terminal
0.93
1 406
.250
Dia.
Ø.625 Flat Washer
.562 Hex Nut
Cable Clamp
15/32-32NS-2A Thd.

18

19

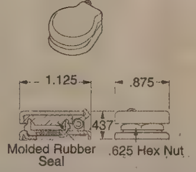

Sleeve
Terminal
Cord Clamp
Tip
Spring
.906
.688
Shielded
Handle
Ø .688
Ring Spring
.125
.812
2.156
Ø .750
Plastic
Handle

20

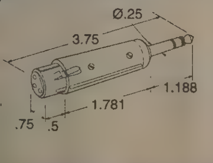

2.500
Sleeve
Terminal
Ø.250
Hole
Ø.266
Hole
Tip
Terminal
Ring
Terminal

NOTE: Ring terminal on SC1040-ND only

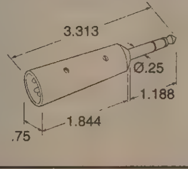
21


1.125
.875
437
Molded Rubber
Seal
.625 Hex Nut

22


Ø.25
3.75
1.188
1.781
.75
.5

23


3.313
Ø.25
1.188
1.844
.75

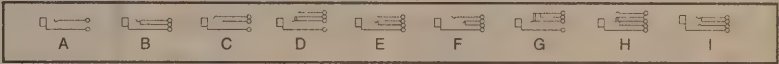


Fig.	Description	Mates With	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	10	25	Switchcraft Part No.
1/4" Two Conductor Phone Plugs										
1	Shielded w/ Screw Terminals	11 or 215J	2.156	.375	.688	SC1062-ND	5.76	43.19	99.12	70
2	Shielded Handle w/ Cable Clamp, 2 pcs.	11 or 215J	1.938	.25	.688	SC1063-ND	6.70	50.25	115.31	170
1/4" Three Conductor Phone Plugs										
3	Black w/ Solder Lug Terminals	12B	2.156	.281	.75	SC1064-ND	4.87	36.56	83.91	60
4	Shielded w/ Solder Lug Terminals	12B	2.156	.375	.688	SC1065-ND	6.70	50.25	115.31	190
1/4" "Littel Plugs" Two Conductor Phone Plugs										
5	Black w/ Solder Lug & Cable Clamp	11	1.688	.297	.5	SC1072-ND	3.11	23.31	53.49	250
5	Red w/ Solder Lug & Cable Clamp	11	1.688	.297	.5	SC1073-ND	3.11	23.31	53.49	255
1	Shielded w/ Solder Lug & Cable Clamp	11	1.688	.297	.5	SC1075-ND	3.88	29.08	66.73	280
1/4" "Littel Plugs" Two Conductor Audio Loudspeaker Plugs										
6	Nickel Finish w/ .3 to .33 Bushing Dia.	11 or 215J	72.6	.355	.74	SC1141-ND	5.36	40.20	92.25	187
1/4" "Littel Plugs" Three Conductor Phone Plugs										
3	Black w/ Solder Lug & Cable Clamp	12B	1.688	.297	.5	SC1081-ND	4.39	32.93	75.57	267
7	Shielded w/ Screw Terminals	12B	1.688	.297	.5	SC1083-ND	5.61	42.12	96.67	290
7	Shielded w/ Solder Lug & Cable Clamp	12B	1.688	.297	.5	SC1084-ND	5.22	39.13	89.80	297
1/4" Right Angle Flat, Two Conductor Type Phone Plugs										
8	Black w/ Solder Lugs	11	—	—	—	SC1067-ND	3.51	26.30	60.35	227
9	Shielded w/ Solder Lugs	11	—	—	—	SC1068-ND	4.19	31.43	72.13	228
1/4" Right Angle Flat, Three Conductor Type Phone Plugs										
9	Shielded w/ Solder Lugs	12B	—	—	—	SC1069-ND	5.42	40.63	93.23	238
1/4" Right Angle Phone Plug, Two Conductor Type										
10	Nickel Plate 3 pc. Const.	11, 12A, 111, or 112A	—	—	—	SC1143-ND	4.16	31.22	71.64	226
.206" Commercial Phone Plugs, Two Conductor Type										
5	Black w/ Solder Lug & Cable Clamp	S11	—	—	—	SC1077-ND	3.31	24.80	56.92	S250
.206" Commercial Phone Plugs, Three Conductor Type										
3	Black w/ Screw Terminals	S12B	1.688	.297	.5	SC1080-ND	6.78	50.89	116.78	S260

* Wide insulator between tip & sleeve allows use of 2-Cond. plug in 3 Cond. jack without shorting.
† Has Switchcraft logo on handle.

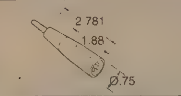
Fig.	Schematic	Description	Digi-Key Part No.	Pricing 1	10	25	Switchcraft Part No.
1/4" "Little Jax," Two Conductor Phone Jacks							
11	A	Phone Jack 1/4", Open Circuit	SC1085-ND	1.97	14.75	33.86	11
11	A	Mil Number M641/6-1	SC1086-ND	2.76	20.74	47.60	C11
12	B	Phone Jack 1/4" Tip Shunt	SC1089-ND	1.97	14.75	33.86	12A
12	B	Mil Number M641/12-1	SC1090-ND	3.42	25.66	58.88	C12A
1/4" "Little Jax," Three Conductor Phone Jacks							
13	C	Phone Jack Double Open Circuit	SC1094-ND	2.02	15.18	34.84	12B
13	C	Phone Jack .375" Bushing	SC1096-ND	2.19	16.46	37.78	L12B
13	C	Phone Jack .210"	SC1097-ND	2.99	22.45	51.52	S12B
13	F	Phone Jack Tip Shunt	SC1098-ND	4.67	35.07	80.47	13B
13	H	Phone Jack Double Closed Circuit	SC1099-ND	4.90	36.78	84.40	14B
1/4" Two Conductor Jacks with Solder Lug Terminals							
14	A	Phone Jack Enclosed Insulated Bushing	SC1103-ND	2.17	16.25	37.29	N111
14	B	Phone Jack Enclosed Single Closed Circuit	SC1104-ND	1.88	14.11	32.39	112A
14	B	Phone Jack Enclosed Insulated Bushing	SC1105-ND	2.28	17.11	39.26	N112A
1/4" Two Conductor Jacks with PC Terminals							
15	A	Phone Jack Enclosed PCB Open Circuit	SC1113-ND	1.82	13.69	31.40	111PC
15	A	Phone Jack Enclosed PCB Insulated Bushing	SC1114-ND	2.17	16.25	37.29	N111PC
15	B	Phone Jack Enclosed PCB Single Closed Circuit	SC1115-ND	1.88	14.11	32.39	112APC
15	B	Phone Jack Enclosed PCB Insulated Bushing	SC1116-ND	2.28	17.11	39.26	N112APC
16	A	Phone Jack Rt. Angle Single Open Circuit	SC1121-ND	1.62	12.19	27.97	RN111PC
16	B	Phone Jack Rt. Angle Single Closed Circuit	SC1122-ND	1.88	14.11	32.39	RN112APC
1/4" Three Conductor Jacks with Solder Lug Terminals							
14	C	Phone Jack Enclosed Double Open Circuit	SC1107-ND	1.91	14.33	32.88	112B
14	C	Phone Jack Enclosed w/ Solder Lugs	SC1108-ND*	2.79	20.96	48.09	M112B
14	H	Phone Jack Enclosed Double Closed Circuit	SC1111-ND	2.57	19.24	44.16	114B
14	H	Phone Jack Enclosed Insulated Bushing	SC1112-ND	2.99	22.45	51.52	N114B
1/4" Three Conductor Jacks with PC Terminals							
15	C	Phone Jack Enclosed PCB Dlb Open Circuit	SC1117-ND	1.91	14.33	32.88	112BPC
15	H	Phone Jack Enclosed PCB Insulated Bushing	SC1120-ND	2.99	22.45	51.52	N114BPC
16	C	Phone Jack Rt. Angle Double Open Circuit	SC1123-ND	2.02	15.18	34.84	RN112BPC
16	F	Phone Jack Rt. Angle Tip Closed Ring Open	SC1124-ND	2.22	16.68	38.27	RN113BPC
16	H	Phone Jack Rt. Angle Double Closed Circuit	SC1125-ND	2.37	17.75	40.73	RN114BPC
1/4" "TP-Jax" Thick-panel Phone Jacks							
17	A	2 Cond, Open Circuit	SC1034-ND	6.01	45.12	103.54	151
17	C	3 Cond, Open Circuit	SC1035-ND	6.67	50.04	114.82	152B
"Extension-jax" 1/4" Cable Extension Jacks							
18	—	In Line 2 Cond Black Handle Screw Terminals	SC1036-ND	5.10	38.28	87.83	80
19	—	In Line 2 Cond Shielded Screw Terminals	SC1037-ND	6.67	50.04	114.82	120
20	—	In Line 2 Cond Shielded Solder Lugs, Cable Clamp	SC1038-ND	6.67	50.04	114.82	121
19	—	In Line 2 Cond Shielded Solder Lugs, Cable Clamp	SC1039-ND	5.76	43.19	99.12	128
20	—	In Line 3 Cond Shielded Solder Lugs	SC1040-ND	8.27	62.01	142.30	131
18	—	In Line 3 Cond Black Handle Screw Terminals	SC1041-ND	7.10	53.24	122.18	830
19	—	In Line 3 Cond Shielded Handle Screw Terminals	SC1042-ND	8.07	60.51	138.87	1230
Jack Cover							
21	—	Jack Cover Black w/ Hardware	SC1101-ND	7.15	53.67	123.16	515

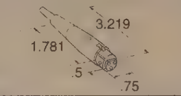
* .25 inch I.D. sleeve, metal bushing

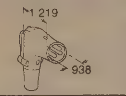
Fig.	Description	Digi-Key Part No.	Pricing 1	10	25	100	Switchcraft Part No.
Audio Adapters							
22	3-Contact Female to 3 pos. Phono Plug	SC1126-ND	14.68	110.12	252.71	917.68	386A
23	3-Pin Male to 3 Cond. Phono Plug	SC1127-ND	13.20	99.00	227.19	825.02	387A

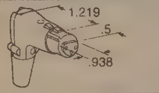
Raytheon Electronics
Switchcraft®

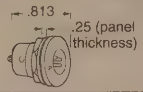
Audio Connectors & Couplers

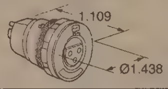
1


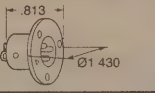
2


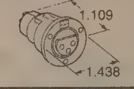
3


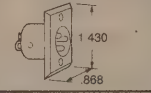
4


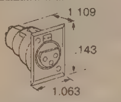
5


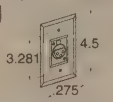
6


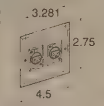
7


8


9


10


11


12


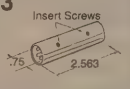
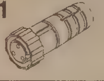
13


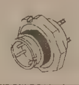
Fig.	Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
1	Plug Male Straight 3 pos Satin Nickel Finish	SC1003-ND	4.76	35.71	81.95	A3M
1	Plug Male Straight 3 pos Black w/Silver Contacts	SC1004-ND†	4.76	35.71	81.95	A3MB
1	Plug Male Straight 4 pos Satin Nickel Finish	SC1014-ND	5.47	41.06	94.21	A4M
1	Plug Male Straight 5 pos Satin Nickel Finish	SC1022-ND	9.66	72.49	166.34	A5M
2	Plug Female Straight 3 pos Satin Nickel Finish	SC1001-ND	5.36	40.20	92.25	A3F
2	Plug Female Straight 3 pos Black w/Silver Contacts	SC1002-ND†	5.36	40.20	92.25	A3FB
2	Plug Female Straight 4 pos Satin Nickel Finish	SC1013-ND	7.47	56.02	128.56	A4F
2	Plug Female Straight 5 pos Satin Nickel Finish	SC1021-ND	12.17	91.31	209.52	A5F
3	Plug Male Rt. Angle 3 pos Satin Nickel Finish	SC1012-ND	14.08	105.63	242.40	R3M
4	Plug Female Rt. Angle 3 pos Satin Nickel Finish	SC1011-ND	15.25	114.40	262.52	R3F
5	Receptacle Male Pnl Mnt 3 pos Satin Nickel Finish	SC1006-ND	8.46	63.51	145.73	B3M
6	Receptacle Female Pnl Mnt 3 pos Satin Nickel Finish	SC1005-ND	13.97	104.78	240.44	B3F
7	Receptacle Male Pnl Mnt 3 pos Satin Nickel Finish	SC1008-ND	5.76	43.19	99.12	C3M
8	Receptacle Female Pnl Mnt 3 pos Satin Nickel Finish	SC1007-ND	8.07	60.51	138.87	C3F
9	Receptacle Male Narrow Pnl Mnt 3 pos Satin Nickel Finish	SC1010-ND	4.47	33.57	77.04	D3M
9	Receptacle Male Narrow Pnl Mnt 4 pos Satin Nickel Finish	SC1020-ND	5.30	39.77	91.27	D4M
9	Receptacle Male Narrow Pnl Mnt 5 pos Satin Nickel Finish	SC1028-ND	9.41	70.56	161.93	D5M
10	Receptacle Female Narrow Pnl Mnt 3 pos Satin Nickel Finish	SC1009-ND	6.01	45.12	103.54	D3F
10	Receptacle Female Narrow Pnl Mnt 4 pos Satin Nickel Finish	SC1019-ND	8.58	64.36	147.70	D4F
10	Receptacle Female Narrow Pnl Mnt 5 pos Satin Nickel Finish	SC1027-ND	13.88	104.14	238.97	D5F
11	Wall Plate Receptacle Female 3 pos Stainless Steel	SC1030-ND	15.13	113.54	260.56	J3FS
12	Wall Plate Dbl Receptacle Female 3 pos Stainless Steel	SC1032-ND	21.23	159.30	365.56	K3FS
13	Adapter Audio, 3 pos Male to Male Shielded	SC1129-ND	12.40	93.02	213.45	390

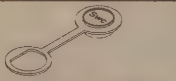
† "Black Velvet" (Electrically Conductive Chrome Plate)

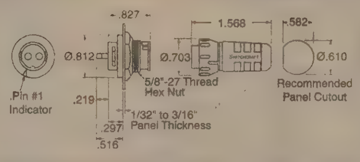
Raytheon Electronics
Switchcraft®

NEW! EN3 Weathertight Connectors

1


2


3


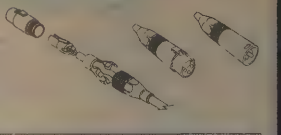


FEATURES & BENEFITS: • Housing rated UL 94V-0 against flammability • Contact terminal: Solder Cup Contacts • Panel Connector Shell features a positioning keyway to prevent misalignments • No Gromments. Cable clamp assembly features living hinges, which snap easily onto and holds the cable • Choose cord plug or panel mount • 2-8 pins • Exceeds Coast Guard specifications for water tightness (CFR 46 Part 110.20) • Optional cap covers the panel housing assembly when not in use. **APPLICATIONS:** • Process control • Marine electronics • Medical instrumentation • Geothermal instrumentation • Communication • Transportation • General industrial electronics. **SPECIFICATIONS:** Mechanical: Shock: Mil-Std. 202 method 213B, condition K • Vibration: Mil-Std 202 Method 201 • Life 600 insertion/withdrawal cycles (minimum). **Electrical:** Voltage Rating (sea level): • Tested at 600 VRMS • Insulation Resistance: 100 Megohms (minimum) at 77°F • Contact Resistance: 3.0 Millohms (maximum) • Current Rating: 7.5 Amps (#20 contact). **Environmental:** • Temperature Limits: -40°C to +65°C (non-operating) • Moisture Resistance: Mil-Std 202 Method 106F • Insulation Resistance: Mil-Std 202 Method 302, condition B • Thermal Shock: Mil-Std 202Method 107G • Salt Spray: Mil-Std 202 Method 101D, condition B • Water Tightness Test: U.S. Coast Guard CFR 46 Part 110.20

Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
1	Conn. Weathertight 3 Pos. Plug Female	SC1156-ND	5 24	39 34	90.29	EN3C3F
1	Conn. Weathertight 3 Pos. Plug Male	SC1157-ND	3.79	28.44	65.26	EN3C3M
1	Conn. Weathertight 4 Pos. Plug Female	SC1158-ND	6.30	47.26	108.44	EN3C4F
1	Conn. Weathertight 4 Pos. Plug Male	SC1159-ND	4.39	32.93	75.57	EN3C4M
1	Conn. Weathertight 5 Pos. Plug Female	SC1160-ND	7.35	55.17	126.60	EN3C5F
1	Conn. Weathertight 5 Pos. Plug Male	SC1161-ND	4.96	37.21	85.38	EN3C5M
1	Conn. Weathertight 6 Pos. Plug Female	SC1162-ND	8.38	62.87	144.26	EN3C6F
1	Conn. Weathertight 6 Pos. Plug Male	SC1163-ND	5.56	41.70	95.68	EN3C6M
1	Conn. Weathertight 8 Pos. Plug Female	SC1164-ND	10.49	78.69	180 57	EN3C8F
2	Conn. Weathertight 3 Pos. Recp. Female	SC1165-ND	4.65	34.85	79.98	EN3P3F
2	Conn. Weathertight 3 Pos. Recp. Male	SC1166-ND	3.33	25.02	57 41	EN3P3M
2	Conn. Weathertight 4 Pos. Recp. Female	SC1167-ND	5.64	42.34	97.16	EN3P4F
2	Conn. Weathertight 4 Pos. Recp. Male	SC1168-ND	3.93	29.51	67.72	EN3P4M
2	Conn. Weathertight 5 Pos. Recp. Female	SC1169-ND	6.67	50.04	114.82	EN3P5F
2	Conn. Weathertight 5 Pos. Recp. Male	SC1170-ND	4.50	33.79	77.53	EN3P5M
2	Conn. Weathertight 6 Pos. Recp. Female	SC1171-ND	7.67	57.52	132.00	EN3P6F
2	Conn. Weathertight 6 Pos. Recp. Male	SC1172-ND	4.99	37.42	85.87	EN3P6M
2	Conn. Weathertight 8 Pos. Recp. Male	SC1173-ND	6.30	47.26	108.44	EN3P8M
3	Conn. Weathertight Recp. Dust Cap	SC1174-ND	.97	7.27	16.68	EN3CAP

image® ALCATEL COMPONENTS

AC Advanced Cable Connector

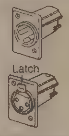


Benefits: • Quickly and easily assembled without screws by hand • Industry best clamping on a wide selection of cables • Minimum of separate components • Rugged construction • Positive, secure latchlock system • Flexible rubber cable relief is removable for cables up to 7.5mm in diameter • **Standard Data:** • **Service Voltage RMS:** 133 • **Test Voltage DC:** 1400 • **Shell:** Die Cast Zinc Alloy, Satin Nickel or Black Finish • **Contacts:** 3 Precision Stamped Phosphor Bronze, Tin Finish • **Insulators:** UL94V-0 Polyester, Color: Black

Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
Cable Mount XLR Connectors					
3-Pin Male	AC1003-ND	3.48	29.00	58.00	AC3M
3-Pin Male, Solderless	AC1004-ND	3.48	29.00	58.00	AC3MI
3-Pin Male, Black	AC1008-ND	3.60	30.00	60.00	AC3MB
3-Contact Female	AC1001-ND	3.66	30.50	61.00	AC3F
3-Contact Female, Solderless	AC1002-ND	3.66	30.50	61.00	AC3FI
3-Contact Female, Black	AC1007-ND	3.78	31.50	63.00	AC3FB

image® COMPONENTS

AC Panel Mount Connector



Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
Plastic Panel Mount XLR Connectors					
3-Contact Male, w/o Latch	AC1017-ND	1 74	14.50	29.00	AC3MDPL
3-Contact Male, Solderless w/o Latch	AC1018-ND	2.37	19.75	39.50	AC3MDPIL
3-Contact Female, w/o Latch	AC1015-ND	2.04	17 00	34.00	AC3FDPL
3-Contact Female, Solderless w/o Latch	AC1016-ND	2.70	22.50	45.00	AC3FDPIL

image® ALCATEL COMPONENTS

AXR Audio Connector

• **Shell:** Die Cast Zinc Alloy, Satin Nickel or Black Finish • **Contacts:** 3 Socket-Precision stamped Berylium Copper, Bright Tin or Gold Finish • **Pin Insulator:** UL94V-0 Polyester, Black • **Socket Insulator:** UL94V-O Elastomer, Black • **Cable Relief:** UL94HB Elastomer, Black • **Plastic Barrel:** UL94V-O Polyester, Black

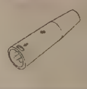
Fig. 1


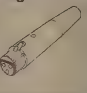
Fig. 2


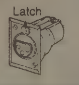
Fig. 3


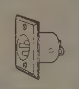
Fig. 4


Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
	Cable Mount Connectors					
1	3-Pin Male, Black, Gold Contacts	AC1010-ND	4.62	38.50	77.00	AXR-3-12RBAU
2	3-Contact Female, Black, Gold Contacts	AC1009-ND	4.92	41.00	82.00	AXR-3-11RBAU
	Panel Mount Connectors					
3	3-Contact Female, w/ Latch	AC1005-ND	4.17	34.75	69.50	AC3FP
3	3-Contact Female, Black, Gold Contacts	AC1013-ND	5.13	42.75	85.50	AXR-3-31PBAU
4	3-Contact Male, w/ Latch	AC1006-ND	3.15	26.25	52.50	AC3MPN
4	3-Pin Male, Black, Gold Contacts	AC1014-ND	4.17	34.75	69.50	AXR-3-32RBAU
—	Audio Adapter Male to Male	AC1020-ND	7.41	61.75	123.50	AXR-3-12/12B
—	Audio Adapter Female to Female	AC1019-ND	9.27	77.25	154.50	AXR-3-11/11B
—	Dust Cap Audio Conn. Male	AC1021-ND	15.00	125.00	250.00	AXR-UDP
—	Dust Cap Audio Conn. Female	AC1022-ND	19.50	162.50	325.00	AXR-UDS

image® G&H Industries

1/4" Mono/ Stereo Phone Plugs

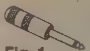


Fig. 1

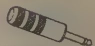


Fig. 2

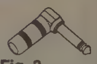


Fig. 3

G&H Industries 1/4" phone plugs are designed as upgrades for traditional 2-conductor constructions. Type 6 nylon insulators resist impact and are not drastically affected by variations in moisture and temperature like phenolic insulators. Our plugs take more abuse because, the ductility of the copper conductors allows the plug to be straightened if accidentally bent, without breaking. The Heavy Duty Plugs have a large barrel and an oversized strain relief specifically designed to stand up to the weight of 10- and 12-gauge speaker wire without breaking.

Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
1	Phone Plug Mono Standard	AC1023-ND	2.28	19.00	38 00	BF2P
1	Phone Plug Stereo Standard	AC1024-ND	4.53	37.75	75.50	BF3P
2	Phone Plug Mono Heavy Duty	AC1025-ND	5.49	45 75	91 50	MF2P
2	Phone Plug Stereo Heavy Duty	AC1026-ND	8.16	68.00	136.00	MF3P
3	Phone Plug Mono Rt. Angle	AC1027-ND	4.92	41.00	82.00	RF2P
3	Phone Plug Stereo Rt. Angle	AC1028-ND	6.63	55.25	110.50	RF3P

image® SR®

Phone Jack Connectors

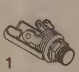
Fig. 1


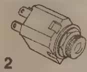
Fig. 2


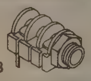
Fig. 3


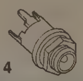
Fig. 4


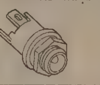
Fig. 5


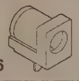
Fig. 6


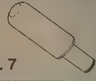
Fig. 7


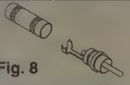
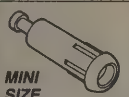
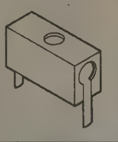
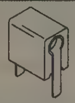
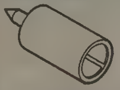
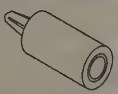
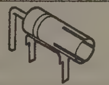
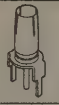
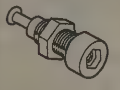
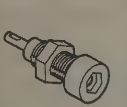
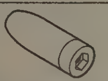
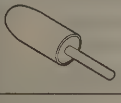
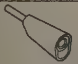
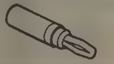
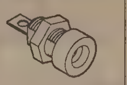
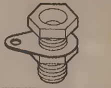
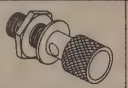
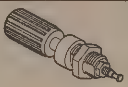
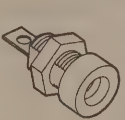
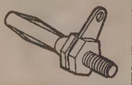
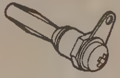
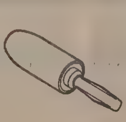
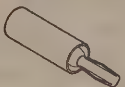
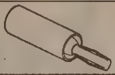
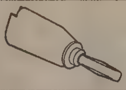
Fig. 8


Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	25	Mfg. Part No.
1	Phone Jack 1/4" Panel Mount Mono	AC1032-ND	1.47	12.25	24.50	SI-503
1	Phone Jack 1/4" Panel Mount Stereo	AC1033-ND	1.71	14.25	28.50	SI-504
2	Phone Jack 1/4" Enclosed Stereo	AC1035-ND	1.65	13.75	27.50	SI-507
2	Phone Jack 1/4" Enclosed Mono	AC1036-ND	1 53	12.75	25.50	SI-508
3	Phone Jack 1/4" Rt. Angle Mono	AC1037-ND	1.59	13.25	26.50	SI-513-2
3	Phone Jack 1/4" Rt. Angle Stereo	AC1038-ND	1.59	13.25	26.50	SI-513-3
4	Power Jack 2.5mm PC Term Lug	AC1030-ND	2.01	16.75	33.50	SI-501
5	Power Jack 2.5mm Solder Lug	AC1031-ND	2.01	16.75	33.50	SI-502
6	Power Jack 2.5mm Rt. Angle PC Term	AC1039-ND	2.01	16.75	33.50	SI-515-5
7	Power Plug 2.5mm Black	AC1034-ND	2.01	16.75	33.50	SI-505
8	Phono Plug RCA Type	AC1029-ND	1.50	12.50	25.00	SI-299

Johnson Components™ *Formerly EFJohnson Components*

Plugs and Jacks

Connectors	Color	Digi-Key	Pricing						Johnson
		Part No.	1	10	100	250	500	1,000	Part No.
Tip Jacks – for Standard Tip Plug: .080"									
 MINI SIZE	White	J330-ND	.83	7.41	58.65	123.48	231.53	432.18	105-1041-001
	Red	J124-ND	.83	7.41	58.65	123.48	231.53	432.18	105-1042-001
	Black	J125-ND	.83	7.41	58.65	123.48	231.53	432.18	105-1043-001
	Green	J331-ND	.83	7.41	58.65	123.48	231.53	432.18	105-1044-001
	Yellow	J333-ND	.83	7.41	58.65	123.48	231.53	432.18	105-1047-001
	Blue	J126-ND	.83	7.41	58.65	123.48	231.53	432.18	105-1050-001
Horizontal Test Jacks – for Standard Tip Plug: .080"									
	White	J108-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0751-001
	Red	J109-ND*	.31	2.75	21.74	45.76	85.80	160.16	105-0752-001
	Black	J110-ND*	.31	2.75	21.74	45.76	85.80	160.16	105-0753-001
	Green	J111-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0754-001
	Orange	J112-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0756-001
	Yellow	J113-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0757-001
	Brown	J114-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0758-001
	Blue	J115-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0760-001
	Violet	J116-ND	.31	2.75	21.74	45.76	85.80	160.16	105-0762-001
Horizontal Insulated Miniature Test Jacks – for Standard Tip Plug: .080"									
	White	J575-ND	.38	3.36	26.60	56.00	105.00	196.00	105-1101-001
	Red	J576-ND	.38	3.36	26.60	56.00	105.00	196.00	105-1102-001
	Black	J577-ND	.38	3.36	26.60	56.00	105.00	196.00	105-1103-001
	Green	J578-ND	.38	3.36	26.60	56.00	105.00	196.00	105-1104-001
	Yellow	J579-ND	.38	3.36	26.60	56.00	105.00	196.00	105-1107-001
	Blue	J580-ND	.38	3.36	26.60	56.00	105.00	196.00	105-1110-001
Vertical Test Jacks – for Standard Tip Plug: .080"									
	White	J119-ND	.52	4.66	36.90	77.68	145.65	271.88	105-0851-001
	Red	J120-ND	.52	4.66	36.90	77.68	145.65	271.88	105-0852-001
	Black	J121-ND	.52	4.66	36.90	77.68	145.65	271.88	105-0853-001
	Green	J122-ND	.52	4.66	36.90	77.68	145.65	271.88	105-0854-001
	Yellow	J123-ND	.52	4.66	36.90	77.68	145.65	271.88	105-0857-001
	Blue	J312-ND	.52	4.66	36.90	77.68	145.65	271.88	105-0860-001
Vertical Insulated Formed Contact Test Jacks – for Standard Tip Plug: .080"									
	White	J581-ND	.46	4.08	32.30	68.00	127.50	238.00	105-2201-201
	Red	J582-ND	.46	4.08	32.30	68.00	127.50	238.00	105-2202-201
	Black	J583-ND	.46	4.08	32.30	68.00	127.50	238.00	105-2203-201
	Green	J584-ND	.46	4.08	32.30	68.00	127.50	238.00	105-2204-201
	Yellow	J585-ND	.46	4.08	32.30	68.00	127.50	238.00	105-2207-201
	Blue	J586-ND	.46	4.08	32.30	68.00	127.50	238.00	105-2210-201
Shielded Test Jack – Horizontal									
	Tin	J463-ND	3.72	33.06	261.73	551.00	1033.13	1928.50	129-0701-301
	Gold	J571-ND	4.65	40.76	300.30	643.50	1072.50	—	129-0701-302
Shielded Test Jack – Vertical									
	Tin	J462-ND	3.46	30.80	243.81	513.28	962.40	1796.48	129-0701-201
	Gold	J570-ND	4.29	37.62	277.20	594.00	990.00	—	129-0701-202
Tip Jacks – Insulated Deluxe									
	White	J105-ND	.87	7.74	61.28	129.00	241.88	451.50	105-0601-001
	Red	J106-ND	.87	7.74	61.28	129.00	241.88	451.50	105-0602-001
	Black	J107-ND	.87	7.74	61.28	129.00	241.88	451.50	105-0603-001
	Green	J337-ND	.87	7.74	61.28	129.00	241.88	451.50	105-0604-001
	Yellow	J338-ND	.87	7.74	61.28	129.00	241.88	451.50	105-0607-001
	Blue	J339-ND	.87	7.74	61.28	129.00	241.88	451.50	105-0610-001
Tip Jacks – Insulated Standard Type .25									
	White	J320-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0801-001
	Red	J117-ND*	.55	4.91	38.87	81.84	153.45	286.44	105-0802-001
	Black	J118-ND*	.55	4.91	38.87	81.84	153.45	286.44	105-0803-001
	Green	J321-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0804-001
	Orange	J322-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0806-001
	Yellow	J323-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0807-001
	Brown	J324-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0808-001
	Blue	J325-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0810-001
	Violet	J326-ND	.55	4.91	38.87	81.84	153.45	286.44	105-0812-001
Tip Jacks with Sleeve Assembly									
	White	J450-ND	1.09	9.66	76.44	160.92	301.73	563.22	105-0701-001
	Red	J451-ND	1.09	9.66	76.44	160.92	301.73	563.22	105-0702-001
	Black	J452-ND	1.09	9.66	76.44	160.92	301.73	563.22	105-0703-001
Tip Plugs – Insulated Solderless Type									
	White	J300-ND	.64	5.66	44.80	94.32	176.85	330.12	105-0301-001
	Red	J103-ND*	.64	5.66	44.80	94.32	176.85	330.12	105-0302-001
	Black	J104-ND*	.64	5.66	44.80	94.32	176.85	330.12	105-0303-001
	Green	J301-ND	.64	5.66	44.80	94.32	176.85	330.12	105-0304-001
	Yellow	J303-ND	.64	5.66	44.80	94.32	176.85	330.12	105-0307-001
	Blue	J305-ND	.64	5.66	44.80	94.32	176.85	330.12	105-0310-001
Tip Plugs – Insulated Stacking Single Type									
	Red	J454-ND	2.25	19.98	158.14	332.92	624.23	1165.22	105-1202-001
	Black	J455-ND	2.25	19.98	158.14	332.92	624.23	1165.22	105-1203-001
Miniature Banana Plugs – Insulated Solder Type									
	Red	J457-ND	1.27	11.32	89.60	188.64	353.70	660.24	108-1002-001
	Black	J458-ND	1.27	11.32	89.60	188.64	353.70	660.24	108-1003-001

Connectors	Color	Digi-Key	Pricing						Johnson
		Part No.	1	10	100	250	500	1,000	Part No.
Miniature Banana Jacks – Insulated Solder Type									
	Red	J421-ND	.80	7.08	56.01	117.92	221.10	412.72	108-2102-601
For Standard Banana Plug .175" Across Flats									
	—	J147-ND*	1.01	8.99	71.16	149.80	280.88	524.30	108-0740-001
Uninsulated w/Knurled Thumb Nut For Standard Banana Plug .175" Across Flats									
	—	J587-ND	1.78	15.84	125.40	264.00	495.00	924.00	111-2223-001
Binding Posts – Insulated Standard									
	White	J370-ND	1.50	13.32	105.43	221.96	416.18	776.86	111-0101-001
	Red	J164-ND*	1.50	13.32	105.43	221.96	416.18	776.86	111-0102-001
	Black	J165-ND*	1.50	13.32	105.43	221.96	416.18	776.86	111-0103-001
	Green	J371-ND	1.50	13.32	105.43	221.96	416.18	776.86	111-0104-001
	Yellow	J372-ND	1.50	13.32	105.43	221.96	416.18	776.86	111-0107-001
Banana Jacks – Insulated Solder Terminal									
	White	J150-ND*	.45	4.00	31.64	66.60	124.88	233.10	108-0901-001
	Red	J151-ND*	.45	4.00	31.64	66.60	124.88	233.10	108-0902-001
	Black	J152-ND*	.45	4.00	31.64	66.60	124.88	233.10	108-0903-001
	Green	J153-ND	.45	4.00	31.64	66.60	124.88	233.10	108-0904-001
	Orange	J356-ND	.45	4.00	31.64	66.60	124.88	233.10	108-0906-001
	Yellow	J154-ND	.45	4.00	31.64	66.60	124.88	233.10	108-0907-001
	Brown	J357-ND	.45	4.00	31.64	66.60	124.88	233.10	108-0908-001
	Blue	J155-ND	.45	4.00	31.64	66.60	124.88	233.10	108-0910-001
	Violet	J358-ND	.45	4.00	31.64	66.60	124.88	233.10	108-0912-001
Banana Plug – Uninsulated Panel Mount Threaded Stud									
	—	J148-ND	1.05	9.32	73.80	155.36	291.30	543.76	108-0750-001
Banana Plug – Uninsulated Panel Mount Screw Type									
	—	J149-ND	.92	8.21	64.96	136.76	256.43	478.66	108-0753-001
Banana Plugs – Insulated Solderless Tapered Handle									
	White	J144-ND*	.81	7.24	57.32	120.68	226.28	422.38	108-0301-001
	Red	J145-ND*	.81	7.24	57.32	120.68	226.28	422.38	108-0302-001
	Black	J146-ND*	.81	7.24	57.32	120.68	226.28	422.38	108-0303-001
	Green	J340-ND	.81	7.24	57.32	120.68	226.28	422.38	108-0304-001
	Orange	J341-ND	.81	7.24	57.32	120.68	226.28	422.38	108-0306-001
	Yellow	J342-ND	.81	7.24	57.32	120.68	226.28	422.38	108-0307-001
	Brown	J343-ND	.81	7.24	57.32	120.68	226.28	422.38	108-0308-001
	Blue	J344-ND	.81	7.24	57.32	120.68	226.28	422.38	108-0310-001
	Violet	J345-ND	.81	7.24	57.32	120.68	226.28	422.38	108-0312-001
Banana Plugs – Insulated Round Body Solder Stud									
	Red	J156-ND	1.64	14.57	115.31	242.76	455.18	849.66	108-1722-101
	Black	J157-ND	1.64	14.57	115.31	242.76	455.18	849.66	108-1723-101
Banana Plugs – Insulated Round Body Solderless									
	Red	J158-ND	1.31	11.65	92.25	194.20	364.13	679.70	108-1722-103
	Black	J159-ND	1.31	11.65	92.25	194.20	364.13	679.70	108-1723-103
Banana Plugs – Insulated Stacking Single Type									
	White	J459-ND	1.36	12.07	95.55	201.16	377.18	704.06	108-1081-001
	Red	J460-ND	1.36	12.07	95.55	201.16	377.18	704.06	108-1082-001
	Black	J461-ND	1.36	12.07	95.55	201.16	377.18	704.06	108-1083-001

Plug & Jack Kit Contains 10 each of the plugs or jacks as denoted (*) on chart. Price includes compartment divided plastic box for easy storage and quick access. **J100-KIT-ND**.....................................**$76.95**

KEYSTONE Standardized Phono-plugs

Fig. 1

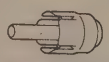


Fig. 2

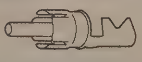


Fig. 3

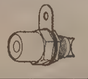


Fig. 4

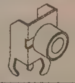
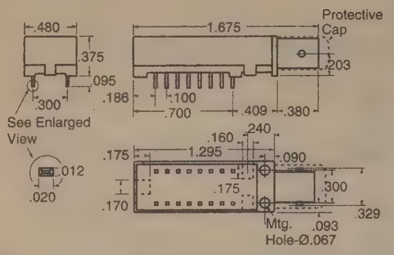


Fig. No.	Description	Digi-Key Part No.	Pricing Each	Per 10	Per 1000
1	Conventional Type	561K-ND	.33	2.64	217.55
2	Strain Relief Lug Crimps to Wire Insulation	565K-ND	.44	3.54	292.22
3	Panel Mount Jack Hex Base Type	576K-ND	1.09	8.73	719.90
4	Snap-Fit 90° PC Phono Jack	901K-ND	.55	4.95	385.00

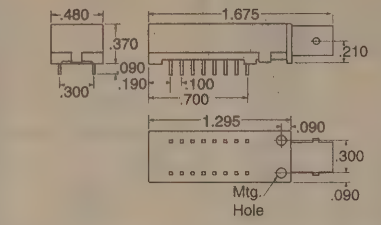
CTS Fiber Optic Transmitters - Receivers and Transceivers

ODL® 50 Series II - Lightwave Data Link


.480
1.675
Protective Cap
.375
.203
.095
.186
.300
.100
.700
.409
.380
See Enlarged View
.012
.020
.160
.240
.175
1.295
.090
.175
.300
.170
.329
Mtg. .093
Hole-Ø.067

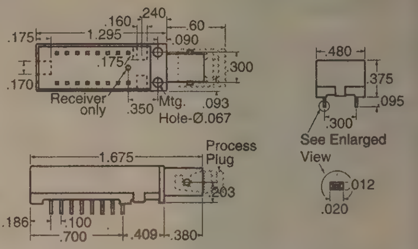
Features: • Economical package utilizes low-cost, conductive plastic housing • TTL compatible • Standard 16-pin DIP footprint • ST® Receptacles • Typical link margin: 17dB • Wide dynamic range • Link status flag and mute (output disable) • Compact, light, EMI-shielded package • No additional circuitry required • Selectable scrambler circuitry provides 50% duty cycle • Single 5 V power supply • High-reliability modules incorporate single IC design • Compatible with various fiber sizes • Seperate Transmitter and Receiver

ODL® 125 Series II - Lightwave Data Link


.480
1.675
.370
.210
.090
.190
.300
.100
.700
1.295
.090
.300
Mtg. Hole
.090

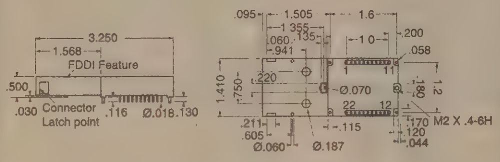
Features: • FDDI complaint. • Low-cost plastic package design. • 16-pin package with ST® Connector. • Small size. • High reliability. • Low power dissipation. • Single power supply. • Ambient operating temperature range: 0°C to 70°C. • 100K ECL compatible. • Single-detect indicator. • Data link immunity to EMI/RFI, crosstalk, and ground loops. • Seperate Transmitter and Receiver +5V

ODL® 156 Series II - Lightwave Data Link


.160
.240
.175
1.295
.60
.090
.175
.300
.170
Receiver only
.350
Mtg. .093
Hole-Ø.067
.480
.375
.095
.300
See Enlarged View
.012
.020
1.675
Process Plug
.203
.186
.100
.700
.409
.380

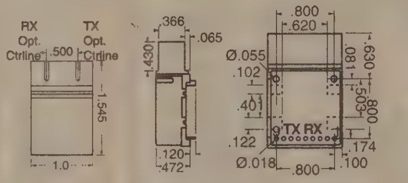
Features: Data rates from 20 Mbits/s to 156 Mbits/s (NRZ) • SONET OC-3 compatibility • Low-cost, conductive plastic package design •16-pin package with ST® Receptacle • Small size • High reliability • Low power dissipation • +5V Single power supply • Ambient operating temperature range: -40°C to +80°C •100K ECL compatible • Signal detect indicator • Data link immunity to EM/RFI, crosstalk, and ground loops • 1300nm operation • InGaAsP LED and PIN based • Link spans up to 2 km. • Seperate Transmitter and Receiver

1402U *ODL*® FDDI Transceiver


3.250
1.568
FDDI Feature
.500
.030
Connector Latch point
.116
Ø.018
.130
.095
1.505
1.355
.060
.135
.941
1.6
1.0
.200
.058
1.410
.750
.220
Ø.070
.180
.12
.211
.605
.115
.170
.120
.044
M2 X .4-6H
Ø.060
Ø.187

Features: FDDI (fiber distributed data interface) - compliant specifications. • Conforms to industry-standard 22-pin configuration. • Low power dissipation. • Differential signal-detect indicator. • Single +5 V power supply. • Field keyable. • Low EMI/RFI emissions and susceptibility. • Low ESD susceptibility. • Compatible with 10KH and 100KH ECL logic. • Compatible with typical wave soldering and aqueous cleaning processes (with process plug)

1408-Type *ODL*® Transceiver


RX Opt. Ctrline
TX Opt. Ctrline
.500
1.545
1.0
.366
.065
.430
.120
.472
.800
.620
Ø.055
.102
.401
.122
Ø.018
.630
.081
.509
.800
TX RX
.174
.100
.800

RX
1-GND
2-RD
3-RD
4-SD
5-VCC

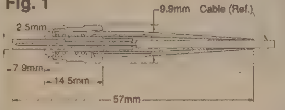
TX
6-VCC
7-TD
8-TD
9-GND

Features: • Flexible, compatible performance - ATM, FDDI, SONET (1408A). • Conforms to multisourced 9-pin SIP configuration • SC duplex receptacle. • Low power dissipation • Single +5 V power supply • Low EMI/RFI emissions and susceptibility • 100KH PECL logic • Operational over temperature range 0°C to 70°C

Type	Digi-Key Part No.	Price Each	CTS Part No.
50 Series II			
TX	10224-ND	52.00	1261AAC
RX	10227-ND	52.00	1361AAC
125 Series II			
TX	10225-ND	93.00	1261BCE
RX	10228-ND	93.00	1361BCE
156 Series II			
TX	10226-ND	92.00	1261BCF
RX	10229-ND	92.00	1361BCF
1402U Series			
TX/RX	10231-ND	150.00	1402U
1408 Series			
TX/RX	10230-ND	125.00	1408A

Amphenol® Fiber Optics Connectors and Adapters

Fig. 1


9.9mm Cable (Ref.)
2.5mm
7.9mm
14.5mm
57mm

• **Connection Loss:** 62.5 / 125µm fiber ≤ 0.5 dB median. • **Body:** Black.

Fig. 2

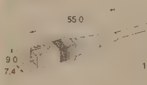
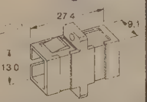
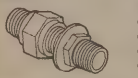


Fig. 3



• **Connection Loss:** 0.27 dB typical; single mode

Fig. 8



Features:
- Bulkhead Feedthru
- D-Hole Mount
- Jack-Jack
- Nut and Washer

Fig. 4

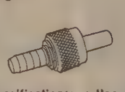
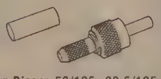


Fig. 5



Specifications: • **Use with Fiber Sizes:** 50/125, 62.5/125, 85/125. • **Max. Buffer Dia.:** 2.46 mm. • **Crimp Female Inner Dia.:** 4.42mm.

Material: • **Boot:** Santoprene. • **Crimp Female:** Nickel plated copper alloy #122 (DHP). • **Dust Cap:** Vinyl.

Fig. 6

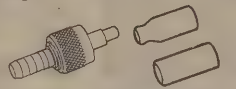
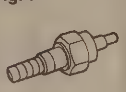


Fig. 7



Specifications: • **Use with Fiber Sizes:** 50/125, 62.5/125, 85/125. • **Max Buffer Dia.:** 2.46mm. • **Crimp Female Inner Dia.:** 4.42mm (Part No. AFP1004-ND: 2.92 + 4.44, 4.42).

Material: • **Boot:** Santoprene. • **O-Ring:** Buna-n. • **Half & Full Sleeve:** Delrin. • **Crimp Female:** Nickel plated copper alloy #122 (DHP).

Fig.	Description	Typical Insert. Loss (dB)	Digi-Key Part No.	Pricing 1	10	25	50
953 ST Series							
1	Connector, Multimode, ST Steel, 128µm hole dia.	—	AFP1007-ND	8.93	69.81	156.00	273.00
1	Connector, Multimode, ST Ceramic, 128µm hole dia.	—	AFP1006-ND	11.39	89.10	200.25	345.38
—	Adapter, Multimode, ST Ceramic	—	AFP1008-ND	9.46	74.29	167.04	286.35
954 SC Series							
2	Connector, SC Ceramic, 125µm hole dia.	—	AFP1011-ND	15.36	123.00	268.50	462.00
2	Connector, SC Ceramic, 126µm hole dia.	—	AFP1009-ND	14.28	114.00	250.50	429.00
3	Adapter, SC to SC Ceramic	—	AFP1010-ND	13.09	104.50	229.63	393.25
905 SMArt Series							
4	Connector, SMArt Ceramic, 128µm hole dia.	<0.8	AFP1001-ND	22.96	181.89	411.19	712.73
5	Connector, SMA Steel, 128µm hole dia.	2.0	AFP1003-ND	9.96	79.56	170.00	306.00
906 SMArt Series							
6	Connector, SMArt Ceramic, 128µµ hole dia.	<0.5	AFP1002-ND	26.37	206.87	467.51	808.30
7	Connector, SMA Steel, 128µm, hole dia.	<1.0	AFP1004-ND	13.27	103.62	233.48	402.60
905/906 SMA Series							
8	Adapter, 905/906 SMA Steel	—	AFP1005-ND	8.70	68.92	154.00	265.65

Amphenol®

Fiber Optics Tooling Kits

Amphenol termination system combines flexible configuration of tooling sets with the convenience of pre-packaged materials.

Eliminates duplicate tooling and provides for all termination accessories.

Basic Fiber Optics Tooling Kit

Includes jacket and buffer strippers, curing oven and video, microscope with adapters, three cavity crimp tool, scribe tool, snips and polishing board and is packaged in a durable carrying case with compartments for all add-on kit components.

Add-on kits required.

AFP1018-ND 691.20

Add-on Termination Kits

Contains tooling unique to each connector type. Included are cleave tool, polishing fixtures, instructions and cable preparation template.

905 SMArt Ceramic Add-On Kit
AFP1013-ND .504.00

906 SMArt Ceramic Add-On Kit
AFP1014-ND 504.00

ST Ceramic Add-On Kit
AFP1015-ND 420.00

905/906 SMA Steel Add-On Kit
AFP1012-ND .88.48

SMA Stainless Steel Consumable Kit

Includes 15 µm, 3µm and 1µm lapping film, epoxy, alcohol wipes and cleaning wire.

AFP1016-ND 144.08

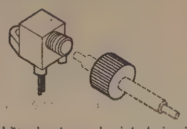
SMArt Ceramic Consumable Kit

Includes 12 µm and .3µm lapping film, epoxy, syringes, alcohol wipes and cleaning wire.

AFP1017-ND 75.31

Industrial Fiber Optics Kits

Experimenters Kit



1 meter data link with matched LED and phototransistor. Includes fiber and data sheets.

FB104-ND (IF-E10) .... **$9.99 each**

Educational Kit

1 meter data link with matched LED and phototransistor. Includes fiber, data sheets, and printed circuit boards and electronic components to build a complete optical link. Assembly and tutorial information included.

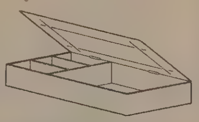
FB105-ND (IF-E22) .... **$16.95 each**

Project Kit

Includes the book "Fiber Optic Communications, Experiments, & Projects" by Waldo T. Boyd with necessary optic components and fiber to complete 8 experiments and 5 projects.

FB106-ND (IF-E33) .... **$44.95 each**

Fiber Optic Designer's Kit



Features: • No polish connectors • TTL and CMOS and compatible • 1 Mega-bit data rate. Contains all the components to construct a 10 meter digital communication link. The Siemens fiber optic devices provide the LED and integrated photodetector. The splices and bulkhead terminations are the Amp Optimate dry non-polish connectors requiring no special tools for termination. ***Parts List:*** 1 Printed wiring board, 2 size 2 screws with nuts, 1 Fiber optic splice, 2 Fiber optic retention clips, 2 Fiber optic bulkhead receptacles, 4 Fiber optic single position assemblies, 10 Meter Sh4001 optical fiber, Data sheets and termination instructions. Resistors, Capacitors, 1 Transmitter and 1 Receiver.

FB115-ND (IF-SD11) .... **$89.95 each**

Plastic Fiber Tool Kit

A tool kit exclusively for use with the standard 1000 um plastic fiber. With this kit there will be no more nicked or damaged fiber from using regular strippers. Contains: NO-Nik fiber optic strippers, hot knife, cutting and termination tool, dry non-polish termination fixture, replacement blade, instruction sheet, enclosed in a break-resistant tool box.

FB108-ND (IF-TK1) .... **$89.95 each**

Fiber Optic Splice Kit

Useful for extending the fiber cable or mending damaged sections. Contains 10 splices for the 1000 um ESKA fiber. Also includes detailed instructions on splice procedure. Packaged in a resealable ziplock bag. Requires no polishing, adhesives or special tools. Very simple field assembly.

FB109-ND (IF-C-S10) .... **$5.95 each**

Fiber Optic Lab Manual & Lab Kit

Features: • 9 Experiments: Final Design Project • Fiber Optic Glossary • Research Projects. The Fiber Optic Lab Manual is a complete 68 page technical manual on fiber optics, available alone or with the Lab Kit. It is written in an easy to understand style and fits well with any text or course on fiber optics. All the fundamentals of fiber optic systems are covered in detail.

FB100-ND (IF-LM) Lab Manual .... **$7.95 each**

Experiments Include: • Identifying the Components • Making a Light Guide • Fiber Optic Cable Transmission • Connectors and Splices • Index Matching • Fiber Terminations • Speed of Opto-Electronic Devices • Fiber Optic Transmitters • Receiver Amplifier Design.

FB101-ND (IF-LMH) Kit with Lab Manual .... **$39.95 each**

Fiber Optic Speed of Light Apparatus

Centuries of scientific learning culminate in this low-cost yet, ingenious system which teaches students how to measure the speed of light—and to understand the "why" of their learning.

The apparatus consists of an electronics circuit board in protective plastic enclosure, two fiber optic cables, test connections for all outputs, and a 110 VAC-to-DC power adapter. The optical fibers terminate in simple cinch connectors for easy assembly and efficient coupling. A 20 MHz dual-trace oscilloscope is required.

FB116-ND (IF-SL-A) Speed of Light Apparatus (Assembled) .... **$175.00 each**
FB117-ND (IF-SL-K) Speed of Light Apparatus (Unassembled) .... **$125.00 each**

Fiber Optic Mini Course

The Fiber Optics Course is a package that can be integrated into any electronics class. Beginning with fiber optic history through system design and applications. Covers both the communications and industrial applications of fiber optics. After completion of the Lab Exercise a fully function digital communication link will be constructed and can be used by the student for practical applications.

FB102-ND (IF-MC10) .... **$29.95 each**

Fiber Optic 15 Week Course

This is a program put together to fill the needs of vocational schools and universities in fiber optics. Few prerequisites are needed except for a basic understanding of electronics. The use of mathematics is kept limited with emphasis on practical applications. The complete course covers the classroom and lab; and consists of a text, lab manual and lab kit.

FB103-ND (IF-SC10) .... **$70.00 each**

Executive Overview of Fiber Optics

The purpose of this publication is to serve as an introduction to or overview of the fiber optics for people in sales, managerial positions, purchasing, or other professions as well as instructors and their students. It addresses the subject non-mathematically and includes: principles of fiber optics, its components (such as the fiber itself, receivers and transmitters), system design, completed systems, test equipment and industrial applications.

FB110-ND (IF-EF01) .... **$7.95 each**

Replacement Emitter/Detector Kits

Replacement Emitter/Detector for Kits # FB102-ND, FB104-ND, FB105-ND & FB106-ND

FB111-ND (IF-C-D72/E71) .... **$11.69 each**

Optical Voice Link

The Optical Voice Link is an introduction to the marvels, mysteries, and science of light transmission in optical fiber. You will hear your own voice, for example, after it has been converted into light and then coupled into, through, and out of an optical fiber. Experience and knowledge will be gained by working with many components, including the acoustic microphone, analog fiber optic transmitter and receiver, and the fiber cable interfaces. The Optical Voice Link requires no additional components and can be extended up to 200 feet.

FB114-ND (IF-OVL10-K) .... **$48.34 each**

NEW! Emitters and Detectors

FEATURES: • Mates with standard, 1000µm Core, plastic fiber cable • Internal micro-lens for efficient coupling • Inexpensive plastic connector housing • Connector-less interface • interference-free transmission from light-tight housing • Simple fiber termination and connection

DESCRIPTION: Industrial Fiber Optics' family of low-cost, medium frequency, short-distance fiber optic emitters and detectors. Each emitter and detector consists of a PVC housing, an internal active element such as an LED or photodetector, and a cinch nut to hold the fiber in place. The PVC housing retains the active element and the cinch nut while optimizing coupling between the active element and the jacketed 1000µm plastic fiber.

SHARED RATINGS: Maximum Ratings and Characteristics (T_A=25°C): Operating and Storage Temperature Range (T_{OP},T_{STG}): -40° to 85°C. De-rated Above 25°C: 1.33mW/°C.

• Fiber Optic Photodiode

Active photodiode device with excellent linearity. Power Dissipation (P_{TOT})T_A=25°C: 100 mW. Maximum Photosensitivity: ($^{\lambda}$PEAK) 850nm.

FB120-ND (IF-D91) .... **$4.18 each**

• Fiber Optic Emitter

Infrared LEDs with excellent linearity. Reverse Voltage (V_R): 3 V. Power Dissipation (P_{TOT})T_A=25°C: 100 mW. Forward Current, DC (I_F): 50 mA (FB118-ND), 100 mA (FB119-ND). Surge Current (^{I}FSM) t≤10 µsec: 2 A. Peak Wavelength: ($^{\lambda}$PEAK) 950nm (FB118-ND), 880nm (FB119-ND).

FB118-ND (IF-E91A) .... **$3.48 each**
FB119-ND (IF-E91B) .... **$3.65 each**

• Fiber Optic Phototransistor

Active phototransistor device with excellent linearity. Collector Emitter Voltage (V_{CEO}): 30V. Emitter Collector Voltage (V_{ECO}): 5V. Collector Current (I_C): 50 mA. Collector Peak Current (I_{CM}) t=1ms: 100 mA. Maximum Photosensitivity: ($^{\lambda}$PEAK) 850nm.

FB121-ND (IF-D92) .... **$3.48 each**

• Fiber Optic Photodarlington

Active photodarlington with large current gain. Collector Emitter Voltage (V_{CEO}): 15V. Emitter Collector Voltage (V_{ECO}): 5V. Collector Current (I_C): 50 mA. Collector Peak Current (I_{CM}) t=1ms: 100 mA. Maximum Photosensitivity: ($^{\lambda}$PEAK) 850nm.

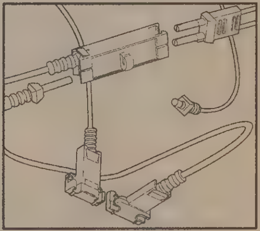
FB122-ND (IF-D93) .... **$5.65 each**

• Fiber Optic Photologic Detector

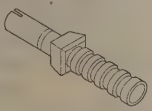
The FB123-ND contains a photologic detector with Totem-pole output and the FB124-ND is a similar detector with an Open Collector output option. Both versions contain an IC with a photodiode, linear amplifier, voltage regulator, and Schmitt trigger. The devices feature TTL/CMOS compatible logic level output which can drive up to 5 volts TTL over supply voltages ranging from 4.5 to 16 volts. Supply Voltage (V_S): 18V. Voltage at Output Lead (FB124-ND only): 35V. Sinking Current, DC (I_C): 50 mA. Source Current (I_O) (FB123-ND only): 10 mA. Peak Sensitivity: ($^{\lambda}$PEAK) 800nm.

FB123-ND (IF-D95T) Totem Pole .... **$6.55 each**
FB124-ND (IF-D95OC) Open Collector .... **$6.55 each**

AMP Fiber Optics OPTIMATE® DNP (Dry Non-Polish) Connectors

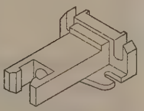


Single Position Plug Assembly



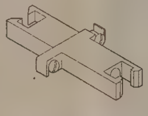
A1703-ND $1.07/each
$23.16/25 $74.10/100 $547.49/1,000

Single Position Device Mounts



A1705-ND .... $.95/each
$20.47/25 $65.49/100 $483.89/1,000

Single Position Bulkhead Receptacle



A1707-ND $1.15/each
$24.87/25 $79.59/100 $588.05/1,000

Optical Characteristics: • Insertion Loss: 2dB, Ref.: FOTP 34 Method C.

Environmental Characteristics: • Temperature Range: -40°C to +60°C

Mechanical Characteristics: • Insertion Force: 13.34N [3 lb] (plug to receptacle) • Cable Retention Plug: 8.89N [12 lb.]

Materials: • Retention Clip: Copper Alloy, plated • Splice: Copper Alloy, plated • Connectors: Thermoplastic.

FIBER OPTIC CABLE (O.D. = .089)

Digi-Key Part No.	Price Each (Meters) 5m	25m	100m*	200m	500m
A1700-ND	11.20	48.00	144.00	230.40	480.00

* Standard reel size 100m

The economics of using fiber-optic systems is a complex subject. Comparisons of the costs of fiber-optic systems and copper-wired systems are difficult and open to debate. Proper evaluations must be based on the users' needs.

Widespread application of fiber-optic technology will depend on its providing performance equal to or superior to copper cable, and at a lower cost. That fiber-optics can outperform cable in some areas seems established. That it can do so more cheaply, is not the rule. As with many new technologies, the prices of fiber-optic components have been dropping, often dramatically. Better products at cheaper prices have been introduced continually, and manufacturers' volume production and maturity of experience are combining to produce significant price reductions. In contrast, prices have been rising for copper cable and associated hardware. Although the point at which fiber-optic systems become less expensive than copper cable systems depends on the application, fiber-optics are becoming more attractive every day.

Users evaluating fiber-optics should consider costs beyond those for the components themselves. Considerations include the education needed to design a fiber-optic system and the costs of training craftsmen and technicians to handle, install, and maintain fiber-optic systems. On the other hand, the small size, light weight, and flexibility may present offsetting cost advantages. Handling, storage, and installation costs may be reduced.

A1799-ND	Technicians Guide to Fiber Optics - For more information on the technical aspect of fiber optics **$23.55**

HIROSE ELECTRIC CO.,LTD.

Circular Connectors

Contacts	Description	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Hirose Part No.
	HR10 Series					
4	Plug w/pin insert	HR100-ND	22.62	211.12	1508.00	HR10-7P-4P
6	Plug w/pin insert	HR101-ND	25.65	239.40	1710.00	HR10-7P-6P
12	Plug w/pin insert	HR102-ND	31.68	295.68	2112.00	HR10-10P-12P
4	Plug w/socket insert	HR103-ND	25.65	239.40	1710.00	HR10-7P-4S
6	Plug w/socket insert	HR104-ND	27.66	258.16	1844.00	HR10-7P-6S
12	Plug w/socket insert	HR105-ND	37.95	354.20	2530.00	HR10-10P-12S
4	Receptacle w/pin insert	HR200-ND	11.07	103.32	738.00	HR10-7R-4P
6	Receptacle w/pin insert	HR201-ND	12.06	112.56	804.00	HR10-7R-6P
12	Receptacle w/pin insert	HR202-ND	16.08	150.08	1072.00	HR10-10R-12P
4	Receptacle w/socket insert	HR203-ND	14.07	131.32	938.00	HR10-7R-4S
6	Receptacle w/socket insert	HR204-ND	18.09	168.84	1206.00	HR10-7R-6S
12	Receptacle w/socket insert	HR205-ND	25.65	239.40	1710.00	HR10-10R-12S
4	Jack w/pin insert	HR300-ND	18.60	173.60	1240.00	HR10-7J-4P
6	Jack w/pin insert	HR301-ND	20.10	187.60	1340.00	HR10-7J-6P
12	Jack w/pin insert	HR302-ND	24.12	225.12	1608.00	HR10-10J-12P
4	Jack w/socket insert	HR303-ND	22.11	206.36	1474.00	HR10-7J-4S
6	Jack w/socket insert	HR304-ND	25.14	234.64	1676.00	HR10-7J-6S
12	Jack w/socket insert	HR305-ND	34.95	326.20	2330.00	HR10-10J-12S
	HR10A Series, Solder Cup					
4	Plug w/pin insert	HR110-ND	19.83	185.08	1322.00	HR10A-7P-4P
5	Plug w/pin insert	HR118-ND	21.39	199.64	1426.00	HR10A-7P-5P
6	Plug w/pin insert	HR111-ND	20.22	188.72	1348.00	HR10A-7P-6P
10	Plug w/pin insert	HR116-ND	26.76	249.76	1784.00	HR10A-10P-10P
12	Plug w/pin insert	HR112-ND	27.99	261 24	1866.00	HR10A-10P-12P
4	Plug w/socket insert	HR113-ND	18.57	173.32	1238.00	HR10A-7P-4S
5	Plug w/socket insert	HR119-ND	19.44	181.44	1296.00	HR10A-7P-5S
6	Plug w/socket insert	HR114-ND	19.83	185.08	1322.00	HR10A-7P-6S
10	Plug w/socket insert	HR117-ND	25.62	239 12	1708.00	HR10A-10P-10S
12	Plug w/socket insert	HR115-ND	26.01	242.76	1734.00	HR10A-10P-12S
4	Receptacle w/pin insert	HR210-ND	10.29	96.04	686.00	HR10A-7R-4P
5	Receptacle w/pin insert	HR218-ND	12.96	120 96	864.00	HR10A-7R-5P
6	Receptacle w/pin insert	HR211-ND	11.16	104.16	744.00	HR10A-7R-6P
10	Receptacle w/pin insert	HR217-ND	16.89	157.64	1126.00	HR10A-10R-10P
12	Receptacle w/pin insert	HR212-ND	17.58	164.08	1172.00	HR10A-10R-12P
4	Receptacle w/socket insert	HR213-ND	10.20	95.20	680.00	HR10A-7R-4S
5	Receptacle w/socket insert	HR219-ND	10.50	98.00	700.00	HR10A-7R-5S
6	Receptacle w/socket insert	HR214-ND	11.76	109.76	784.00	HR10A-7R-6S
10	Receptacle w/socket insert	HR216-ND	16.29	152.04	1086.00	HR10A-10R-10S
12	Receptacle w/socket insert	HR215-ND	17.01	158.76	1134.00	HR10A-10R-12S
4	Jack w/pin insert	HR310-ND	15.33	143 08	1022.00	HR10A-7J-4P
6	Jack w/pin insert	HR311-ND	16.23	151.48	1082.00	HR10A-7J-6P
10	Jack w/pin insert	HR317-ND	23.13	215.88	1542.00	HR10A-10J-10P
12	Jack w/pin insert	HR312-ND	24.90	232.40	1660.00	HR10A-10J-12P
4	Jack w/socket insert	HR313-ND	15.30	142.80	1020.00	HR10A-7J-4S
6	Jack w/socket insert	HR314-ND	16.20	151.20	1080.00	HR10A-7J-6S
10	Jack w/socket insert	HR316-ND	22.02	205.52	1468.00	HR10A-10J-10S
12	Jack w/socket insert	HR315-ND	22.47	209 72	1498.00	HR10A-10J-12S
	HR10A Series, Crimp Type (contacts sold separately)					
4	Plug w/pin insert, Crimp Type	HR160-ND	18.93	176.68	1262.00	HR10A-7P-4PC
6	Plug w/pin insert, Crimp Type	HR161-ND	18.93	176.68	1262.00	HR10A-7P-6PC
10	Plug w/pin insert, Crimp Type	HR162-ND	24.39	227.64	1626.00	HR10A-10P-10PC
12	Plug w/pin insert, Crimp Type	HR163-ND	24.39	227.64	1626.00	HR10A-10P-12PC
20	Plug w/pin insert, Crimp Type	HR164-ND	60.03	560.28	4002.00	HR10A-13P-20PC
4	Plug w/socket insert, Crimp Type	HR165-ND	19.20	179.20	1280.00	HR10A-7P-4SC
6	Plug w/socket insert, Crimp Type	HR166-ND	19.20	179.20	1280.00	HR10A-7P-6SC
10	Plug w/socket insert, Crimp Type	HR167-ND	24.90	232.40	1660.00	HR10A-10P-10SC
12	Plug w/socket insert, Crimp Type	HR168-ND	24.90	232.40	1660.00	HR10A-10P-12SC
20	Plug w/socket insert, Crimp Type	HR169-ND	60.03	560.28	4002.00	HR10A-13P-20SC
4	Recept. w/pin insert, Crimp Type	HR232-ND	8.85	82.60	590.00	HR10A-7R-4PC
6	Recept. w/pin insert, Crimp Type	HR233-ND	8.85	82.60	590.00	HR10A-7R-6PC
10	Recept. w/pin insert, Crimp Type	HR234-ND	12.21	113.96	814.00	HR10A-10R-10PC
12	Recept. w/pin insert, Crimp Type	HR235-ND	12.21	113.96	814.00	HR10A-10R-12PC
20	Recept. w/pin insert, Crimp Type	HR236-ND	32.37	302.12	2158.00	HR10A-13R-20PC
4	Recept. w/socket insert, Crimp Type	HR237-ND	9.06	84.56	604.00	HR10A-7R-4SC
6	Recept. w/socket insert, Crimp Type	HR238-ND	9 06	84.56	604.00	HR10A-7R-6SC
10	Recept. w/socket insert, Crimp Type	HR239-ND	12.72	118.72	848.00	HR10A-10R-10SC
12	Recept. w/socket insert, Crimp Type	HR240-ND	12 72	118.72	848.00	HR10A-10R-12SC
20	Recept. w/socket insert, Crimp Type	HR241-ND	32 37	302.12	2158.00	HR10A-13R-20SC
4	Jack w/pin insert, Crimp Type	HR332-ND	17 58	164.08	1172.00	HR10A-7J-4PC
6	Jack w/pin insert, Crimp Type	HR333-ND	17.58	164.08	1172.00	HR10A-7J-6PC
10	Jack w/pin insert, Crimp Type	HR334-ND	24.72	230 72	1648.00	HR10A-10J-10PC
12	Jack w/pin insert, Crimp Type	HR335-ND	24.72	230.72	1648.00	HR10A-10J-12PC
20	Jack w/pin insert, Crimp Type	HR336-ND	60.84	567.84	4056.00	HR10A-13J-20PC
4	Jack w/socket insert, Crimp Type	HR337-ND	17 82	166.32	1188.00	HR10A-7J-4SC
6	Jack w/socket insert, Crimp Type	HR338-ND	17.82	166.32	1188.00	HR10A-7J-6SC
10	Jack w/socket insert, Crimp Type	HR339-ND	25.23	235.48	1682.00	HR10A-10J-10SC
12	Jack w/socket insert, Crimp Type	HR340-ND	25.23	235.48	1682.00	HR10A-10J-12SC
20	Jack w/socket insert, Crimp Type	HR341-ND	60.84	567.84	4056.00	HR10A-13J-20SC
—	Male pin, Crimped, Gold	HR450-ND	—	3.35	20.11	HR10-PC-111
—	Female socket, Crimped, Gold	HR452-ND	—	3.35	20.11	HR12-SC-111
—	Male pin, Crimped, Silver	HR451-ND	—	2.68	16.08	HR10-PC-112
—	Female socket, Crimped, Silver	HR453-ND	—	2.68	16.08	HR12-SC-112
—	Hand crimp tool for HR10A Series	HR497-ND	549.30	—	—	HR12-SC-TC
—	Extraction tool for female sockets	HR498-ND	10.64	—	—	HR12-SC-TP
—	Extraction tool for male pins	HR499-ND	6.46	—	—	RP6-SC-TP
	KMC Series					
4	Plug w/pin insert	HR400-ND	26.10	243.60	1740.00	KMC-9BPD-4P
6	Plug w/pin insert	HR401-ND	31.20	291.20	2080.00	KMC-9BPD-6P
4	Receptacle w/socket insert	HR402-ND	15.78	147.28	1052.00	KMC-9BRD-4S
6	Receptacle w/socket insert	HR403-ND	21.24	198.24	1416.00	KMC-9BRD-6S
6	Jack w/socket insert	HR405-ND	44.52	415.52	2968.00	KMC-9BJD-6S

HR10 Series

7mm Push-Pull Connectors

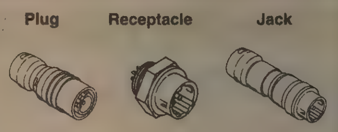
GOLD PLATED CONTACTS

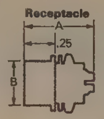
Features:

The most compact HR10 series with well-balanced, simplified layout in limited space; Easy "Push-Pull" Operation; Polarization – Five-key system permits only one way of coupling.

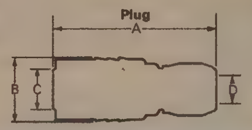
Electrical Specifications:

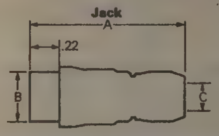
Current Rating: 2A; Insulation Resistance: 1000MΩ or more at DC100V; Contact Resistance: 10mΩ or less at DC1A.





No. of Pins	Digi-Key Part No.	A	B
4	HR200, HR203	.551	.35
6	HR201, HR204	.551	.35
12	HR202, HR205	.63	.469





No. of Pins	Digi-Key Part No.	A	B	C	D
4	HR100, HR103	1.122	.433	.276	.205
6	HR101, HR104	1.122	.433	.276	.205
12	HR102, HR105	1.28	.551	.374	.283

No. of Pins	Digi-Key Part No.	A	B	C
4	HR300, HR303	1.122	.35 .	.205
6	HR301, HR304	1.122	35	.205
12	HR302, HR305	1.28	.469	.283

HR10A Series

"Snap-In" Connectors

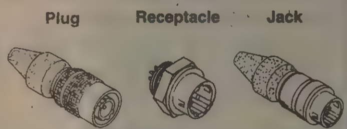
SILVER PLATED CONTACTS

Features:

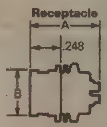
Compatible with current HR10 series: Cable crimping tool maintains consistent cable clamp force; To prevent from slipping, HR10A series are accompanied with ruled-off-squares roulette.

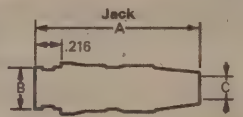
Electrical Specifications:

Current Rating: 2A; Insulation Resistance: MIN. 1,000MΩ; Contact Resistance: MAX. 10mΩ.

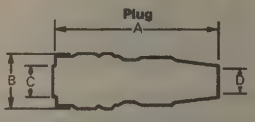


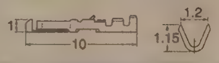
No. of Pins	Digi-Key Part No.	A	B
4	HR210, HR213	.551	.350
	HR232	.480	.350
	HR237	472	.350
5	HR218, HR219	.551	.350
6	HR211, HR214	.551	.350
	HR233	.480	.350
	HR238	.472	.350
10	HR216, HR217	.630	.551
	HR234	.480	.469
	HR239	.472	.469
12	HR212, HR215	.630	.468
	HR235	.480	.469
	HR240	.472	.469
20	HR236, HR241	.590	.606



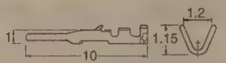


No. of Pins	Digi-Key Part No.	A	B	C
4	HR310, HR313 HR332, HR337	1 377	.350	.196
6	HR311, HR314 HR333, HR338	1.377	.350	.196
10	HR316, HR317 HR334, HR339	1.693	.469	.276
12	HR312, HR315 HR335, HR340	1.692	.469	.276
20	HR336, HR341	2.303	.606	.276





FEMALE SOCKET

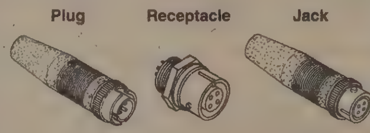


MALE PIN

No. of Pins	Digi-Key Part No.	A	B	C	D
4	HR110, HR113 HR160, HR165	1.377	.452	.275	.196
5	HR118, HR119	1.377	.452	.275	.196
6	HR111, HR114 HR161, HR166	1.377	.452	.275	.196
10	HR116, HR117 HR162, HR167	1.693	.579	.374	.276
12	HR112, HR115 HR163. HR168	1.692	.579	.374	.276
20	HR164, HR169	2.314	.748	.512	.276

KMC Series

9mm Bayonet Lock Connectors



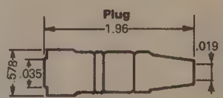
WATER RESISTANT

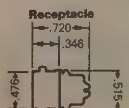
Features:

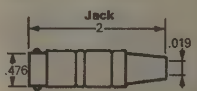
Five-key mechanism between two metal shells assures error-free polarization in coupling; Bayonet lock offers easier coupling with higher reliability than thread lock.

Electrical Specifications:

Current Rating: 2A; Insulation Resistance: MIN. 2000MΩ at DC100V; Contact Resistance: MAX. 10mΩ at DC1A.







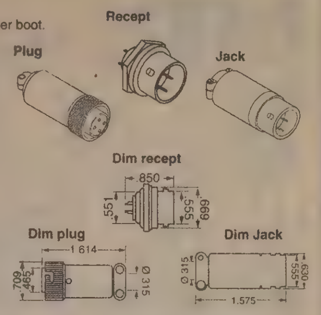
HIROSE ELECTRIC CO.,LTD.

Circular Connectors

Contacts	Description	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Hirose Part No.
		RM Series, 12mm				
2	Plug w/pin insert	HR120-ND	13.14	122.64	876.00	RM12BPG-2PH
3	Plug w/pin insert	HR122-ND	13.41	125.16	894.00	RM12BPG-3PH
4	Plug w/pin insert	HR124-ND	13.71	127.96	914.00	RM12BPG-4PH
5	Plug w/pin insert	HR126-ND	14.10	131.60	940.00	RM12BPG-5PH
6	Plug w/pin insert	HR128-ND	14.61	136.36	974.00	RM12BPG-6PH
7	Plug w/pin insert	HR130-ND	15.09	140.84	1006.00	RM12BPG-7PH
2	Plug w/socket insert	HR121-ND	14.52	135.52	968.00	RM12BPG-2S
3	Plug w/socket insert	HR123-ND	14.88	138.88	992.00	RM12BPG-3S
4	Plug w/socket insert	HR125-ND	15.24	142.24	1016.00	RM12BPG-4S
5	Plug w/socket insert	HR127-ND	16.17	150.92	1078.00	RM12BPG-5S
6	Plug w/socket insert	HR129-ND	16.53	154.28	1102.00	RM12BPG-6S
7	Plug w/socket insert	HR131-ND	17.25	161.00	1150.00	RM12BPG-7S
2	Receptacle w/pin insert	HR221-ND	6.09	56.84	406.00	RM12BRD-2PH
3	Receptacle w/pin insert	HR223-ND	6.18	57.68	412.00	RM12BRD-3PH
4	Receptacle w/pin insert	HR225-ND	6.42	59.92	428.00	RM12BRD-4PH
5	Receptacle w/pin insert	HR227-ND	6.78	63.28	452.00	RM12BRD-5PH
6	Receptacle w/pin insert	HR229-ND	7.14	66.64	476.00	RM12BRD-6PH
7	Receptacle w/pin insert	HR231-ND	7.68	71.68	512.00	RM12BRD-7PH
2	Receptacle w/socket insert	HR220-ND	7.32	68.32	488.00	RM12BRD-2S
3	Receptacle w/socket insert	HR222-ND	7.65	71.40	510.00	RM12BRD-3S
4	Receptacle w/socket insert	HR224-ND	7.95	74.20	530.00	RM12BRD-4S
5	Receptacle w/socket insert	HR226-ND	8.85	82.60	590.00	RM12BRD-5S
6	Receptacle w/socket insert	HR228-ND	9.15	85.40	610.00	RM12BRD-6S
7	Receptacle w/socket insert	HR230-ND	9.90	92.40	660.00	RM12BRD-7S
2	Jack w/pin insert	HR321-ND	9.57	89.32	638.00	RM12BJB-2PH
3	Jack w/pin insert	HR323-ND	9.93	92.68	662.00	RM12BJB-3PH
4	Jack w/pin insert	HR325-ND	10.05	93.80	670.00	RM12BJB-4PH
5	Jack w/pin insert	HR327-ND	10.20	95.20	680.00	RM12BJB-5PH
6	Jack w/pin insert	HR329-ND	10.44	97.44	696.00	RM12BJB-6PH
7	Jack w/pin insert	HR331-ND	10.83	101.08	722.00	RM12BJB-7PH
2	Jack w/socket insert	HR320-ND	14.25	133.00	950.00	RM12BJB-2S
3	Jack w/socket insert	HR322-ND	14.79	138.04	986.00	RM12BJB-3S
4	Jack w/socket insert	HR324-ND	15.39	143.64	1026.00	RM12BJB-4S
5	Jack w/socket insert	HR326-ND	15.93	148.68	1062.00	RM12BJB-5S
6	Jack w/socket insert	HR328-ND	16.56	154.56	1104.00	RM12BJB-6S
7	Jack w/socket insert	HR330-ND	17.01	158.76	1134.00	RM12BJB-7S
		RM Series, 15mm				
10	Plug w/pin insert	HR106-ND	16.74	156.24	1116.00	RM15TPD-10P
12	Plug w/pin insert	HR107-ND	17.67	164.92	1178.00	RM15TPD-12P
10	Plug w/socket insert	HR108-ND	18.99	177.24	1266.00	RM15TPD-10S
12	Plug w/socket insert	HR109-ND	19.92	185.92	1328.00	RM15TPD-12S
10	Receptacle w/pin insert	HR206-ND	10.98	102.48	732.00	RM15TRD-10P
12	Receptacle w/pin insert	HR207-ND	11.76	109.76	784.00	RM15TRD-12P
10	Receptacle w/socket insert	HR208-ND	10.14	94.64	676.00	RM15TRD-10S
12	Receptacle w/socket insert	HR209-ND	10.65	99.40	710.00	RM15TRD-12S
10	Jack Extension w/pin insert	HR306-ND	15.75	147.00	1050.00	RM15TJD-10P
12	Jack Extension w/pin insert	HR307-ND	16.59	154.84	1106.00	RM15TJD-12P
10	Jack Extension w/socket insert	HR308-ND	15.12	141.12	1008.00	RM15TJD-10S
12	Jack Extension w/socket insert	HR309-ND	15.48	144.48	1032.00	RM15TJD-12S
		SR30 Series				
4	Plug w/pin insert	HR500-ND	12.36	115.36	824.00	SR30-10PE-4P
6	Plug w/pin insert	HR501-ND	12.33	115.08	822.00	SR30-10PE-6P
7	Plug w/pin insert	HR510-ND	13.32	124.32	888.00	SR30-10PF-7P
4	Receptacle w/socket insert	HR503-ND	10.05	93.80	670.00	SR30-10R-4S
6	Receptacle w/socket insert	HR504-ND	10.41	97.16	694.00	SR30-10R-6S
7	Receptacle w/socket insert	HR505-ND	7.95	74.20	530.00	SR30-10R-7S
4	Jack w/socket insert	HR506-ND	17.55	163.80	1170.00	SR30-10JE-4S
6	Jack w/socket insert	HR507-ND	17.55	163.80	1170.00	SR30-10JE-6S
7	Jack w/socket insert	HR508-ND	16.59	154.84	1106.00	SR30-10JF-7S
—	Cable Clamp for SR30 Series	HR509-ND	.36	3.36	24.00	SR30-P
		JR Series				
7	Plug w/pin insert	HR138-ND	33.57	313.32	2238.00	JRC16BP-7P
10	Plug w/pin insert	HR140-ND	33.90	316.40	2260.00	JRC16BP-10P
14	Plug w/pin insert	HR142-ND	31.53	294.28	2102.00	JRC16BP-14P
26	Plug w/pin insert	HR144-ND	61.83	577.08	4122.00	JRC21BPA-26P
7	Plug w/socket insert	HR139-ND	32.91	307.16	2194.00	JRC16BP-7S
10	Plug w/socket insert	HR141-ND	37.89	353.64	2526.00	JRC16BP-10S
14	Plug w/socket insert	HR143-ND	30.75	287.00	2050.00	JRC16BP-14S
26	Plug w/socket insert	HR145-ND	50.25	469.00	3350.00	JRC21BP-26S
7	Receptacle w/pin insert	HR146-ND	15.42	143.92	1028.00	JRC16BR-7P
10	Receptacle w/pin insert	HR148-ND	15.84	147.84	1056.00	JRC16BR-10P
14	Receptacle w/pin insert	HR150-ND	15.93	148.68	1062.00	JRC16BR-14P
26	Receptacle w/pin insert	HR152-ND	23.16	216.16	1544.00	JRC21BR-26P
7	Receptacle w/socket insert	HR147-ND	15.15	141.40	1010.00	JRC16BR-7S
10	Receptacle w/socket insert	HR149-ND	20.43	190.68	1362.00	JRC16BR-10S
14	Receptacle w/socket insert	HR151-ND	15.39	143.64	1026.00	JRC16BR-14S
26	Receptacle w/socket insert	HR153-ND	21.12	197.12	1408.00	JRC21BRA-26S
		RP1 Series, 12mm				
6	Plug w/pin insert	HR133-ND	2.70	25.20	180.00	RPC1-12RB-6P
6	Receptacle w/socket insert	HR132-ND	6.18	57.68	412.00	RPC1-12P-6S(03)
		RP2 Series, 12mm				
3	Plug w/pin insert	HR135-ND	1.71	15.96	114.00	RPC2-12RB-3P(01)
7	Plug w/pin insert	HR137-ND	3.06	28.56	204.00	RPC2-12RB-7P(01)
3	Receptacle w/socket insert	HR134-ND	3.06	28.56	204.00	RPC2-12P-3S
7	Receptacle w/socket insert	HR136-ND	4.62	43.12	308.00	RPC2-12P-7S

RM Series

12 mm Video Connectors Does not have rubber boot.



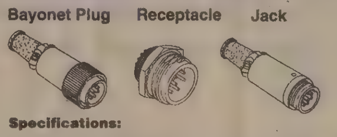
Features:

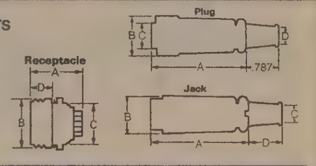
• Pipe shaped socket contact for long life reliable operation. • UL94V-0 diallyl phthalate molding material for excellent electrical & mechanical characteristics. • Sleek design with grainy matte finish. • Bayonet type coupling for easy operation. • Reversible pin & socket insert. • 2,3,4,5,6,& 7 pin available in the common diecasting body. • Jack available for cable extension program.

Specifications:

• Operating Voltage: AC600V (2 pin) AC500V (3 & 4 pin) AC350V (5,6 & 7 pin). • Current rating: 5 amps • Insulation resistance: min. 1,000 MΩ at DC500V • Contact resistance: max. 4 mΩ • Solder cup diameter: 1.1mm (.043") • Temperature cycling: -55°C to +85°C. • Contact durability: 2000 times at max. 8mΩ.

RM Series 15 mm Video Connectors





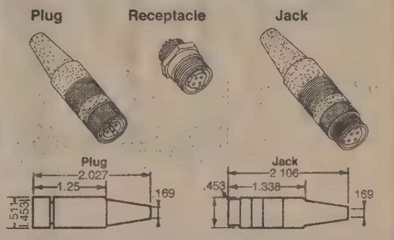
Specifications:

Operating Voltage: AC350V, DC490V; Current Rating: 5A; Insulation Resistance: 1000MΩ MIN. at DC500V; Contact Resistance: 14mΩ MAX. at DC1A; Temperature Cycling: −55° to +85°C; Applicable Cable Dia.: 8m/m MAX. Plugs and jacks include rubber boot.

No. of Pins	Digi-Key Part No.	A	B	C	D
10, 12	HR106–HR109	1.97	.907	.590	.386
10, 12	HR206–HR209	.838	.787	.673	.354
10. 12	HR306–HR309	1.929	827	.386	.787

SR30 Series

10 mm Min. Microphone Connectors

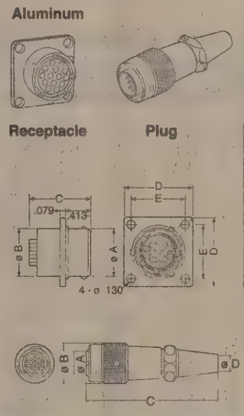


Features: Standard applicable cable size is the outer diameter 4.2. Male pin: brass + gold plated or silver plated; Female pin: copper alloy + gold plated or silver plated.

Electrical Specifications: Rated Voltage: AC100V, DC140V; Current Rating: 1A; Insulation Resistance: 200MΩ MIN. at DC100V; Contact Resistance: 10mΩ MAX. at DC1A.

JR Series

Video Connectors



Features:

JR series connectors offer you excellent performances both electrically and mechanically, having five keys in the fitting section to assure quite smooth coupling.

Electrical Specifications:

Withstand Voltage: AC1000V a minute; Insulation Resistance: 1000MΩ MIN.; Contact Resistance: 5mΩ MAX.

No. of Pins	Digi-Key Part No.	A	B	C	D	E
7	HR146-ND	.866	.787	1.043	1.142	.906
7	HR147-ND	.866	.787	1.090	1.142	.906
10	HR148-ND, HR149-ND	.866	.787	1.043	1.142	.906
14	HR150-ND	.866	.787	1.047	1.142	.906
14	HR151-ND	.866	.787	1.015	1.142	.906
26	HR152-ND	1.016	.941	1.055	1.259	1.024
26	HR153-ND	1.016	.941	1.102	1.259	1.024

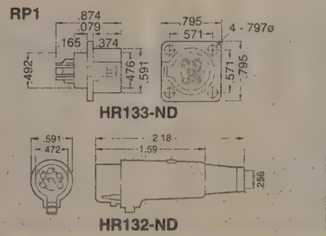
No. of Pins	Digi-Key Part No.	A	B	C	D
7	HR138-ND, HR139-ND	.642	1.062	3.090	.433
10	HR140-ND, HR141-ND	.642	1.062	3.090	.433
14	HR142-ND, HR143-ND	.642	1.062	3 090	.433
26	HR144-ND, HR145-ND	.807	1.220	3.858	.480

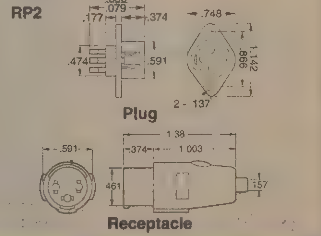
RP Series Plastic Connectors

12 mm Connectors Panel Mount

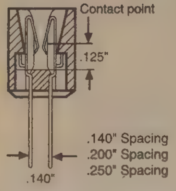
Electrical Specifications:
Operating Voltage: AC150V (6, 7 pin), AC250V (3 pin); Current Rating: 5A; Contact Resistance: 5mΩ MAX. at DC1A.

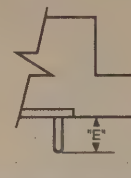
Materials:
Male Pin: Brass and silver plating; Female Pin: Phosphor bronze and silver plating.





EDAC INC Edgeboard Connectors





MATERIALS:

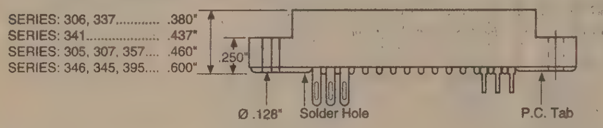
Insulator: Thermoplastic Polyester,UL 94V-0. **Contacts:** Copper, Nickel, Tin Alloy CA-725 or Phosphor Bronze. **Contact Plating:** Gold on Mating Area, Tin-Lead on the Contact Tails, Nickel Underplate. **Colors:**Series 305, 306, 307, 337, 341, 345 and 346 are green. Series 357 and 395 are black.

MECHANICAL:

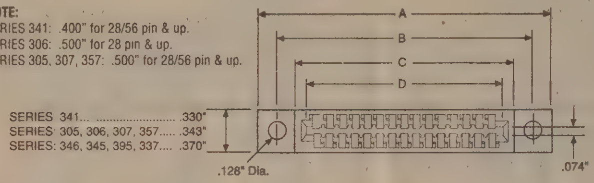
P.C. Card Slot: Accepts boards .054" to .070" thick.

ELECTRICAL – Insulation Resistance: 5000 megohms at 500 VDC. **Dielectric Withstanding Voltage:** 1500 V.A.C. RMS at sea level. **Current Rating:** 3 Amperes. **Contact Resistance:** 6 Milliohms, maximum.

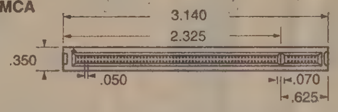
ENVIRONMENTAL – Operating Temperature: -65° to +125°C.


SERIES: 306, 337........... .380"
SERIES: 341.................... .437"
SERIES: 305, 307, 357.... .460"
SERIES: 346, 345, 395.... .600"
.250"
Ø .128"
Solder Hole
P.C. Tab

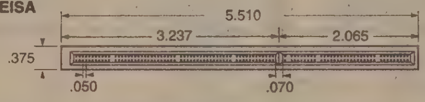
NOTE:
SERIES 341: .400" for 28/56 pin & up.
SERIES 306: .500" for 28 pin & up.
SERIES 305, 307, 357: .500" for 28/56 pin & up.


A
B
C
D
SERIES 341... .330"
SERIES: 305, 306, 307, 357..... .343"
SERIES: 346, 345, 395, 337..... .370"
.128" Dia.
.074"

302 Series MCA



301 Series EISA

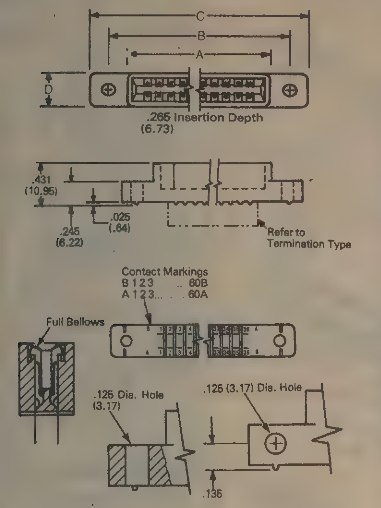


Pos./	Dimensions (Inches)					Digi-Key	Pricing				EDAC
Char.	A ±.015	B ±.008	C ±.015	D ±.006	E ±.02	Part No.	1	10	100	500	Part No.
Solder Tail — .140" Spacing											
.100" Contact Centers											
12	1.475	1.175	0.875	0.700	.125	EDC341122-ND	2.39	21.18	169.40	654.50	341-012-520-202
20	1.875	1.575	1.275	1.100	.125	EDC341202-ND	2.60	23.10	184.80	714.00	341-020-520-202
30	2.375	2.075	1.775	1.600	.125	EDC341302-ND	2.88	25.58	204.60	790.50	341-030-520-202
36	2.675	2.375	2.075	1.900	.125	EDC341362-ND	3.07	27.23	217.80	841.50	341-036-520-202
40	2.875	2.575	2.275	2.100	.125	EDC341402-ND	3.16	28.05	224.40	867.00	341-040-520-202
44	3.075	2.775	2.475	2.300	.125	EDC341442-ND	3.26	28.88	231.00	892.50	341-044-520-202
50	3.375	3.075	2.775	2.600	.125	EDC341502-ND	3.50	31.08	248.60	960.50	341-050-520-202
60	3.875	3.575	3.275	3.100	.125	EDC341602-ND	3.81	33.83	270.60	1045.50	341-060-520-202
62	3.975	3.675	3.375	3.200	.125	EDC341622-ND	3.88	34.38	275.00	1062.50	341-062-520-202
70	4.375	4.075	3.775	3.600	.125	EDC341702-ND	4.15	36.85	294.80	1139.00	341-070-520-202
72	4.475	4.175	3.875	3.700	.125	EDC341722-ND	5.05	44.83	358.60	1385.50	341-072-520-202
100	5.875	5.575	5.275	5.100	.125	EDC341102-ND	6.05	53.63	429.00	1657.50	341-100-520-202
.156" Contact Centers											
12	1.842	1.532	1.246	1.100	.213	EDC305122-ND	1.43	12.65	101.20	391.00	305-012-520-202
20	2.466	2.156	1.870	1.724	.213	EDC305202-ND	1.86	16.50	132.00	510.00	305-020-520-202
24	2.778	2.468	2.182	2.036	.213	EDC305242-ND	2.14	18.98	151.80	586.50	305-024-520-202
30	3.246	2.936	2.650	2.504	.213	EDC305302-ND	2.42	21.45	171.60	663.00	305-030-520-202
36	3.714	3.404	3.118	2.972	.213	EDC305362-ND	2.76	24.48	195.80	756.50	305-036-520-202
44	4.338	4.028	3.742	3.596	.213	EDC305442-ND	3.19	28.33	226.60	875.50	305-044-520-202
50	4.806	4.496	4.210	4.064	.213	EDC305502-ND	3.66	32.45	259.60	1003.00	305-050-520-202
56	5.274	4.964	4.678	4.532	.213	EDC305562-ND	4.00	35.48	283.80	1096.50	305-056-520-202
72	6.522	6.212	5.926	5.780	.213	EDC305722-ND	5.21	46.20	369.60	1428.00	305-072-520-202
86	7.614	7.304	7.018	6.872	.213	EDC305862-ND	6.11	54.18	433.40	1674.50	305-086-520-202
Solder Tail — .200" Spacing											
.100" Contact Centers											
20	1.835	1.575	1.260	1.100	.175	EDC395202-ND	2.17	19.25	154.00	595.00	395-020-520-202
26	2.135	1.875	1.560	1.400	.175	EDC395262-ND	2.36	20.90	167.20	646.00	395-026-520-202
30	2.335	2.075	1.760	1.600	.175	EDC395302-ND	2.48	22.00	176.00	680.00	395-030-520-202
34	2.535	2.275	1.960	1.800	.175	EDC395342-ND	2.54	22.55	180.40	697.00	395-034-520-202
36	2.635	2.375	2.060	1.900	.175	EDC395362-ND	2.60	23.10	184.80	714.00	395-036-520-202
40	2.835	2.575	2.260	2.100	.175	EDC395402-ND	2.79	24.75	198.00	765.00	395-040-520-202
44	3.035	2.775	2.460	2.300	.175	EDC395442-ND	2.95	26.13	209.00	807.50	395-044-520-202
50	3.335	3.075	2.760	2.600	.175	EDC395502-ND	3.13	27.78	222.20	858.50	395-050-520-202
56	3.635	3.375	3.060	2.900	.175	EDC395562-ND	3.32	29.43	235.40	909.50	395-056-520-202
60	3.835	3.575	3.260	3.100	.175	EDC395602-ND	3.44	30.53	244.20	943.50	395-060-520-202
62	3.935	3.675	3.360	3.200	.175	EDC395622-ND	3.53	31.35	250.80	969.00	395-062-520-202
70	4.335	4.075	3.760	3.600	.175	EDC395702-ND	3.72	33.00	264.00	1020.00	395-070-520-202
72	4.435	4.175	3.860	3.700	.175	EDC395722-ND	3.81	33.83	270.60	1045.50	395-072-520-202
80	4.835	4.575	4.260	4.100	.175	EDC395802-ND	4.03	35.75	286.00	1105.00	395-080-520-202
86	5.135	4.875	4.560	4.400	.175	EDC395862-ND	4.28	37.95	303.60	1173.00	395-086-520-202
100	5.835	5.575	5.260	5.100	.175	EDC395102-ND	4.74	42.08	336.60	1300.50	395-100-520-202

Pos./	Dimensions (Inches)					Digi-Key	Pricing				EDAC
Char.	A ±.015	B ±.008	C ±.015	D ±.006	E ±.02	Part No.	1	10	100	500	Part No.
.156" Contact Centers											
20	2.466	2.156	1.870	1.724	.213	EDC357202-ND	1.98	17.60	140.80	544.00	357-020-520-202
24	2.778	2.468	2.182	2.036	.213	EDC357242-ND	2.08	18.43	147.40	569.50	357-024-520-202
30	3.246	2.936	2.650	2.504	.213	EDC357302-ND	2.39	21.18	169.40	654.50	357-030-520-202
36	3.714	3.404	3.118	2.972	.213	EDC357362-ND	2.73	24.20	193.60	748.00	357-036-520-202
44	4.338	4.028	3.742	3.596	.213	EDC357442-ND	3.10	27.50	220.00	850.00	357-044-520-202
50	4.806	4.496	4.210	4.064	.213	EDC357502-ND	3.75	33.28	266.20	1028.50	357-050-520-202
56	5.274	4.964	4.678	4.532	.213	EDC357562-ND	3.94	34.93	279.40	1079.50	357-056-520-202
72	6.522	6.212	5.926	5.780	.213	EDC357722-ND	4.84	42.90	343.20	1326.00	357-072-520-202
86	7.614	7.304	7.018	6.872	.213	EDC357862-ND	5.64	50.05	400.40	1547.00	357-086-520-202
Solder Tail — .250" Spacing											
.125" Contact Centers											
20	2.060	1.795	1.535	1.375	.175	EDC346202-ND	2.26	20.08	160.60	620.50	346-020-520-202
30	2.685	2.420	2.160	2.000	.175	EDC346302-ND	2.67	23.65	189.20	731.00	346-030-520-202
44	3.560	3.295	3.035	2.875	.175	EDC346442-ND	3.22	28.60	228.80	884.00	346-044-520-202
56	4.310	4.045	3.785	3.625	.175	EDC346562-ND	3.60	31.90	255.20	986.00	346-056-520-202
62	4.685	4.420	4.160	4.000	.175	EDC346622-ND	3.94	34.93	279.40	1079.50	346-062-520-202
70	5.185	4.920	4.660	4.500	.175	EDC346702-ND	4.28	37.95	303.60	1173.00	346-070-520-202
72	5.310	5.045	4.785	4.625	.175	EDC346722-ND	4.34	38.50	308.00	1190.00	346-072-520-202
80	5.810	5.545	5.285	5.125	.175	EDC346802-ND	4.65	41.25	330.00	1275.00	346-080-520-202
100	7.060	6.795	6.535	6.375	.175	EDC346102-ND	5.46	48.40	387.20	1496.00	346-100-520-202
Solder Tail — Center Spacing (Single Row)											
.156" Contact Centers											
10	2.466	2.156	1.870	1.724	.213	EDC306102-ND	1.77	15.68	125.40	484.50	306-010-520-102
15	3.246	2.936	2.650	2.504	.213	EDC306152-ND	2.39	21.18	169.40	654.50	306-015-520-102
18	3.714	3.404	3.118	2.972	.213	EDC306182-ND	2.76	24.48	195.80	756.50	306-018-520-102
22	4.338	4.028	3.742	3.596	.213	EDC306222-ND	3.22	28.60	228.80	884.00	306-022-520-102
28	5.274	4.964	4.678	4.532	.213	EDC306282-ND	3.57	31.63	253.00	977.50	306-028-520-102
Solder Eyelets — .140" Spacing											
.156" Contact Centers											
12	1.842	1.532	1.246	1.100	.282	EDC305120-ND	1.43	12.65	101.20	391.00	305-012-500-202
20	2.466	2.156	1.870	1.724	.282	EDC305200-ND	1.86	16.50	132.00	510.00	305-020-500-202
24	2.778	2.468	2.182	2.036	.282	EDC305240-ND	2.14	18.98	151.80	586.50	305-024-500-202
30	3.246	2.936	2.650	2.504	.282	EDC305300-ND	2.42	21.45	171.60	663.00	305-030-500-202
36	3.714	3.404	3.118	2.972	.282	EDC305360-ND	2.76	24.48	195.80	756.50	305-036-500-202
44	4.338	4.028	3.742	3.596	.282	EDC305440-ND	3.41	30.25	242.00	935.00	305-044-500-202
50	4.806	4.496	4.210	4.064	.282	EDC305500-ND	3.66	32.45	259.60	1003.00	305-050-500-202
56	5.274	4.964	4.678	4.532	.282	EDC305560-ND	4.00	35.48	283.80	1096.50	305-056-500-202
72	6.522	6.212	5.926	5.780	.282	EDC305720-ND	5.21	46.20	369.60	1428.00	305-072-500-202
86	7.614	7.304	7.018	6.872	.282	EDC305860-ND	6.11	54.18	433.40	1674.50	305-086-500-202
Solder Eyelets — .200" Spacing											
.156" Contact Centers											
12	1.842	1.532	1.246	1.100	.282	EDC307120-ND	1.52	13.48	107.80	416.50	307-012-500-202
20	2.466	2.156	1.870	1.724	.282	EDC307200-ND	1.98	17.60	140.80	544.00	307-020-500-202
24	2.778	2.468	2.182	2.036	.282	EDC307240-ND	2.08	18.43	147.40	569.50	307-024-500-202
30	3.246	2.936	2.650	2.504	.282	EDC307300-ND	2.39	21.18	169.40	654.50	307-030-500-202
36	3.714	3.404	3.118	2.972	.282	EDC307360-ND	2.73	24.20	193.60	748.00	307-036-500-202
44	4.338	4.028	3.742	3.596	.282	EDC307440-ND	3.19	28.33	226.60	875.50	307-044-500-202
50	4.806	4.496	4.210	4.064	.282	EDC307500-ND	3.75	33.28	266.20	1028.50	307-050-500-202
56	5.274	4.964	4.678	4.532	.282	EDC307560-ND	3.94	34.93	279.40	1079.50	307-056-500-202
72	6.522	6.212	5.926	5.780	.282	EDC307720-ND	4.84	42.90	343.20	1326.00	307-072-500-202
86	7.614	7.304	7.018	6.872	.282	EDC307860-ND	5.64	50.05	400.40	1547.00	307-086-500-202
Solder Eyelets — Center Spacing (Single Row)											
.156" Contact Centers											
10	2.466	2.156	1.870	1.724	.282	EDC306100-ND	1.77	15.68	125.40	484.50	306-010-500-102
15	3.246	2.936	2.650	2.504	.282	EDC306150-ND	2.39	21.18	169.40	654.50	306-015-500-102
18	3.714	3.404	3.118	2.972	.282	EDC306180-ND	2.76	24.48	195.80	756.50	306-018-500-102
22	4.338	4.028	3.742	3.596	.282	EDC306220-ND	3.22	28.60	228.80	884.00	306-022-500-102
28	5.274	4.964	4.678	4.532	.282	EDC306280-ND	3.57	31.63	253.00	977.50	306-028-500-102
43	7.614	7.304	7.018	6.872	.282	EDC306430-ND	6.26	55.55	444.40	1717.00	306-043-500-102
Wire Wrap — .200" Spacing											
.100" Contact Centers											
30	2.335	2.075	1.760	1.600	.560	EDC345304-ND	2.48	22.00	176.00	680.00	345-030-540-802
44	3.035	2.775	2.460	2.300	.560	EDC345444-ND	2.95	26.13	209.00	807.50	345-044-540-802
50	3.335	3.075	2.760	2.600	.560	EDC345504-ND	3.13	27.78	222.20	858.50	345-050-540-802
60	3.835	3.575	3.260	3.100	.560	EDC345604-ND	3.44	30.53	244.20	943.50	345-060-540-802
72	4.435	4.175	3.860	3.700	.560	EDC345724-ND	3.81	33.83	270.60	1045.50	345-072-540-802
80	4.835	4.575	4.260	4.100	.560	EDC345804-ND	4.03	35.75	286.00	1105.00	345-080-540-802
86	5.135	4.875	4.560	4.400	.560	EDC345864-ND	4.28	37.95	303.60	1173.00	345-086-540-802
100	5.835	5.575	5.260	5.100	.560	EDC345104-ND	5.64	50.05	400.40	1547.00	345-100-540-802
.156" Contact Centers											
20	2.466	2.156	1.870	1.724	.560	EDC337204-ND	2.33	20.63	165.00	637.50	337-020-540-802
30	3.246	2.936	2.650	2.504	.560	EDC337304-ND	2.79	24.75	198.00	765.00	337-030-540-802
36	3.714	3.404	3.118	2.972	.560	EDC337364-ND	3.01	26.68	213.40	824.50	337-036-540-802
44	4.338	4.028	3.742	3.596	.560	EDC337444-ND	3.38	29.98	239.80	926.50	337-044-540-802
50	4.806	4.496	4.210	4.064	.560	EDC337504-ND	3.66	32.45	259.60	1003.00	337-050-540-802
60	5.586	5.276	4.990	4.844	.560	EDC337604-ND	4.06	36.03	288.20	1113.50	337-060-540-802
Wire Wrap — .250" Spacing											
.125" Contact Centers											
56	4.310	4.045	3.785	3.625	.560	EDC346564-ND	3.60	31.90	255.20	986.00	346-056-540-802
72	5.310	5.045	4.785	4.625	.560	EDC346724-ND	4.34	38.50	308.00	1190.00	346-072-540-802
80	5.810	5.545	5.285	5.125	.560	EDC346804-ND	4.65	41.25	330.00	1275.00	346-080-540-802
86	6.185	5.920	5.660	5.500	.560	EDC346864-ND	4.93	43.73	349.80	1351.50	346-086-540-802
100	7.060	6.795	6.535	6.375	.560	EDC346104-ND	5.46	48.40	387.20	1496.00	346-100-540-802

Pos./	Contact	Dim. (In.)		Bus	Digi-Key	Pricing				EDAC
Char.	Spacing	C ±.015	D ±.006	Style	Part No.	1	10	100	500	Part No.
Industry Standard Bus Systems										
188	.050	5.510	5.302	EISA	EDC301882-ND	6.05	53.63	429.00	1657.50	301-188-520-201
112	.050	3.140	2.950	IBM MCA	EDC302122-ND	5.12	45.38	363.00	1402.50	302-112-520-201
86	.156	7.018	6.872	MOT. EXERCISOR	EDC337862-ND	5.89	52.25	418.00	1615.00	337-086-520-201
86	.156	7.018	6.872	MULTIBUS 1	EDC337082-ND	5.89	52.25	418.00	1615.00	337-086-524-201
50	.100	2.760	2.600	APPLEBUS	EDC345502-ND	3.57	31.63	253.00	977.50	345-050-520-201
60	.100	3.260	3.100	MULTIBUS 1	EDC345602-ND	4.19	37.13	297.00	1147.50	345-060-524-201
140	.100	7.260	7.100	VERSABUS	EDC345402-ND	8.22	72.88	583.00	2252.50	345-140-520-201
120	.100	6.260	6.100	VERSABUS	EDC345202-ND	6.98	61.88	495.00	1912.50	345-120-520-201
56	.125	3.785	3.625	STANDARD BUS	EDC346052-ND	4.09	36.30	290.40	1122.00	346-056-520-802
100	.125	6.535	6.375	S100	EDC346002-ND	7.41	65.73	525.80	2031.50	346-100-520-802
62	.100	3.360	3.200	IBM PC-XT	EDC395062-ND	1.09	9.63	77.00	297.50	395-062-520-350
98	.100	5.160	5.000	IMB PC-AT ISA	EDC395982-ND	1.40	12.38	99.00	382.50	395-098-520-350

Sullins Edgeboard Connectors



MATERIALS

Insulator: Glass filled thermoplastic polyester Valox (Standard) UL 94V-0 Approved.

Contacts: Phosphor Bronze (Standard).

Contact Plating: Gold over .000050 Nickel Under Plate.

UL File Number: E64287.

Termination Plating: Tin.

MECHANICAL

Board Insertion Force: 16 ozs. maximum per contact pair using .062 steel test blade.

Board Withdrawal Force: 1 oz. minimum per contact pair using .062 steel test blade.

ELECTRICAL

Insulation Resistance: 5,000 megohms.

Dielectric Withstanding Voltage: Contact. Centers — .100, .125, .156. Voltage - 600 VDC, 800 VDC, 1800 VDC.

Current Rating: 3 amperes.

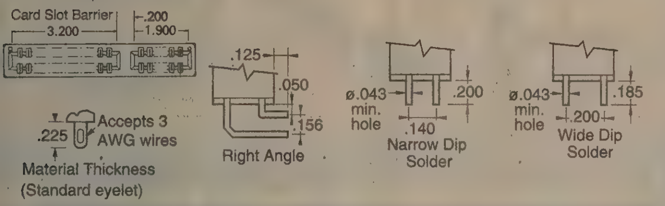
Voltage Drop: 30 MV at rated current.

Contact Resistance: 10 milliohms maximum at rated current.

ENVIRONMENTAL

Solvent Resistance: Perchloroethylene, Freon 113, Freon 11, Trichloroethylene.

Operating Temperature: Valox -65°C to +135°C. Phosphor Bronze -65°C to +125°C.



Positions/ Contacts	Dimensions (Inches) A ±.015	B ±.010	C ±.020	D ±.005	Digi-Key Part No.	Pricing 1	10	100	500	Sullins Part No.
At Expansion Board Connector										
49/98	PCB Expansion Port Edge Card				S1020-ND	4.59	38.76	306.00	1428.00	EZC49DCWN-S420
Rght Angle — Solder Tail — .156 Spacing										
.100" Contact Centers										
5/10	0.775	1.075	1.375	.330	S1051-ND	4.61	38.95	307.50	1435.00	EZC05DRAS
6/12	0.875	1.175	1.475	.330	S1061-ND	4.79	40 47	319.50	1491.00	EZC06DRAS
10/20	1.275	1.575	1.875	.330	S1101-ND	4.61	38.95	307.50	1435.00	EZC10DRAS
15/30	1.775	2.075	2.375	.330	S1151-ND	5.31	44.84	354.00	1652.00	EXC15DRAS
18/36	2.075	2.375	2.675	.330	S1181-ND	5.76	48.64	384.00	1792.00	EZC18DRAS
20/40	2.275	2.575	2.875	.330	S1201-ND	6.05	51.11	403.50	1883.00	EZC20DRAS
22/44	2.475	2.775	3.075	.330	S1221-ND	6.32	53.39	421.50	1967.00	EZC22DRAS
25/50	2.775	3.075	3.375	.330	S1251-ND	8.08	68.21	538.50	2513.00	EZC25DRAS
30/60	3.275	3.575	3.875	.330	S1301-ND	8.96	75.62	597.00	2786.00	EZC30DRAS
31/62	3.375	3.675	3.975	.330	S1311-ND	9.11	76.95	607.50	2835.00	EZC31DRAS
35/70	3.775	4.075	4.375	.400	S1351-ND	9.79	82.65	652.50	3045.00	EZC35DRAS
36/72	3.875	4.175	4.475	.400	S1361-ND	9.99	84.36	666.00	3108.00	EZC36DRAS
40/80	4.275	4.575	4.875	.400	S1401-ND	10.67	90.06	711.00	3318.00	EZC40DRAS
50/100	5.275	5.575	5.875	.400	S1501-ND	12.42	104.88	828.00	3864.00	EZC50DRAS
60/120	6.275	6.575	6.875	.400	S1601-ND	14.13	119.32	942.00	4396.00	EZC60DRAS
.125" Contact Centers										
10/20	1.535	1.795	2.075	.330	S2101-ND	4.91	41.42	327.00	1526.00	EZA10DRAS
15/30	2.160	2.420	2.700	.330	S2151-ND	5.60	47.31	373.50	1743.00	EZA15DRAS
22/44	3.035	3.295	3.575	.330	S2221-ND	6.57	55.48	438.00	2044.00	EZA22DRAS
28/56	3.785	4.045	4.325	.330	S2281-ND	7.38	62.32	492.00	2296.00	EZA28DRAS
31/32	4.160	4.420	4.700	.330	S2311-ND	7.79	65.74	519.00	2422.00	EZA31DRAS
40/80	5.285	5.545	5.825	.370	S2401-ND	9.05	76.38	603.00	2814.00	EZA40DRAS
44/88	5.785	6.045	6.325	.370	S2441-ND	9.59	80.94	639.00	2982.00	EZA44DRAS
50/100	6.535	6.795	7.075	.370	S2501-ND	10.42	87.97	694.50	3241.00	EZA50DRAS
.156" Contact Centers										
6/12	1.220	1.533	1.875	.325	S5061-ND	3.44	29.07	229.50	1071.00	EZM06DRAS
10/20	1.844	2.157	2.499	.325	S5101-ND	3.67	30.97	244.50	1141.00	EZM10DRAS
12/24	2.156	2.469	2.811	.325	S5121-ND	4.03	34.01	268.50	1253.00	EZM12DRAS
15/30	2.624	2.937	3.279	.325	S5151-ND	4.61	38.95	307.50	1435.00	EZM15DRAS
18/36	3.092	3.405	3.747	.325	S5181-ND	5.15	43.51	343.50	1603.00	EZM18DRAS
22/44	3.716	4.029	4.371	.325	S5221-ND	5.92	49.97	394.50	1841.00	EZM22DRAS
25/50	4.184	4.497	4.839	.325	S5251-ND	8.55	72.20	570.00	2660.00	EZM25DRAS
28/56	4.652	4.964	5.303	.438	S5281-ND	9.32	78.66	621.00	2898.00	EZM28DRAS
36/72	5.906	6.219	6.566	.438	S5361-ND	11.32	95.57	754.50	3521.00	EZM36DRAS
43/86	7 000	7.302	7.643	500	S5431-ND	13.07	110.39	871.50	4067.00	EZM43DRAS
Eyelet (Standard) — .014 Thick, .140 Spacings										
.100" Contact Centers										
5/10	0.775	1.075	1.375	.330	S1052-ND	1.76	14.82	117.00	546.00	EZC05DREH
6/12	0.875	1.175	1.475	.330	S1062-ND	1.87	15.77	124.50	581.00	EZC06DREH
10/20	1.275	1.575	1.875	.330	S1102-ND	3.15	26.60	210.00	980.00	EZC10DREH
15/30	1.775	2.075	2.375	.330	S1152-ND	3.58	30.21	238.50	1113.00	EZC15DREH
18/36	2.075	2.375	2.675	.330	S1182-ND	3.89	32.87	259.50	1211.00	EZC18DREH
20/40	2.275	2.575	2.875	.330	S1202-ND	4.07	34.39	271.50	1267.00	EZC20DREH
22/44	2.475	2.775	3.075	.330	S1222-ND	4.25	35.91	283.50	1323.00	EZC22DREH
25/50	2.775	3.075	3.375	.330	S1252-ND	4.59	38.76	306.00	1428.00	EZC25DREH
30/60	3.275	3.575	3.875	.330	S1302-ND	5.11	43.13	340.50	1589.00	EZC30DREH
31/62	3.375	3.675	3.975	.330	S1312-ND	5.20	43.89	346.50	1617.00	EZC31DREH
35/70	3.775	4.075	4.375	.400	S1352-ND	4.10	34.58	273.00	1274.00	EZC35DREH
36/72	3.875	4.175	4.475	.400	S1362-ND	5.90	49.78	393.00	1834.00	EZC36DREH
40/80	4.275	4.575	4.875	.400	S1402-ND	6.41	54.15	427.50	1995.00	EZC40DREH
50/100	5.275	5.575	5.875	.400	S1502-ND	7.45	62.89	496.50	2317.00	EZC50DREH
60/120	6.275	6.575	6.875	.400	S1602-ND	6.26	52.82	417.00	1946.00	EZC60DREH
—	Polarizing Key				PLA-K1-ND	—	1.35	10.50	37.50	PLA-K1
.125" Contact Centers										
10/20	1.535	1.795	2.075	.330	S2102-ND	3.24	27.36	216.00	1008.00	EZA10DREH
15/30	2.160	2.420	2.700	.330	S2152-ND	3.71	31.35	247.50	1155.00	EZA15DREH
22/44	3.035	3.295	3.575	.330	S2222-ND	4.41	37.24	294.00	1372.00	EZA22DREH
28/56	3.785	4.045	4.325	.330	S2282-ND	5.11	43.13	340.50	1589.00	EZA28DREH
31/62	4.160	4.420	4.700	.330	S2312-ND	5.49	46.36	366.00	1708.00	EZA31DREH
35/70	4.660	4.920	5.200	.330	S2352-ND	4.07	34.39	271.50	1267.00	EZA35DREH
36/72	4.785	5.045	5.325	.330	S2362-ND	6.53	55.10	435.00	2030.00	EZA36DREH
40/80	5.285	5.545	5.825	.370	S2402-ND	6.91	58.33	460.50	2149.00	EZA40DREH
44/88	5.785	6.045	6.325	.370	S2442-ND	4.79	40.47	319.50	1491.00	EZA44DREH
50/100	6.535	6.795	7.075	.370	S2502-ND	7.92	66.88	528.00	2464.00	EZA50DREH
.156" Contact Centers										
6/12	1.220	1.533	1.875	.325	S5062-ND	2.27	19.19	151.50	707.00	EZM06DREH
10/20	1.844	2.157	2.499	.325	S5102-ND	3.65	30.78	243.00	1134.00	EZM10DREH
12/24	2.156	2.469	2.811	.325	S5122-ND	3.89	32.87	259.50	1211.00	EZM12DREH
15/30	2.624	2.937	3.279	.325	S5152-ND	4.23	35.72	282.00	1316.00	EZM15DREH
18/36	3.092	3.405	3.747	.325	S5182-ND	4.57	38.57	304.50	1421.00	EZM18DREH
22/44	3.716	4.029	4.371	.325	S5222-ND	5.04	42.56	336.00	1568.00	EZM22DREH
25/50	4.184	4.497	4.839	.325	S5252-ND	5.94	50.16	396.00	1848.00	EZM25DREH
28/56	4.652	4.964	5.303	.438	S5282-ND	6.48	54.72	432.00	2016.00	EZM28DREH
36/72	5.906	6.219	6.566	.438	S5362-ND	7.99	67.45	532.50	2485.00	EZM36DREH
43/86	7 000	7.302	7.643	.500	S5432-ND	9.32	78.66	621.00	2898.00	EZM43DREH
Solder Tail — .140 Spacing										
.100" Contact Centers										
5/10	0.775	1.075	1.375	.330	S1053-ND	1.78	15.01	118.50	553.00	EZC05DRTH
6/12	0.875	1.175	1.475	.330	S1063-ND	1.87	15.77	124.50	581.00	EZC06DRTH
10/20	1.275	1.575	1.875	.330	S1103-ND	2.99	25.27	199.50	931.00	EZC10DRTH
15/30	1 775	2.075	2.375	.330	S1153-ND	3.31	27.93	220.50	1029.00	EZC15DRTH
18/36	2.075	2.375	2.675	.330	S1183-ND	3.60	30.40	240.00	1120.00	EZC18DRTH
20/40	2.275	2.575	2.875	.330	S1203-ND	3.76	31.73	250.50	1169.00	EZC20DRTH
22/44	2.475	2.775	3.075	.330	S1223-ND	3.87	32.68	258.00	1204.00	EZC22DRTH
25/50	2.775	3 075	3.375	.330	S1253-ND	4.16	35.15	277.50	1295.00	EZC25DRTH
30/60	3.275	3.575	3.875	.330	S1303-ND	4.59	38.76	306.00	1428.00	EZC30DRTH
31/62	3.375	3.675	3.975	.330	S1313-ND	4.68	39.52	312.00	1456.00	EZC31DRTH
35/70	3.775	4.075	4.375	.400	S1353-ND	4.59	38.76	306.00	1428.00	EZC35DRTH
36/72	3.875	4.175	4.475	.400	S1363-ND	5.27	44.46	351.00	1638.00	EZC36DRTH
40/80	4.275	4.575	4.875	.400	S1403-ND	5.74	48.45	382.50	1785.00	EZC40DRTH
50/100	5.275	5.575	5.875	.400	S1503-ND	6.68	56.43	445.50	2079.00	EZC50DRTH
60/120	6.275	6.575	6.875	.400	S1603-ND	7.07	59.66	471.00	2198.00	EZC60DRTH
.125" Contact Centers										
10/20	1.535	1.795	2.075	.330	S2103-ND	3.11	26.22	207.00	966.00	EZA10DRTH
15/30	2.160	2.420	2.700	.330	S2153-ND	3.49	29.45	232.50	1085.00	EZA15DRTH
22/44	3.035	3.295	3.575	.330	S2223-ND	4.03	34.01	268.50	1253.00	EZA22DRTH
28/56	3.785	4.045	4.325	.330	S2283-ND	4.61	38.95	307.50	1435.00	EZA28DRTH
31/62	4.160	4.420	4.700	.330	S2313-ND	4.97	41.99	331.50	1547.00	EZA31DRTH
35/70	4.660	4.920	5.200	.330	S2353-ND	4.03	34.01	268.50	1253.00	EZA35DRTH
36/72	4.785	5.045	5.325	.330	S2363-ND	5.90	49.78	393.00	1834.00	EZA36DRTH
40/80	5.285	5.545	5.825	.370	S2403-ND	6.21	52.44	414.00	1932.00	EZA40DRTH
44/88	5.785	6.045	6.325	.370	S2443-ND	4.77	40.28	318.00	1484.00	EZA44DRTH
50/100	6.535	6.795	7.075	.370	S2503-ND	7.07	59.66	471.00	2198.00	EZA50DRTH
.156" Contact Centers										
6/12	1.220	1.533	1.875	.325	S5063-ND	1.82	15.39	121.50	567.00	EZM06DRTH
10/20	1.844	2.157	2.499	.325	S5103-ND	3.42	28.88	228.00	1064.00	EZM10DRTH
12/24	2.156	2.469	2.811	.325	S5123-ND	3.65	30.78	243.00	1134.00	EZM12DRTH
15/30	2.624	2.937	3.279	.325	S5153-ND	3.89	32.87	259.50	1211.00	EZM15DRTH
18/36	3.092	3.405	3.747	.325	S5183-ND	4.21	35.53	280.50	1309.00	EZM18DRTH
22/44	3.716	4.029	4.371	.325	S5223-ND	4.57	38.57	304.50	1421.00	EZM22DRTH
25/50	4.184	4.497	4.839	.325	S5253-ND	4.93	41.61	328.50	1533.00	EZM25DRTH
28/56	4.652	4.965	5.303	.438	S5283-ND	5.38	45.41	358.50	1673.00	EZM28DRTH
36/72	5.906	6.219	6.566	.438	S5363-ND	7.11	60.04	474.00	2212.00	EZM36DRTH
43/86	7.000	7.302	7.643	.500	S5433-ND	7.88	66.50	525.00	2450.00	EZM43DRTH
SOLDER TAIL — .200 SPACING										
.100" Contact Centers										
5/10	0.775	1.075	1.375	.330	S1054-ND	1.69	14.25	112.50	525.00	EZC05DRXH
6/12	0.875	1.175	1.475	.330	S1064-ND	1.78	15.01	118.50	553.00	EZC06DRXH
10/20	1.275	1.575	1.875	.330	S1104-ND	2.93	24.70	195.00	910.00	EZC10DRXH
15/30	1.775	2.075	2.375	.330	S1154-ND	3.26	27.55	217.50	1015.00	EZC15DRXH
18/36	2.075	2.375	2.675	.330	S1184-ND	3.58	30.21	238.50	1113.00	EZC18DRXH
20/40	2.275	2.575	2.875	.330	S1204-ND	3.69	31.16	246.00	1148.00	EZC20DRXH
22/44	2.475	2.775	3.075	.330	S1224-ND	3.83	32.30	255.00	1190.00	EZC22DRXH
25/50	2.775	3.075	3.375	.330	S1254-ND	4.12	34.77	274.50	1281.00	EZC25DRXH
30/60	3.275	3.575	3.875	.330	S1304-ND	4.55	38.38	303.00	1414.00	EZC30DRXH
31/62	3.375	3.675	3.975	.330	S1314-ND	4.61	38.95	307.50	1435.00	EZC31DRXH
35/70	3.775	4.075	4.375	.330	S1354-ND	4.48	37.81	298.50	1393.00	EZC35DRXH
36/72	3.875	4.175	4.475	.330	S1364-ND	5.04	42.56	336.00	1568.00	EZC36DRXH
40/80	4.275	4.575	4.875	.330	S1404-ND	5.67	47.88	378.00	1764.00	EZC40DRXH
50/100	5.275	5.575	5.875	.400	S1504-ND	6.55	55.29	436.50	2037.00	EZC50DRXH
60/120	6.275	6.575	6.875	.400	S1604-ND	6.91	58.33	460.50	2149.00	EZC50DRXH
—	Polarizing Key				PLC-K1-ND	—	1.35	10.50	37.50	PLC-K1
.125" Contact Centers										
10/20	1.535	1.795	2.075	.330	S2104-ND	2.99	25.27	199.50	931.00	EZA10DRXH
15/30	2.160	2.420	2.700	.330	S2154-ND	3.38	28.50	225.00	1050.00	EZA15DRXH
22/44	3.035	3.295	3.575	.330	S2224-ND	3.94	33.25	262.50	1225.00	EZA22DRXH
28/56	3.785	4.045	4.325	.330	S2284-ND	4.52	38.19	301.50	1407.00	EZA28DRXH
31/62	4.160	4.420	4.700	.330	S2314-ND	4.88	41.23	325.50	1519.00	EZA31DRXH
35/70	4.660	4.920	5.200	.330	S2354-ND	4.48	37.81	298.50	1393.00	EZA35DRXH
36/72	4.785	5.045	5.325	.330	S2364-ND	5.29	44.65	352.50	1645.00	EZA36DRXH
40/80	5.285	5.545	5.825	.370	S2404-ND	5.76	48.64	384.00	1792.00	EZA40DRXH
44/88	5.785	6.045	6.325	.370	S2444-ND	5.31	44.84	354.00	1652.00	EZA44DRXH
50/100	6.535	6.795	7.075	.370	S2504-ND	6.64	56.05	442.50	2065.00	EZA50DRXH
.156" Contact Centers										
6/12	1.220	1.533	1.875	.325	S5064-ND	1.73	14.63	115.50	539.00	EZM06DRXH
10/20	1.844	2.157	2.499	.325	S5104-ND	3.22	27.17	214.50	1001.00	EZM10DRXH
12/24	2.156	2.469	2.811	.325	S5124-ND	3.40	28.69	226.50	1057.00	EZM12DRXH
15/30	2.624	2.937	3.279	.325	S5154-ND	3.60	30.40	240.00	1120.00	EZM15DRXH
18/36	3.092	3.405	3.747	.325	S5184-ND	3.85	32.49	256.50	1197.00	EZM18DRXH
22/44	3.716	4.029	4.371	.325	S5224-ND	4.16	35.15	277.50	1295.00	EZM22DRXH
25/50	4.184	4.497	4.839	.325	S5254-ND	4.55	38.38	303.00	1414.00	EZM25DRXH
28/56	4.652	4.964	5.303	.438	S5284-ND	5.02	42.37	334.50	1561.00	EZM28DRXH
36/72	5.906	6.219	6.566	.438	S5364-ND	6.46	54.53	430.50	2009.00	EZM36DRXH
43/86	7.000	7.302	7.643	.500	S5434-ND	7.07	59.66	471.00	2198.00	EZM43DRXH
Eyelet — .007 Thick, .140 Spacings										
.156" Contact Centers										
6/12	1.220	1.533	1.875	.325	S5065-ND	1.89	15.96	126.00	588.00	EZM06DSEH
10/20	1.844	2.157	2.499	.325	S5105-ND	3.42	28.88	228.00	1064.00	EZM10DSEH
12/24	2.156	2.469	2.811	.325	S5125-ND	3.65	30.78	243.00	1134.00	EZM12DSEH
15/30	2.624	2.937	3.279	.325	S5155-ND	3.89	32.87	259.50	1211.00	EZM15DSEH
18/36	3.092	3.405	3.747	.325	S5185-ND	4.21	35.53	280.50	1309.00	EZM18DSEH
22/44	3.716	4.029	4.371	.325	S5225-ND	4.57	38.57	304.50	1421.00	EZM22DSEH
25/50	4.184	4.497	4.839	.325	S5255-ND	4.93	41.61	328.50	1533.00	EZM25DSEH
28/56	4.652	4.964	5.303	.438	S5285-ND	5.38	45.41	358.50	1673.00	EZM28DSEH
36/72	5.906	6.219	6.566	.438	S5365-ND	7.11	60.04	474.00	2212.00	EZM36DSEH
43/86	7.000	7.302	7.643	.500	S5435-ND	7.88	66.50	525.00	2450.00	EZM43DSEH

HIROSE
ELECTRIC
CO.,LTD.

HIROSE
DIN Connectors

Fig. 3
2-Row, Socket, Right-Angle Type

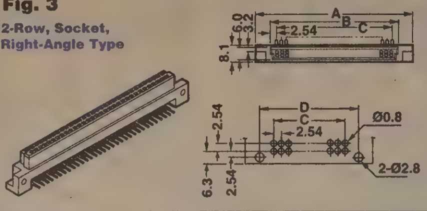


Fig. 6
3-Row, Plug, Straight Type

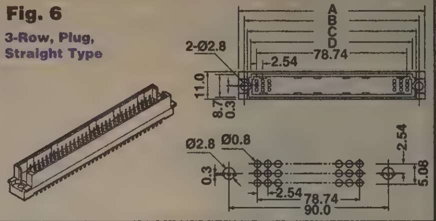


Fig. 1
2-Row, Plug, Right-Angle Type

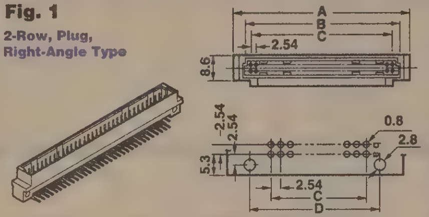
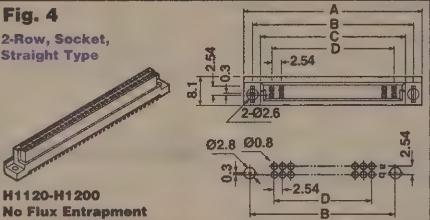


Fig. 4
2-Row, Socket, Straight Type



H1120-H1200
No Flux Entrapment

Fig. 7
3-Row, Socket, Right-Angle Type

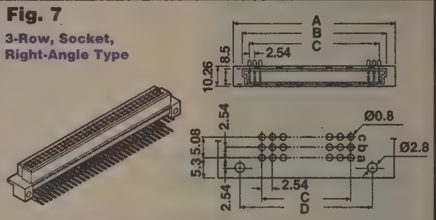


Fig. 2
2-Row, Plug, Straight Type

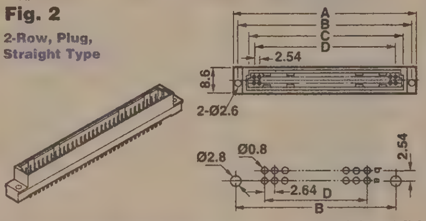


Fig. 5
3-Row, Plug, Right-Angle Type

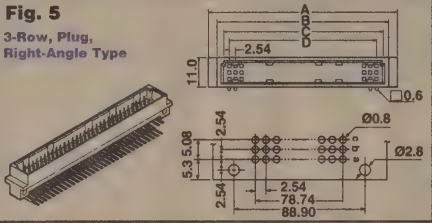
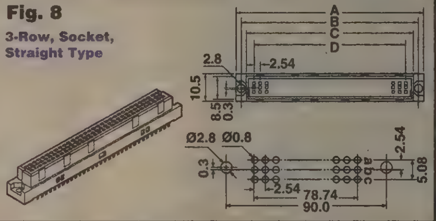


Fig. 8
3-Row, Socket, Straight Type



				Dimensions (mm)					Pricing					
Fig.	No. of Rows	No. of Pins	Type	A	B	C	D	Digi-Key Part No	1	10	100	500	1,000	Hirose Part No.
1	2	20	Plug-Right Angle	38.12	29.47	22.86	33.02	H1020-ND	3.04	26.13	190.00	674.50	1254.00	PCN10-20P-2.54DS
		32	Plug-Right Angle	53.26	44.71	38.10	48.26	H1032-ND	3.68	31.63	230.00	816.50	1518.00	PCN10-32P-2.54DS
		44	Plug-Right Angle	68.60	59.95	53.34	63.50	H1044-ND	4.00	34.38	250.00	887.50	1650.00	PCN10-44P-2.54DS
		50	Plug-Right Angle	76.22	67.57	60.96	71.12	H1050-ND	4.32	37.13	270.00	958.50	1782.00	PCN10-50P-2.54DS
		64	Plug-Right Angle	94.00	85.35	78.74	88.90	H1064-ND	4.83	41.53	302.00	1072.10	1993.20	PCN10-64P-2.54DS
		90	Plug-Right Angle	127.02	118.37	111.76	121.92	H1090-ND	5.98	51.43	374.00	1327.70	2468.40	PCN10-90P-2.54DS
		100	Plug-Right Angle	139.72	131.07	124.46	134.62	H1100-ND	6.94	59.68	434.00	1540.70	2864.40	PCN10-100P-2.54DS
2	2	20	Plug-Straight	43.3	38.1	29.47	22.86	H2020-ND	2.37	20.35	148.00	525.40	976.80	PCN10-20P-2.54DSA
		32	Plug-Straight	58.34	53.34	44.71	38.10	H2032-ND	3.10	26.68	194.00	688.70	1280.40	PCN10-32P-2.54DSA
		44	Plug-Straight	73.58	68.10	59.95	53.34	H2044-ND	3.46	29.70	216.00	766.80	1425.60	PCN10-44P-2.54DSA
		50	Plug-Straight	81.40	76.20	67.57	60.96	H2050-ND	4.35	37.40	272.00	965.60	1795.20	PCN10-50P-2.54DSA
		64	Plug-Straight	99.18	93.98	85.34	78.74	H2064-ND	4.96	42.63	310.00	1100.50	2046.00	PCN10-64P-2.54DSA
		90	Plug-Straight	132.20	127.00	118.37	111.76	H2090-ND	6.85	58.85	428.00	1519.40	2824.80	PCN10-90P-2.54DSA
		100	Plug-Straight	144.90	139.70	131.07	124.46	H2100-ND	7.10	61.05	444.00	1576.20	2930.40	PCN10-100P-2.54DSA
3	2	20	Socket-Right Angle	43.10	29.12	22.86	38.10	H2120-ND	3.78	32.45	236.00	837.80	1557.60	PCN10C-20S-2.54DS
		32	Socket-Right Angle	58.34	44.36	38.10	53.34	H2132-ND	5.12	44.00	320.00	1136.00	2112.00	PCN10C-32S-2.54DS
		44	Socket-Right Angle	73.58	59.60	53.34	68.58	H2144-ND	6.59	56.65	412.00	1462.60	2719.20	PCN10C-44S-2.54DS
		50	Socket-Right Angle	81.20	67.22	60.96	76.20	H2150-ND	6.94	59.68	434.00	1540.70	2864.40	PCN10C-50S-2.54DS
		64	Socket-Right Angle	98.98	85.00	78.74	93.98	H2164-ND	8.96	77.00	560.00	1988.00	3696.00	PCN10C-64S-2.54DS
		90	Socket-Right Angle	132.00	118.02	111.76	127.00	H2190-ND	11.17	95.98	698.00	2477.90	4606.80	PCN10C-90S-2.54DS
		100	Socket-Right Angle	144.70	130.72	124.46	139.70	H2200-ND	13.25	113.85	828.00	2939.40	5464.80	PCN10C-100S-2.54DS
3	2	20	Socket-Right Angle	43.10	29.12	22.86	38.10	H3020-ND	2.69	23.10	168.00	596.40	1108.80	PCN13-20S-2.54DS
		32	Socket-Right Angle	58.34	44.36	38.10	53.43	H3032-ND	3.26	28.05	204.00	724.20	1346.40	PCN13-32S-2.54DS
		44	Socket-Right Angle	73.58	59.60	53.34	68.58	H3044-ND	3.90	33.55	244.00	866.20	1610.40	PCN13-44S-2.54DS
		50	Socket-Right Angle	81.20	67.22	60.96	76.20	H3050-ND	4.77	40.98	298.00	1057.90	1966.80	PCN13-50S-2.54DS
		64	Socket-Right Angle	98.98	85.00	78.74	93.98	H3064-ND	4.86	41.80	304.00	1079.20	2006.40	PCN13-64S-2.54DS
		90	Socket-Right Angle	132.00	118.02	111.76	127.00	H3090-ND	6.21	53.35	388.00	1377.40	2560.80	PCN13-90S-2.54DS
		100	Socket-Right Angle	144.70	130.72	124.46	139.70	H3100-ND	6.72	57.75	420.00	1491.00	2772.00	PCN13-100S-2.54DS
4	2	20	Socket-Straight	39.12	34.12	29.12	22.86	H1120-ND	3.78	32.45	236.00	837.80	1557.60	PCN10C-20S-2.54DSA
		32	Socket-Straight	54.36	49.36	44.36	38.10	H1132-ND	4.80	41.25	300.00	1065.00	1980.00	PCN10C-32S-2.54DSA
		44	Socket-Straight	69.60	64.60	59.60	53.34	H1144-ND	6.62	56.93	414.00	1469.70	2732.40	PCN10C-44S-2.54DSA
		50	Socket-Straight	77.22	72.22	67.22	60.96	H1150-ND	6.85	58.85	428.00	1519.40	2824.80	PCN10C-50S-2.54DSA
		64	Socket-Straight	95.00	90.00	85.00	78.74	H1164-ND	8.32	71.50	520.00	1846.00	3432.00	PCN10C-64S-2.54DSA
		90	Socket-Straight	128.02	123.02	118.02	111.76	H1190-ND	10.69	91.85	668.00	2371.40	4408.80	PCN10C-90S-2.54DSA
		100	Socket-Straight	140.72	135.72	130.72	124.46	H1200-ND	12.06	103.68	754.00	2676.70	4976.40	PCN10C-100S-2.54DSA
4	2	32	Socket-Straight-W/W	54.36	49.36	43.36	38.10	H4232-ND	9.06	77.83	566.00	2009.30	3735.60	PCN10-32S-2.54WB
		50	Socket-Straight-W/W	77.22	72.22	67.22	60.96	H4250-ND	13.15	113.03	822.00	2918.10	5425.20	PCN10-50S-2.54WB
		64	Socket-Straight-W/W	95.00	99.00	85.00	78.74	H4264-ND	15.78	135.58	986.00	3500.30	6507.60	PCN10-64S-2.54WB
		90	Socket-Straight-W/W	128.02	123.00	118.00	111.76	H4290-ND	21.95	188.65	1372.00	4870.60	9055.20	PCN10-90S-2.54WB
		20	Socket-Straight	39.12	34.12	29.12	22.86	H4020-ND	1.98	17.05	124.00	440.20	818.40	PCN13-20S-2.54DSA
		32	Socket-Straight	54.36	49.36	44.36	38.10	H4032-ND	2.37	20.35	148.00	525.40	976.80	PCN13-32S-2.54DSA
		44	Socket-Straight	69.60	64.60	59.60	53.34	H4044-ND	2.75	23.65	172.00	610.60	1135.20	PCN13-44S-2.54DSA
		50	Socket-Straight	77.22	72.22	67.22	60.96	H4050-ND	3.04	26.13	190.00	674.50	1254.00	PCN13-50S-2,54DSA
		64	Socket-Straight	95.00	90.00	85.00	78.74	H4064-ND	3.46	29.70	216.00	766.80	1425.60	PCN13-64S-2.54DSA
		90	Socket-Straight	128.02	123.02	118.02	111.76	H4090-ND	4.42	37.95	276.00	979.80	1821.60	PCN13-90S-2.54DSA
		100	Socket-Straight	140.72	135.72	130.72	124.46	H4100-ND	4.80	41.25	300.00	1065.00	1980.00	PCN13-100S-2.54DSA
4	2	64	Socket-Straight	95.00	90.00	85.00	78.74	H8164-ND	6.98	59.95	436.00	1547.80	2877.60	PCN10MC-64S-2.54DSA
		100	Socket-Straight	140.72	135.72	130.72	124.46	H8200-ND	13.38	114.95	836.00	2967.80	5517.60	PCN10MC-100S-2.54DSA
1	2	64	Plug-Right Angle	94.00	85.35	78.74	88.90	H5164-ND	7.46	64.08	466.00	1654.30	3075.60	PCN10MC-64P-2.54DS
		100	Plug-Right Angle	139.72	131.07	124.46	134.62	H5200-ND	8.32	71.50	520.00	1846.00	3432.00	PCN10MC-100P-2.54DS
5	3	64*	Plug-Right Angle	94.00	88.00	85.25	78.74	H5064-ND	5.63	48.40	352.00	1249.60	2323.20	PCN10-64ACP-2.54DS
		96	Plug-Right Angle	94.00	88.00	85.25	78.74	H5096-ND	6.85	58.85	428.00	1519.40	2824.80	PCN10-96P-2.54DS
5	3	96	Plug-Right Angle	94.00	88.00	85.25	78.74	H5196-ND	10.91	93.78	682.00	2421.10	4501.20	PCN10MC-96P-2.54DS
6	3	64*	Plug-Straight	95.00	90.00	88.00	85.25	H6064-ND	5.31	45.65	332.00	1178.60	2191.20	PCN10-64ACP-2.54DSA
		96	Plug-Straight	95.00	90.00	88.00	85.25	H6096-ND	8.22	70.68	514.00	1824.70	3392.40	PCN10-96P-2.54DSA
7	3	64*	Socket-Right Angle	94.00	85.00	78.74	88.90	H7064-ND	5.76	49.50	360.00	1278.00	2376.00	PCN13-64ACS-2.54DS
		96	Socket-Right Angle	94.00	85.00	78.74	88.90	H7096-ND	7.07	60.78	442.00	1569.10	2917.20	PCN13-96S-2.54DS
8	3	96	Socket-Straight	95.00	90.00	85.00	78.74	H8196-ND	11.94	102.58	746.00	2648.30	4923.60	PCN10MC-96S-2.54DSA
8	3	64*	Socket-Straight	95.00	90.00	85.00	78.74	H8064-ND	7.78	66.83	486.00	1725.30	3207.60	PCN10-64ACS-2.54DSA
		96	Socket-Straight	95.00	90.00	85.00	78.74	H8096-ND	4.96	42.63	310.00	1100.50	2046.00	PCN13-96S-2.54DSA
		96	Socket-Straight-W/W	95.00	90.00	85.00	78.74	H8296-ND	22.69	194.98	1418.00	5033.90	9358.80	PCN10-96S-2.54WB

* 64 pins; in 3-row format with pins on outside rows and middle row open.

AMP DIN Connectors

Fig. 1

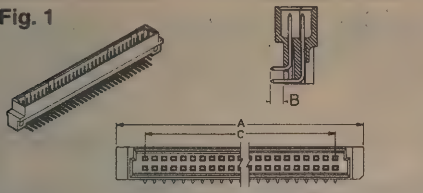


Fig. 2

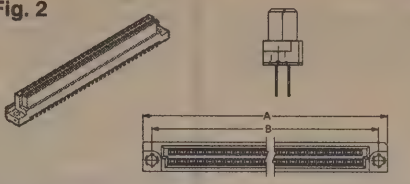


Fig. 3

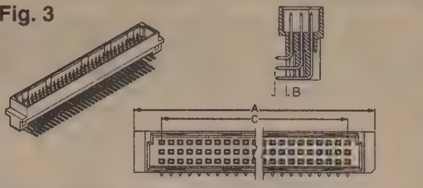


Fig. 4

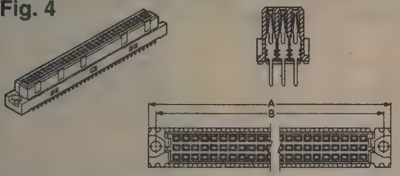


Fig. 5

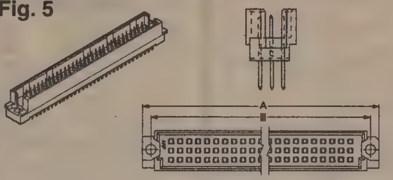


Fig. 6

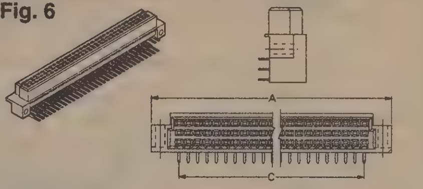


Fig. 7

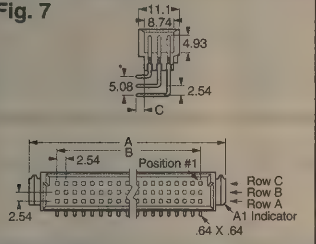


Fig. 8

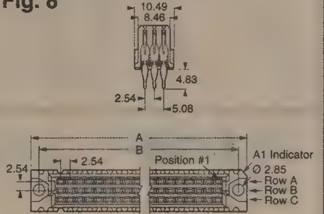


Fig. 9

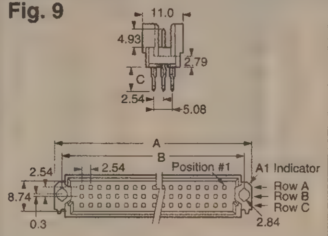


Fig.10

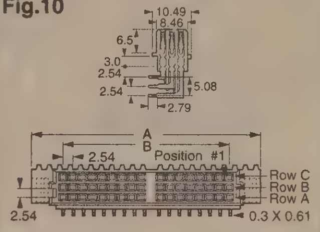


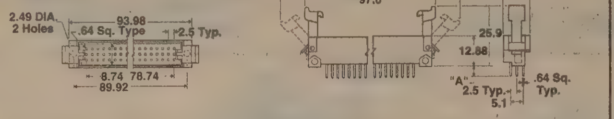
Fig.	No. of Rows	No. of Pins	Type	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
1	2	64	Plug, Right Angle	3.700	0.104	3.100	A1250-ND	3.44	79.95	129.15	533248-1
2	2	64	Socket, Straight	3.735	3.543	—	A1252-ND	5.91	137.15	221.55	650861-4
2	2	32	Socket, Straight	2.160	1.969	—	A1253-ND	4.03	93.60	151.20	650858-4
3	3	96	Plug, Right Angle	3.700	0.104	3.100	A1254-ND	3.08	71.50	115.50	650473-5
3	3	64*	Plug, Right Angle	3.700	0.104	3.100	A1255-ND	2.88	66.95	108.15	650945-5
4	3	96	Socket, Straight	3.700	3.543	—	A1258-ND	4.26	98.80	159.60	535043-4
4	3	64*	Socket, Straight	3.700	3.543	—	A1259-ND	4.03	93.60	151.20	650408-4
5	3	96	Plug, Straight	3.740	3.543	—	A1260-ND	3.02	70.20	113.40	650470-5
5	3	64*	Plug, Straight	3.740	3.543	—	A1261-ND	2.83	65.65	106.05	650934-5
6	3	64*	Socket, Right Angle	3.692	0.110	3.100	A1263-ND	4.26	98.80	159.60	650870-4
6	3	96	Socket, Right Angle	3.692	0.167	3.100	A1264-ND	4.84	112.45	181.65	650462-4
7	3	48	Pin, Right Angle	2.100	1.500	2.640	A1275-ND	2.21	51.35	82.95	650478-5
7	2	32	Pin, Right Angle	2.100	1.500	2.640	A1276-ND	1.93	44.85	72.45	650946-5
7	3	120	Pin, Right Angle	4.500	3.900	2.640	A1277-ND	4.54	105.30	170.10	650906-5
7	3	150	Pin, Right Angle	5.500	4.900	2.640	A1278-ND	5.43	126.10	203.70	650907-5
7	3	96	Pin, Right Angle	3.700	3.100	—	A1279-ND	3.08	71.50	115.50	650947-5
7	2	64	Pin, Right Angle	3.700	3.100	—	A1280-ND	2.88	66.95	108.15	650951-5
7	3	48	Pin, Right Angle	2.100	1.500	3.300	A1281-ND	2.21	51.35	82.95	650948-5
7	3	120	Pin, Right Angle	4.500	3.900	3.300	A1283-ND	4.54	105.30	170.10	650949-5
8	3	96	Vertical Receptacle	3.700	3.543	—	A1285-ND	4.17	96.85	156.45	535090-4
8	2	64	Vertical Receptacle	3.700	3.543	—	A1286-ND	4.40	102.05	164.85	650956-4
8	3	48	Vertical Receptacle	2.100	1.500	—	A1287-ND	3.16	73.45	118.65	535070-4
8	3	120	Vertical Receptacle	4.500	4.343	—	A1289-ND	5.57	129.35	208.95	535098-4
8	3	150	Vertical Receptacle	5.500	5.343	—	A1290-ND	9.69	224.90	363.30	650405-4
8	3	96	Vertical Receptacle w/Action Pin	3.700	3.543	—	A1291-ND	4.26	98.80	159.60	535032-4
8	2	64	Vertical Receptacle w/Action Pin	3.700	3.543	—	A1292-ND	4.03	93.60	151.20	535059-4
8	3	48	Vertical Receptacle w/Action Pin	2.100	1.944	—	A1293-ND	3.44	79.95	129.15	535034-4
8	3	120	Vertical Receptacle w/Action Pin	4.500	4.343	—	A1295-ND	8.62	200.20	323.40	535079-4
8	3	150	Vertical Receptacle w/Action Pin	5.500	5.343	—	A1296-ND	10.78	250.25	404.25	535080-4
9	3	48	Vertical Pin w/Solder Posts	2.140	1.943	—	A1237-ND	2.04	47.45	76.65	650477-5
9	2	32	Vertical Pin w/Solder Posts	2.140	1.943	—	A1238-ND	1.79	41.60	67.20	650936-5
9	3	120	Vertical Pin w/Solder Posts	4.535	4.343	—	A1239-ND	3.64	84.50	136.50	650910-5
9	3	150	Vertical Pin w/Solder Posts	5.535	5.343	—	A1297-ND	4.34	100.75	162.75	650911-5
9	3	96	Vertical Pin w/Action Pin Posts	3.740	3.543	—	A1241-ND	3.22	74.75	120.75	650889-5
9	2	64	Vertical Pin w/Action Pin Posts	3.740	3.543	0.250	A1242-ND	3.02	70.20	113.40	650912-5
9	3	48	Vertical Pin w/Action Pin Posts	2.140	1.943	0.250	A1243-ND	2.24	52.00	84.00	650918-5
9	2	32	Vertical Pin w/Action Pin Posts	2.140	1.943	0.250	A1244-ND	1.99	46.15	74.55	650931-5
9	3	120	Vertical Pin w/Action Pin Posts	4.535	4.343	0.250	A1245-ND	3.84	89.05	143.85	650921-5
9	3	150	Vertical Pin w/Action Pin Posts	5.535	5.343	0.250	A1246-ND	4.54	105.30	170.10	650924-5
9	3	96	Vertical Pin w/Action Pin Posts	3.740	3.543	0.521	A1265-ND	3.39	78.65	127.05	650909-5
9	2	64	Vertical Pin w/Action Pin Posts	3.740	3.543	0.521	A1266-ND	3.16	73.45	118.65	650930-5
9	3	48	Vertical Pin w/Action Pin Posts	2.140	1.943	0.521	A1267-ND	2.35	54.60	88.20	650917-5
9	2	32	Vertical Pin w/Action Pin Posts	2.140	1.943	0.521	A1268-ND	2.10	48.75	78.75	650932-5
9	3	150	Vertical Pin w/Action Pin Posts	5.535	5.343	0.521	A1270-ND	4.76	110.50	178.50	650923-5
10	3	48	Right Angle Receptacle	2.096	1.900	—	A1271-ND	3.39	78.65	127.05	650868-4
10	3	120	Right Angle Receptacle	4.496	4.300	—	A1273-ND	5.80	134.55	217.35	650874-4
10	3	150	Right Angle Receptacle	5.496	5.300	—	A1274-ND	10.02	232.70	375.90	650875-4

* 64 pins; in 3-row format with pins on outside rows and middle row open.

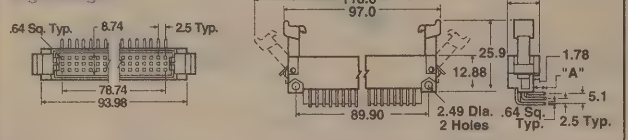
CW INDUSTRIES DIN Connectors

• Compatible to DIN specifications 41612. • Drop-in replacement for standard DIN connectors. • Ejector latch system. **Contacts:** Phosphor bronze, .025≤ diameter. **Contact Plating:** 30m≤ gold over 50m≤ nickel in mating area; 100m≤ tin lead for solder applications, gold flash for wire wrap applications. **Insulator Material:** UL 94V-0 flame-retardant thermoplastic. **Color:** Blue. **Operating Temperature:** 2558C to 11258C. **Current Rating:** 1A (maximum) per contact.

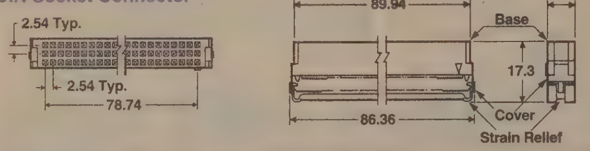
Straight



Right Angle

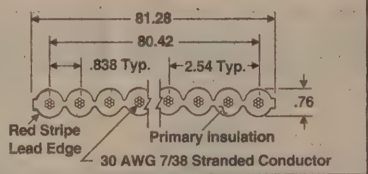


DIN Socket Connector



DIN Flat Cable

Characteristic: PVC (Gray). **Style:** UL 2768. **Temperature Rating:** 1058C. **Conductor Type:** 32 AWG. 7/40 or 30 AWG. **Conductor Resistance:** 158 Ohms/ft. **Voltage Rating:** 150 Vrms. **Capacitance** (ground /signal/ ground): 23.0 pf/ft. **Impedance** (ground/signal/ground): 105 Ohms. **Propogational Delay:** 1.40 ns/ft.

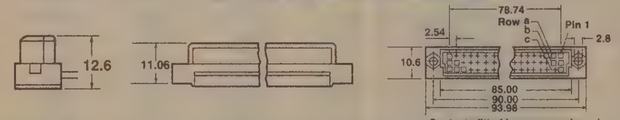


Con-tacts	Type	"A" Dim.	Digi-Key Part No.	Pricing			Mfg. Part No.
				1	10	100	
96	Straight-Solder Pin	4.06	R7020-ND	15.93	127.40	910.00	CWN-720-096-0077
96	Straight-Wire Wrap	17.12	R7022-ND	18.76	150.08	1072.00	CWN-722-096-0021
96	Right Angle-Solder Pin	4.06	R7021-ND	15.93	127.40	910.00	CWN-721-096-0077
96	Right Angle-Wire Wrap	17.12	R7023-ND	18.76	150.08	1072.00	CWN-723-096-0021
96	IDC DIN Socket	—	R7040-ND	22.51	180.04	1286.00	CWR-740-096-0054

(Note: "X" in Digi-Key Part No. Represents Number of Feet)

Con-tacts	Type	Digi-Key Part No.	Pricing Per Foot					Mfg. Part No.
			5'	10'	25'	50'	100'	
96	IDC DIN Cable	R096-X-ND	21.42	35.96	82.24	153.00	275.40	C-03-043-096

NorComp DIN Connectors

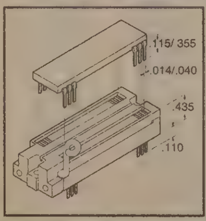


Contacts fitted in rows a and c only.

No. of Rows	No. of Pins	Type	Digi-Key Part No.	Pricing					Mfg. Part No.
				1	10	100	500	1,000	
3	64	Socket-IDC Type	T8064-ND	8.32	73.94	628.49	2680.33	4621.25	ID064F
—	64	Strain Relief	T0064-ND	.64	5.72	48.62	207.35	357.50	TD064-SR

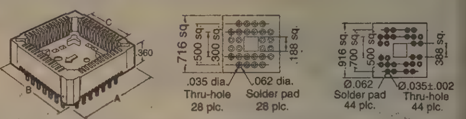
See **Hitachi Ribbon Cable** in Index for Ribbon Cable (HC64M-ND and HC64G-ND).

AMP ZIF Lock Sockets



No. of Pos.	Plating	Digi-Key Part No.	Pricing			AMP Part No.
			1	10	100	
14	Tin-Lead	A92143-ND	37.85	319.58	2792.12	55173-5
16	Tin-Lead	A92163-ND	25.25	213.18	1862.52	55174-5
18	Tin-Lead	A92183-ND	43.45	366.89	3205.46	55175-5
24	Tin-Lead	A92246-ND	34.31	289.75	2531.50	54993-5
28	Tin-Lead	A92286-ND	59.85	505.40	4415.60	54994-5
40	Tin-Lead	A92406-ND	71.82	606.48	5298.72	54995-5
14	Gold	A91143-ND	45.83	387.03	3381.42	55173-6
16	Gold	A91163-ND	49.39	417.05	3643.70	55174-6
18	Gold	A91183-ND	33.59	283.67	2478.38	55175-6
20	Gold	A91203-ND	36.20	305.71	2670.94	55176-6
24	Gold	A91246-ND	42.19	356.25	3112.50	54993-6
28	Gold	A91286-ND	46.55	393.11	3434.54	54994-6
40	Gold	A91406-ND	78.10	659.49	5761.86	54995-6

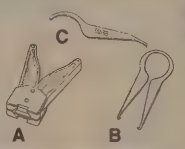
AMP PLCC Sockets



• High normal force contacts – above 200 grams to provide optimum mating and retention of PLCC's and maintain reliable interconnection. • Accepts JEDEC PLCC'S. • Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476. • Certified by Canadian Standards Association, File No. LR16455. **Performance Characteristics – Capacitance:** 1.0 picofarad max. **Inductance (Self):** 10 nh max. at 500 KHz. **Dielectric Withstanding Voltage:** 600 VAC for 1.0 minute.

No. of Pins	Package Configuration	Dimensions			Digi-Key Part No.	Pricing			AMP Part No.
		A	B	C		1	25	50	
High Pressure Tin with Solder Tails									
28	Square	.685	.685	.454	A2120-ND	1.64	36.50	62.05	821581-1
32	Rectangle	.785	.685	.454	A2121-ND	1.80	40.00	68.00	821665-1
44	Square	.885	.885	.654	A2122-ND	1.98	44.00	74.80	821575-1
52	Square	.985	.985	.754	A2123-ND	2.03	45.00	76.50	821551-1
68	Square	1.185	1.185	.954	A2124-ND	2.25	50.00	85.00	821574-1
84	Square	1.385	1.385	1.154	A2125-ND	2.66	59.00	100.30	821573-1

PLCC Extraction Tools



No. of Pos.	Socket Type	Tool Style	Digi-Key Part No.	Pricing			AMP Part No.
				1	25	50	
28	Square	B	A2126-ND	19.64	462.00	866.25	821903-5
32	Rectangle	B	A2127-ND	19.64	462.00	866.25	821903-1
44	Square	A	A2128-ND	44.63	1050.00	1968.75	821591-1
52	Square	A	A2129-ND	44.63	1050.00	1968.75	821648-1
68	Square	A	A2130-ND	44.63	1050.00	1968.75	821566-1
—	General	C	A2139-ND	5.76	128.00	217.60	822154-1

AMP Surface Mount PLCC Sockets

Low Insertion Force, Low Profile Surface Mount PLCC Sockets

Fig. A

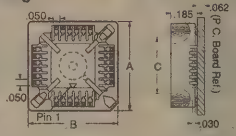
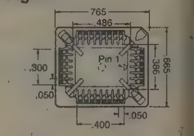


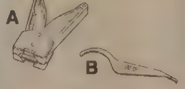
Fig.B



• Low insertion force is provided by unique new contact design. • Low profile—only .185(4.7) max. for high density pc board stacking. • Compatible footprint allows for socket or direct mounting. • Housing slots accept extraction tool for easy PLCC removal. • Pin 1 indicator and corner chamfer for PLCC orientation. • Polyphenylene sulfidehousings will withstand high temperature soldering up to 220°. Recognition under the Component Program of Underwriters Laboratories, Inc. pending. • Certification by Canadian Standards Association pending.

Fig. No.	No. of Pins	Package Configuration	Dimensions			Digi-Key Part No.	Pricing			AMP Part No.
			A	B	C		1	25	50	
Low Insertion Force, Low Profile Surface Mount PLCC Sockets										
A	20	Square	.565	.565	.364	A2140-ND	1.33	29.50	50.15	822269-1
A	28	Square	.665	.665	.464	A2141-ND	1.60	35.50	60.35	822271-1
A	44	Square	.865	.865	.664	A2142-ND	2.14	47.50	80.75	822275-1
A	52	Square	1.000	1.000	.764	A2143-ND	2.48	55.00	93.50	822277-1
A	68	Square	1.200	1.200	.964	A2144-ND	2.72	60.50	102.85	822279-1
A	84	Square	1.400	1.400	1.164	A2145-ND	3.13	69.50	118.15	822281-1
B	32	Rectangle	—	—	—	A2146-ND	1.71	38.00	64.60	822273-1

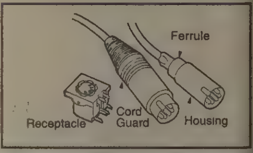
PLCC Extraction Tools



No. of Pos.	Socket Type	Tool Style	Digi-Key Part No.	Pricing			AMP Part No.
				1	25	50	
20	Square	A	A2132-ND	44.63	1050.00	1968.75	822011-1
28	Square	A	A2133-ND	44.63	1050.00	1968.75	822045-1
44	Square	A	A2134-ND	44.63	1050.00	1968.75	821981-1
52	Square	A	A2135-ND	44.63	1050.00	1968.75	822049-1
68	Square	A	A2136-ND	44.63	1050.00	1968.75	822026-1
84	Square	A	A2137-ND	44.63	1050.00	1968.75	822268-1
32	Rectangle	A	A2138-ND	44.63	1050.00	1968.75	821980-1
—	General	B	A2139-ND	5.76	128.00	217.60	822154-1

AMP Shielded DIN Connectors

Features: Crimp, snap-in contacts; Designed for ease of post molding; Pre-molded cord guard; Tin plated brass contacts; Ferrule crimps onto shield for reliable termination; Meets or exceeds DIN specification 41524 for 4-and-8-position plugs: 45322; UL recognized under the Component Program. File No E28476; CSA certified, File No. LR-35510. **Housings:** Black nylon 94V-O. **Ferrule and Shield:** Brass, tin plated. **Cord Guard:** Thermoplastic polymer, black. **Contacts:** Brass, tin plated. **Pin Contacts:** Copper alloy; .00050" tin over .000100" nickel plating.



Description	Digi-Key Part No.	Pricing				AMP Part No.
		1	25	100	500	
4-Pos. Housing	A1651-ND	1.52	35.88	131.20	545.30	212437-2
5-Pos. Housing	A1652-ND	1.52	35.88	131.20	545.30	212437-3
6-Pos. Housing	A1653-ND	1.52	35.88	131.20	545.30	212437-4
8-Pos. Housing	A1655-ND	1.67	39.38	144.00	598.50	212437-6
Ferrule, .200-.250 Cable Dia.	A1657-ND	.50	—	31.60	135.00	212435-8
Ferrule, .250-.300 Cable Dia.	A1658-ND	.50	—	31.60	135.00	212435-9
Cord Guard, .165-.250 Cable Dia.	A1659-ND	1.70	—	107.44	459.00	212800-1
5-Pos. Receptacle	A1663-ND	2.29	54.25	198.40	824.60	212044-1
6-Pos. Receptacle	A1664-ND	2.83	66.94	244.80	1017.45	212045-1
8-Pos. Receptacle	A1666-ND	3.05	72.19	264.00	1097.25	212047-1
Pin Contact, 28-22 AWG	A1667-ND	4.62/10	32.25/100		142.08/500	66728-5
Contact Insertion Tool	A9998-ND	11.95 each				91002-1
Contact Extraction Tool	A9997-ND	165.25 each				91144-1
Universal Crimp Tool	A9999-ND	39.15 each				601884-1

NEW! SIMM Sockets

Features and Benefits: • Zero insertion force contacts improve socket and module contact life and provide for fast on-line assembly • Guaranteed 2 points of contact per readout with standard JEDEC module • Anti-overstress latch feature provides extra protection during module removal • Polarization posts provide orientation for proper loading of socket into printed circuit board • Polarization rib properly orients module to socket • EIA standard dimensions

Electrical Specifications: • Voltage: 250V • Current: 1.0A • Contact Resistance: 30mΩ max. • Dielectric Withstanding Voltage: 1000V AC • Insulation Resistance: 5000MΩ min. • Capacitance: 2.5 picofards max. **Mechanical Specifications:** • Normal Force: 150g • Durability: 25 cycles **Physical Specifications:** • Housing: Black LCP, UL 94V-0 • Latch: Stainless Steel • Contact: Phosphor Bronze Alloy • Temperature: -40° to +85°C

Fig. 1

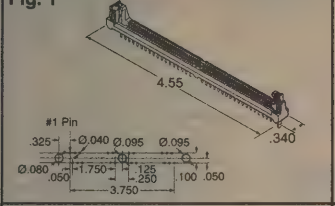


Fig. 2

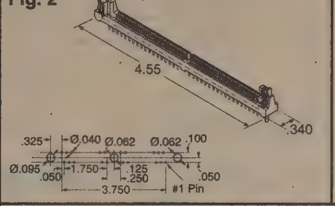


Fig. 3

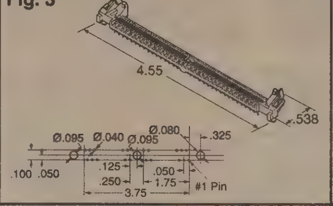


Fig. 4

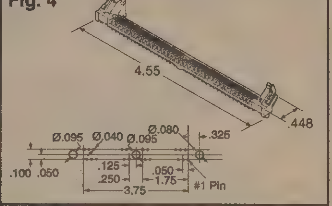


Fig. 5

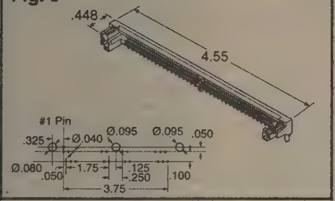


Fig. No.	Description	Plate	Digi-Key Part No.	Pricing 1	25	50	100	Molex Part No.
1	Left Polarization, Vertical Single Row, Metal Latch	Tin	WM1700-ND	2.32	54.08	97.85	175.10	15-82-0775
1	Left Polarization, Vertical Single Row, Metal Latch	Gold	WM1702-ND	2.43	56.70	102.60	183.60	15-82-0762
2	Right Polarization, Vertical Single row, Metal Latch	Tin	WM1701-ND	2.32	54.08	97.85	175.10	15-82-0777
2	Right Polarization, Vertical Single row, Metal Latch	Gold	WM1703-ND	2.43	56.70	105.30	183.60	15-82-0788
3	Left Polarization Low Profile (22.5°) Single Row, Metal Latch	Tin	WM1704-ND	2.32	54.08	97.85	175.10	15-82-0678
3	Left Polarization Low Profile (22.5°) Single Row, Metal Latch	Gold	WM1705-ND	2.43	56.70	102.60	183.60	15-82-0675
4	Left Polarization Low Profile (40°) Single Row, Metal Latch	Tin	WM1706-ND	2.32	54.08	97.85	175.10	15-82-0649
4	Left Polarization Low Profile (40°) Single Row, Metal Latch	Gold	WM1707-ND	2.43	56.70	102.60	183.60	15-82-0627
5	Left Polarization, Right Angle Single Row, Metal Latch	Tin	WM1709-ND	3.80	88.73	160.55	287.30	15-82-1538
5	Left Polarization, Right Angle Single Row, Metal Latch	Gold	WM1708-ND	4.50	105.00	190.00	340.00	15-82-0312

NEW! DIMM Sockets

Features and Benefits: • Accepts JEDEC M0-161 modules for 100% industry compatibility • Dual ejector latches for easy module removal • Palladium Nickel with Gold flash plating for improved reliability • Added contact wipe for improved reliability

Electrical Specifications: • Voltage: 100V • Current: 1.0A • Contact Resistance: 20mΩ max. • Dielectric Withstanding Voltage: 750V AC • Insulation Resistance: 100MΩ min.

Mechanical Specifications: • Mating Force: 5 oz. per pair • Durability: 25 cycles min.

Physical Specifications: • Housing and Latch: High temperature resistant thermoplastic, UL 94V-0 • Contact: Phosphor Bronze • Plating Selective Palladium Nickel with Gold flash with Tin/Lead on solder tails • Temperature: -40° to +85°C

Fig. 1

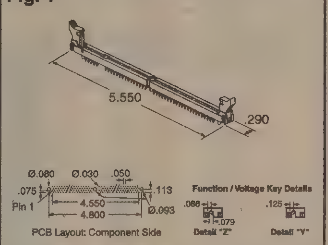


Fig. 2

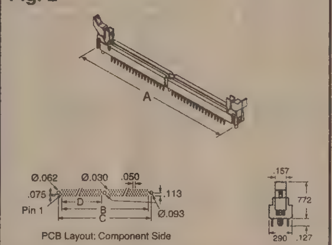


Fig. 3

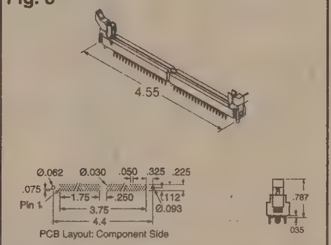


Fig. No.	Description	Circuits	Function Key	Voltage Key	Digi-Key Part No.	Pricing 1	25	50	Molex Part No.
1	DRAM 3.3V	168	Detail Y	Detail Y	WM1710-ND	11.63	271.43	491.15	71251-0001
1	DRAM 5.0V	168	Detail Y	Detail Z	WM1711-ND	11.63	271.43	491.15	71251-0004
1	SDRAM 3.3V	168	Detail Z	Detail Y	WM1714-ND	11.63	271.43	491.15	71251-0016
1	SDRAM 5.0V	168	Detail Z	Detail Z	WM1715-ND	11.63	271.43	491.15	71251-0017
1	Unbuffered 3.3V	168	Detail X	Detail Y	WM1712-ND	11.63	271.43	491.15	71251-0012
1	Unbuffered 5.0V	168	Detail X	Detail Z	WM1713-ND	11.63	271.43	491.15	71251-0013

Fig. No.	Circuits	Dimensions A	B	C	D	Digi-Key Part No.	Pricing 1	25	50	Molex Part No.
Vertical with Dual Ejecting Latches										
2	128	4.15	3.35	4.00	1.55	WM1716-ND	10.22	238.35	431.30	71243-0001
2	144	4.55	3.75	4.40	1.75	WM1717-ND	10.98	256.20	463.60	71243-0002
2	200	5.95	5.15	5.80	2.45	WM1718-ND	13.84	322.88	584.25	71243-0003
Single Low Key DIMM										
3	144	—	—	—	—	WM1719-ND	10.98	256.20	463.60	71243-0009

ON-SHORE TECHNOLOGY, INC.

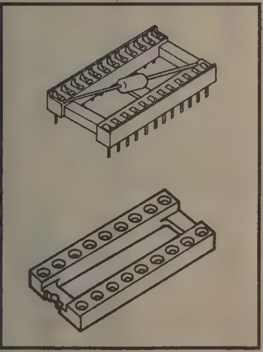
I.C. SOCKETS

Low Cost Version

Special Features/Application: • Dual wipe contacts to maximize contact area and minimize resistance • Closed bottom design to help prevent wicking and flux contamination • Auto insertability • Low profile design • Wide entry area for easy IC insertion • Board stand-offs for easy clean ups • Side and end stackable • Pin 1 is polarized • Stamped pin • **Plating:** Pin tin plated, 80-120 µ" tin-lead. Includes internal glass encapsulated ceramic capacitor 0.1µF, 50Vdc

Surface Mount IC Sockets

Special Features/Applications: • For surface mounted technology • Tin for solder must be in the pc board **Technical Data:** • Insulator body material: glass-filled polyethersulphone • Temperature range: 55°C to +200°C continuous • Solder temperature: 280°C, intermittent • **Plating:** Pin tin plated min. 80µ" nickel + min. 150µ" tin-lead • High temperature insulator

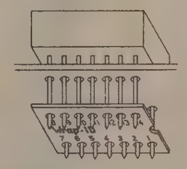


Type of Pins	No. of Pins	Contact Spacing	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000
IC Sockets — with Cap — Low Cost Version								
Tin Plated Solder Tab	14	.300	ED2124-ND	.81	6.72	56.00	464.80	420.00/M
	16	.300	ED2125-ND	.87	7.20	60.00	498.00	450.00/M
	18	.300	ED2126-ND	.93	7.68	64.00	531.20	480.00/M
	20	.300	ED2127-ND	.99	8.16	68.00	564.40	510.00/M
IC Sockets — Surface Mount (SMD)								
Screw Machined, Pins Without Solder Tail	6	.300	ED2201-ND	.72	5.93	49.40	410.02	370.50/M
	8	.300	ED2202-ND	.95	7.90	65.80	546.14	493.50/M
	14	.300	ED2203-ND	1.67	13.82	115.20	956.16	864.00/M
	16	.300	ED2204-ND	1.72	14.21	118.40	982.72	888.00/M
	18	.300	ED2205-ND	1.93	15.98	133.20	1105.56	999.00/M
	20	.300	ED2206-ND	2.15	17.76	148.00	1228.40	1110.00/M
	22	.400	ED2207-ND	2.36	19.54	162.80	1351.24	1221.00/M
	24	.600	ED2208-ND	2.87	23.71	197.60	1640.08	1482.00/M
	28	.600	ED2209-ND	3.34	27.60	230.00	1909.00	1725.00/M
	36	.600	ED2210-ND	3.86	31.97	266.40	2211.12	1998.00/M
	40	.600	ED2211-ND	4.29	35.52	296.00	2456.80	2220.00/M
	48	.600	ED2212-ND	5.15	42.62	355.20	2948.16	2664.00/M
	64	.600	ED2213-ND	6.87	56.83	473.60	3930.88	3552.00/M

OK Industries Inc.

Socket — Wrap I.D.

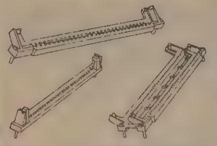
Now offering an exciting, low cost item used to identify pin numbers on wire-wrapping sockets. Consisting of a socket-sized plastic panel with numbered holes in the pin location, the Socket Wrap-ID is simply slipped onto the socket before wrapping. You can also write on them for easy identification of location, IC part number, function, etc. These unique items greatly simplify both initial wire-wrapping and subsequent troubleshooting or repair. A great help to hobbyists, technicians, and production facilities alike.



- Press fit to socket pins
- Improves wiring speed
- Instant pin numbering
- Reduces wiring errors
- Large space for user info.
- Simplifies troubleshooting

Spacing	Description	Digi-Key Part No.	Price
.3	14 Pin I.D. (10 per package)	K266-ND	4.14
.3	16 Pin I.D. (10 per package)	K267-ND	4.14
.3	18 Pin I.D. (5 per package)	K268-ND	4.14
.3	20 Pin I.D. (5 per package)	K269-ND	4.14
.4	22 Pin I.D. (5 per package)	K270-ND	4.14
.3	24 Pin I.D. (25 per package)	K315-ND	11.00
.6	24 Pin I.D. (5 per package)	K271-ND	4.14
.6	28 Pin I.D. (5 per package)	K272-ND	4.14
.6	40 Pin I.D. (5 per package)	K273-ND	4.14
—	96 Pin I.D. (5 per package)	K274-ND	4.14

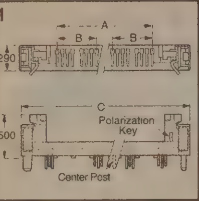
AMP (SIMM) Sockets



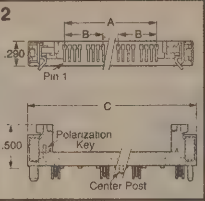
DIPLOMATE SIMM: • Accepts .050±.003 module thicknesses. • Recognized under the component program of Underwriters Laboratories Inc., File No. E28476. • Certified by Canadian Standards Association File No. LR16455. **Performance Characteristics – Voltage/Current:** 250 VAC at 1 Ampere max. **Operating Temp.:** -55° to 105°C (85° continuous). **Dialectic Withstanding Voltage:** 1.0 K. **Capacitance:** 1.0 picofarads max. **Materials and Finish – Housing:** Liquid Crystal Polymer (LCP, glass filled, UL 94V-0. **Contact:** Beryllium copper, bright tin, lead or gold plating. **Product Facts:** • Accepts standard JEDEC modules. • Standard vert. sockets mount on .300 or .400 row-to-row centers. • Low profile sockets mount on .400 (single row) or .500 (double row) row-to-row centers.

MICRO-EDGE SIMM: Connectors with Metal Latches. **Materials:** • Housing - Liquid Crystal Polymer, UL 94V-0. • Contact - Phosphor Bronze. • Latch - Brass. **Finishes:** • Contact - .000200 min. thick tin/lead over .000050 min. thick nickel or .000030 min. thick gold on contact area and .000150 min. thick tin/lead on solder tails, all over .000050 thick nickel. • Latch - Nickel plated.

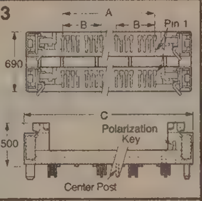
1



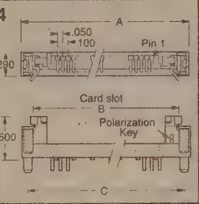
2



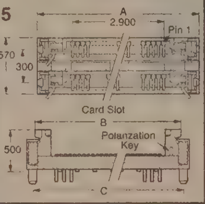
3



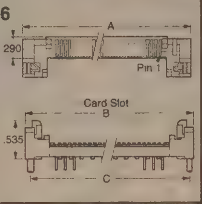
4



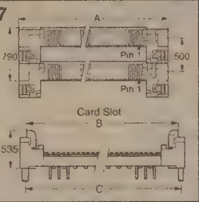
5



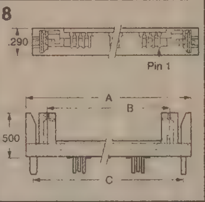
6



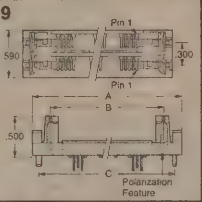
7



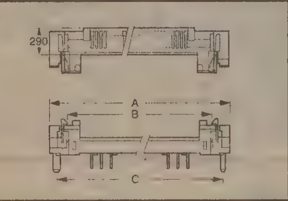
8



9



10



11

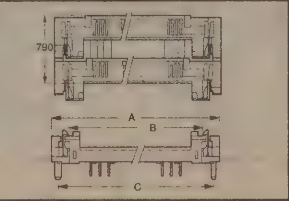
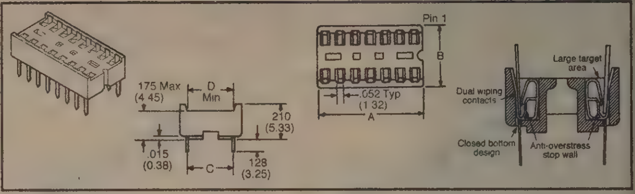


Fig. No.	No. of Pos.	Contact	Description	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	25	50	AMP Part No.
Micro-Edge W/ Metal Latches, Centerline Dimension .050											
1	68	Tin	Vertical Single Row	3.550	1.650	4.340	A2162-ND	2.07	48.30	87.40	822019-3
1	72	Tin	Vertical Single Row	3.750	1.750	4.540	A2163-ND	2.18	50.93	92.15	822019-4
1	80	Tin	Vertical Single Row	4.150	1.950	4.940	A2164-ND	2.43	56.70	102.60	822019-5
1	68	Gold	Vertical Single Row	3.550	1.650	4.340	A2165-ND	2.32	54.08	97.85	822031-3
1	72	Gold	Vertical Single Row	3.750	1.750	4.540	A2166-ND	2.45	57.23	103.55	822031-4
1	80	Gold	Vertical Single Row	4.150	1.950	4.940	A2167-ND	2.75	64.05	115.90	822031-5
2	72	Tin	Vertical Single Row	3.750	1.750	4.540	A2168-ND	2.18	50.93	92.15	822030-3
2	72	Gold	Vertical Single Row	3.750	1.750	4.540	A2169-ND	2.45	57.23	103.55	821997-3
3	64	Tin	Vertical Dual Row	3.350	1.550	4.140	A2170-ND	3.51	81.90	148.20	822023-2
3	68	Tin	Vertical Dual Row	3.550	1.650	4.340	A2171-ND	3.71	86.63	156.75	822023-3
3	72	Tin	Vertical Dual Row	3.750	1.750	4.540	A2172-ND	3.94	91.88	166.25	822023-4
3	64	Gold	Vertical Dual Row	3.350	1.550	4.140	A2173-ND	3.94	91.88	166.25	822033-2
3	72	Gold	Vertical Dual Row	3.750	1.750	4.540	A2174-ND	4.43	103.43	187.15	822033-4
Diplomate Simm, Centerline Dimension .100											
4	30	Tin	Vertical, Single Row	3.800	3.514	3.650	A2113-ND	1.94	45.15	81.70	643930-1
4	30	Gold*	Vertical, Single Row	3.800	3.514	3.650	A2114-ND	3.92	91.35	165.30	643930-2
5	30	Tin	Vertical, Double Row	3.800	3.514	3.650	A2115-ND	2.23	51.98	94.05	2-382230-1
7	30	Tin	Vertical, Double Row†	3.800	3.514	3.650	A2118-ND	3.67	85.58	154.85	2-382130-1
Micro-Edge Simm W/ Metal Latches, Centerline Dimension .100											
4	30	Tin	Vertical Single Row	3 790	3.514	3.650	A2175-ND	1.24	28.88	52.25	822056-2
6	30	Tin	Low Profile Single Row	3.790	3.514	3.650	A2177-ND	1.42	33.08	59.85	822129-2
7	30	Tin	Low Profile Dual Row	3.790	3.514	3.650	A2178-ND	1.82	42.53	76.95	822113-2
7	30	Gold	Low Profile Dual Row	3.790	3.514	3.650	A2179-ND	2.03	47.25	85.50	822132-2
Micro-Edge Simm W/O Metal Latches, Centerline Dimension .100											
8	30	Tin	Vertical Single Row	3.800	3.514	3.650	A2181-ND	1.17	27.30	49.40	821828-2
9	30	Tin	Vertical Dual Row	3.800	3.514	3.650	A2180-ND	1.69	39.38	71.25	821885-2
10	30	Tin	Low Profile Single Row†	3.800	3.514	3.650	A2183-ND	1.17	27.30	49.40	821876-2
11	30	Tin	Low Profile Dual Row†	3.800	3.514	3.650	A2182-ND	1.69	39.38	71.25	821832-2
Extraction Tool for SIMM Sockets							A9925-ND	1.25	—	—	382264-1

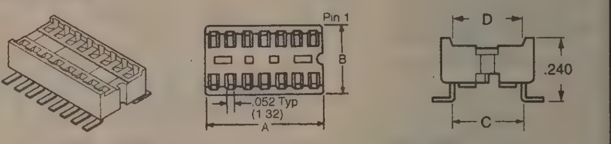
* Tin lead on solder tails † Low Profile 27°

AMP I.C. Sockets

Dual Leaf Low Profile Dip Sockets



SURFACE MOUNT



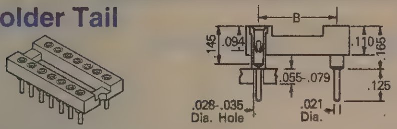
PERFORMANCE CHARACTERISTICS: Physical: Engaging force: 340 grams (3.33N) msx. (.013 [0.33] pin). Separating force: 25 grams (.24 N) min. (.008 [0.2] pin) **Electrical:** Rating: 250 VAC; Contact resistance: 20 milliohms max. initial, 30 milliohms max. after test. Dielectric withstanding voltage: 1000 VRMS min.; Insulation resistance: 5,000 megohms min.; Capacitance: 1.0 picofarad max. **Environmental:** Operating temperature: -55°C to + 105°C (tin); -55°C to + 125°C (gold); Vibration: 10-2000-10 Hz in 20 minutes at .06 [1.52] or 15G's for 3 sweeps in each of 3 axis. Shock: 100 G's sawtooth; 6 shocks. **Material and Finish:** Housing — Glass-filled thermoplastic. 94V-0 rated. (black) **Notes:** Closed bottom design: inhibits flux contamination and solder wicking; Overstress stop wall: prevents damage to socket contact from bent or twisted DIP leads and off-set insertion or extraction of DIP packages; Large target area: makes it easy to insert DIP packages; Dual wiping contacts: make a gas-tight connection for high reliability.

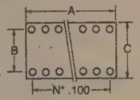
No. of Pins	Dimensions A	B	C	D	Digi-Key Part No.	Pricing 1	10	100	500	AMP Part No.
Phosphor Bronze with Tin-lead Plating										
6	.295	.394	.300	.320	A9306-ND	.07	.53	4.19	18.32	2-641296-3
8	.395	.394	.300	.320	A9308-ND	.07	.56	4.45	19.45	2-640463-3
14	.695	.394	.300	.320	A9314-ND	.08	.68	5.35	23.38	2-640357-3
16	.795	.394	.300	.320	A9316-ND	.09	.74	5.89	25.72	2-640358-3
18	.895	.394	.300	.320	A9318-ND	.12	.94	7.44	32.49	2-640359-3
20	.995	.394	.300	.320	A9320-ND	.14	1.09	8.65	37.77	2-640464-3
22	1.095	.494	.400	.420	A9322-ND	.21	1.64	13.01	56.83	2-640360-3
24	1.195	.694	.600	.620	A9324-ND	.18	1.48	11.70	51.12	2-640361-3
28	1.395	.694	.600	.620	A9328-ND	.20	1.63	12.91	56.39	2-640362-3
40	1.995	.694	.600	.620	A9340-ND	.29	2.33	18.41	80.41	2-640379-3
Phosphor Bronze with .000015" Gold Plating										
6	.295	.394	.300	.320	A9406-ND	.24	1.93	15.28	66.77	2-641296-4
8	.395	.394	.300	.320	A9408-ND	.24	1.93	15.28	66.77	2-640463-4
14	.695	.394	.300	.320	A9414-ND	.40	3.22	25.47	111.27	2-640357-4
16	.795	.394	.300	.320	A9416-ND	.46	3.68	29.11	127.17	2-640358-4
18	895	.394	.300	.320	A9418-ND	.52	4.14	32.75	143.07	2-640359-4
20	.995	.394	.300	.320	A9420-ND	.57	4.60	36.39	158.96	2-640464-4
22	1.095	.494	.400	.420	A9422-ND	.63	5.06	40.03	174.86	2-640360-4
24	1.195	.694	.600	.620	A9424-ND	.69	5.52	43.67	190.75	2-640361-4
28	1.395	.694	.600	.620	A9428-ND	.80	6.44	50.94	222.55	2-640362-4
40	1.995	.694	.600	.620	A9440-ND	1.15	9.19	72.78	317.92	2-640379-4
Phosphor Bronze with Tin Lead Plating - Economy Sockets										
8*	.395	.394	.300	.320	A95083-ND	.11	.68	5.35	19.46	2-640463-5
14	.695	.394	.300	.320	A95143-ND	.11	.82	6.47	28.26	2-641599-5
20	.995	.394	.300	.320	A95203-ND	.15	1.17	9.24	40.37	2-641602-5
22	1.095	.394	.300	.320	A95223-ND	.16	1.28	10.17	44.41	2-644105-5
22	1.095	.494	.400	.420	A95224-ND	.16	1.28	10.17	44.41	2-641603-5
24	1.195	.394	.300	.320	A95243-ND	.18	1.40	11.09	48.45	2-641932-5
24	1.195	.494	.400	.420	A95244-ND	.18	1.40	11.09	48.45	2-382471-5
24	1.195	.694	.600	.620	A95246-ND	.18	1.40	11.09	48.45	2-641604-5
28	1.395	.390	.300	.320	A95283-ND	.20	1.63	12.94	56.52	2-382571-5
28	1.395	.694	.600	.620	A95286-ND	.20	1.63	12.94	56.52	2-641605-5
40	1.995	.694	.600	.620	A95406-ND	.29	2.33	18.48	80.74	2-641606-5
48	2.395	.694	.600	.620	A95486-ND	.35	2.80	22.18	96.89	2-643574-5
64	3.215	1.024	.900	.920	A95649-ND	1.35	10.77	85.25	372.43	643575-5
Phosphor Bronze with Tin Plating Surface Mount										
8	.395	.394	.350	.321	A96083-ND	.13	1.02	8.09	35.32	2-382401-3
14	.695	.394	.350	.321	A96143-ND	.22	1.79	14.15	61.82	2-382402-3
16	.795	.394	.350	.321	A96163-ND	.26	2.04	16.17	70.65	2-382403-3
18	.895	.394	.350	.321	A96183-ND	.29	2.30	18.19	79.48	2-382404-3
20	.995	.394	.350	.321	A96203-ND	.32	2.55	20.22	88.31	2-382405-3
24	1.195	.694	.650	.621	A96246-ND	.38	3.06	24.26	105.97	2-382408-3
28	1.395	.394	.350	.321	A96283-ND	.64	5.11	40.43	176.62	2-382636-1
28	1.395	.694	.650	.621	A96286-ND	.45	3.58	28.30	123.64	2-382409-3
32	1.595	.694	.650	.621	A96326-ND	.51	4.09	32.35	141.30	2-382424-3
40	1.995	.694	.650	.621	A96406-ND	.64	5.11	40.43	176.62	2-382411-3
Phosphor Bronze with Gold Plating Surface Mount										
8	.395	.394	.350	.321	A97083-ND	.33	2.63	20.79	90.84	2-382401-4
14	.695	.394	.350	.321	A97143-ND	.57	4.60	36.39	158.96	2-382402-4
16	.795	.394	.350	.321	A97163-ND	.66	5.25	41.59	181.67	2-382403-4
20	.995	.394	.350	.321	A97203-ND	.82	6.57	51.98	227.09	2-382405-4
24	1.195	.694	.650	.621	A97246-ND	.98	7.88	62.38	272.51	2-382408-4
28	1.395	.694	.650	.621	A97286-ND	1.15	9.19	72.78	317.92	2-382409-4
32	1.595	.694	.650	.621	A97326-ND	1.31	10.51	83.17	363.34	2-382424-4
40	1.995	.694	.650	.621	A97406-ND	1.64	13.13	103.97	454.18	2-382411-4

* Solid Body (Closed Frame)

Dual-In-Line Sockets – Open Frame
(Machine Screw)

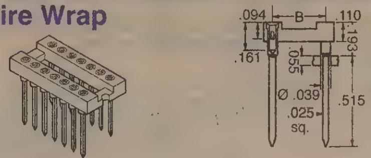
Solder Tail

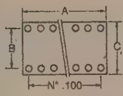




Most popular line of standard low profile IC-Sockets. Open frame design leaves space beneath IC for improved heat dissipation, easier PCB cleaning and inspection. **Insertion Characteristics:** 4-finger standard. **Plating: For ED3308-ED3964:** Sleeve (Pin) – 200µ" Sn. Contact (Clip) – 30µ" Au. **For ED3108-ED3764:** Sleeve (Pin) – 200µ" Sn. Contact (Clip) – 200µSn. **For ED56083-ED56646:** Sleeve (Pin) — 10µ" Au. Contact (Clip) — 30µ" Au.

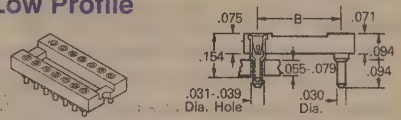
Wire Wrap

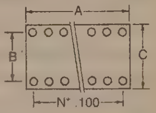




Solderless wire wrap terminals are firmly locked in the insulator body to withstand torque of wrapping tool. Length of terminal for three-level wrapping. **Insertion Characteristics:** 4-finger standard. **Plating: For ED4308-ED4964:** Sleeve (Pin) – 200µ" Sn. Contact (Clip) – 30µ" Au. **For ED57083-ED57406:** Sleeve (Pin) — 10µ" Au. Contact (Clip) — 30µ" Au

Low Profile





"Ultra low profile" Dual-in-line sockets are equipped with specially designed contacts allowing .095" height above PCB. Special short contact requires .075" insertion depth only. Solder tail diameter .030"
Insertion Characteristics: 4-finger short contact. **Plating:** Sleeve (Pin) — 200µ" Sn. Contact (Clip) — 30µ" Au.

No. of Pins	Dimensions (In.) A	B	C	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000	Mill-Max Part No.
						Solder Tail (Gold)					
8	0.4	0.3	0.4	ED3308-ND	.42	2.89	23.35	100.08	166.80	144.56/M	110-93-308-41-001
14	0.7	0.3	0.4	ED3314-ND	.73	5.06	40.87	175.14	291.90	252.98/M	110-93-314-41-001
16	0.8	0.3	0.4	ED3316-ND	.83	5.78	46.70	200.16	333.60	289.12/M	110-93-316-41-001
18	0.9	0.3	0.4	ED3318-ND	.94	6.51	52.54	225.18	375.30	325.26/M	110-93-318-41-001
20	1.0	0.3	0.4	ED3320-ND	1.04	7.23	58.38	250.20	417.00	361.40/M	110-93-320-41-001
24	1.2	0.3	0.4	ED3324-ND	1.25	8.67	70.06	300.24	500.40	433.68/M	110-93-324-41-001
28	1.4	0.3	0.4	ED3328-ND	1.46	10.12	81.73	350.28	583.80	505.96/M	110-93-328-41-001
22	1.1	0.4	0.5	ED3422-ND	1.15	7.95	64.22	275.22	458.70	397.54/M	110-93-422-41-001
24	1.2	0.4	0.5	ED3424-ND	1.25	8.67	70.06	300.24	500.40	433.68/M	110-93-424-41-001
24	1.2	0.6	0.7	ED3624-ND	1.25	8.67	70.06	300.24	500.40	433.68/M	110-93-624-41-001
28	1.4	0.6	0.7	ED3628-ND	1.46	10.12	81.73	350.28	583.80	505.96/M	110-93-628-41-001
32	1.6	0.6	0.7	ED3632-ND	1.67	11.56	93.41	400.32	667.20	578.24/M	110-93-632-41-001
40	2.0	0.6	0.7	ED3640-ND	2.09	14.46	116.76	500.40	834.00	722.80/M	110-93-640-41-001
48	2.4	0.6	0.7	ED3648-ND	2.50	17.35	140.11	600.48	1000.80	867.36/M	110-93-648-41-001
50	2.5	0.9	1.0	ED3950-ND	2.61	18.07	145.95	625.50	1042.50	903.50/M	110-93-950-41-001
64	3.2	0.9	1.0	ED3964-ND	3.34	23.13	186.82	800.64	1334.40	1156.48/M	110-93-964-41-001
						Solder Tail (Gold)					
8	0.4	0.3	0.4	ED56083-ND	.59	4.11	33.18	142.20	237.00	205.40/M	110-13-308-41-001
14	0.7	0.3	0.4	ED56143-ND	1.04	7.18	57.96	248.40	414.00	358.80/M	110-13-314-41-001
16	0.8	0.3	0.4	ED56163-ND	1.18	8.19	66.15	283.50	472.50	409.50/M	110-13-316-41-001
18	0.9	0.3	0.4	ED56183-ND	1.33	9.23	74.55	319.50	532.50	461.50/M	110-13-318-41-001
20	1.0	0.3	0.4	ED56203-ND	1.48	10.24	82.74	354.60	591.00	512.20/M	110-13-320-41-001
24	1.2	0.3	0.4	ED56243-ND	1.77	12.30	99.33	425.70	709.50	614.90/M	110-13-324-41-001
28	1.4	0.3	0.4	ED56283-ND	2.07	14.35	115.92	496.80	828.00	717.60/M	110-13-328-41-001
24	1.2	0.6	0.7	ED56246-ND	1.77	12.30	99.33	425.70	709.50	614.90/M	110-13-624-41-001
28	1.4	0.6	0.7	ED56286-ND	2.07	14.35	115.92	496.80	828.00	717.60/M	110-13-628-41-001
32	1.6	0.6	0.7	ED56326-ND	2.36	16.38	132.30	567.00	945.00	819.00/M	110-13-632-41-001
40	2.0	0.6	0.7	ED56406-ND	2.96	20.49	165.48	709.20	1182.00	1024.40/M	110-13-640-41-001
64	3.2	0.9	1.0	ED56646-ND	4.73	32.79	264.81	1134.90	1891.50	1639.30/M	110-13-964-41-001
						Solder Tail (Tin)					
8	0.4	0.3	0.4	ED3108-ND	.32	2.25	18.14	77.76	129.60	112.32/M	110-99-308-41-001
14	0.7	0.3	0.4	ED3114-ND	.57	3.93	31.75	136.08	226.80	196.56/M	110-99-314-41-001
16	0.8	0.3	0.4	ED3116-ND	.65	4.49	36.29	155.52	259.20	224.64/M	110-99-316-41-001
18	0.9	0.3	0.4	ED3118-ND	.73	5.05	40.82	174.96	291.60	252.72/M	110-99-318-41-001
20	1.0	0.3	0.4	ED3120-ND	.81	5.62	45.36	194.40	324.00	280.80/M	110-99-320-41-001
24	1.2	0.3	0.4	ED3124-ND	.97	6.74	54.43	233.28	388.80	336.96/M	110-99-324-41-001
28	1.4	0.3	0.4	ED3128-ND	1.13	7.86	63.50	272.16	453.60	393.12/M	110-99-328-41-001
24	1.2	0.4	0.5	ED3524-ND	.97	6.74	54.43	233.28	388.80	336.96/M	110-99-424-41-001
24	1.2	0.6	0.7	ED3724-ND	.97	6.74	54.43	233.28	388.80	336.96/M	110-99-624-41-001
28	1.4	0.6	0.7	ED3728-ND	1.13	7.86	63.50	272.16	453.60	393.12/M	110-99-628-41-001
32	1.6	0.6	0.7	ED3732-ND	1.30	8.99	72.58	311.04	518.40	449.28/M	110-99-632-41-001
40	2.0	0.6	0.7	ED3740-ND	1.62	11.23	90.72	388.80	648.00	561.60/M	110-99-640-41-001
48	2.4	0.6	0.7	ED3748-ND	1.94	13.48	108.86	466.56	777.60	673.92/M	110-99-648-41-001
64	3.2	0.9	1.0	ED3764-ND	2.59	17.97	145.15	622.08	1036.80	898.56/M	110-99-964-41-001
						Wire Wrap					
8	0.4	0.3	0.4	ED4308-ND	.92	6.34	51.24	219.60	366.00	317.20/M	123-93-308-41-001
14	0.7	0.3	0.4	ED4314-ND	1.60	11.10	89.67	384.30	640.50	555.10/M	123-93-314-41-001
16	0.8	0.3	0.4	ED4316-ND	1.83	12.69	102.48	439.20	732.00	634.40/M	123-93-316-41-001
18	0.9	0.3	0.4	ED4318-ND	2.06	14.27	115.29	494.10	823.50	713.70/M	123-93-318-41-001
20	1.0	0.3	0.4	ED4320-ND	2.29	15.86	128.10	549.00	915.00	793.00/M	123-93-320-41-001
24	1.2	0.3	0.4	ED4324-ND	2.75	19.03	153.72	658.80	1098.00	951.60/M	123-93-324-41-001
28	1.4	0.3	0.4	ED4328-ND	3.20	22.20	179.34	768.60	1281.00	1110.20/M	123-93-328-41-001
22	1.1	0.4	0.5	ED4422-ND	2.52	17.45	140.91	603.90	1006.50	872.30/M	123-93-422-41-001
24	1.2	0.4	0.5	ED4424-ND	2.75	19.03	153.72	658.80	1098.00	951.60/M	123-93-424-41-001
24	1.2	0.6	0.7	ED4624-ND	2.75	19.03	153.72	658.80	1098.00	951.60/M	123-93-624-41-001
28	1.4	0.6	0.7	ED4628-ND	3.20	22.20	179.34	768.60	1281.00	1110.20/M	123-93-628-41-001
32	1.6	0.6	0.7	ED4632-ND	3.66	25.38	204.96	878.40	1464.00	1268.80/M	123-93-632-41-001
40	2.0	0.6	0.7	ED4640-ND	4.58	31.72	256.20	1098.00	1830.00	1586.00/M	123-93-640-41-001
48	2.4	0.6	0.7	ED4648-ND	5.49	38.06	307.44	1317.60	2196.00	1903.20/M	123-93-648-41-001
50	2.5	0.9	1.0	ED4950-ND	5.72	39.65	320.25	1372.50	2287.50	1982.50/M	123-93-950-41-001
64	3.2	0.9	1.0	ED4964-ND	7.32	50.75	409.92	1756.80	2928.00	2537.60/M	123-93-964-41-001
						Wire Wrap					
8	0.4	0.3	0.4	ED57083-ND	1.16	8.06	65.10	279.00	465.00	403.00/M	123-13-308-41-001
14	0.7	0.3	0.4	ED57143-ND	2.04	14.12	114.03	488.70	814.50	705.90/M	123-13-314-41-001
16	0.8	0.3	0.4	ED57163-ND	2.33	16.15	130.41	558.90	931.50	807.30/M	123-13-316-41-001
20	1.0	0.3	0.4	ED57203-ND	2.91	20.18	162.96	698.40	1164.00	1008.80/M	123-13-320-41-001
24	1.2	0.3	0.4	ED57243-ND	3.49	24.21	195.51	837.90	1396.50	1210.30/M	123-13-324-41-001
24	1.2	0.6	0.7	ED57246-ND	3.49	24.21	195.51	837.90	1396.50	1210.30/M	123-13-624-41-001
28	1.2	0.6	0.7	ED57286-ND	4.07	28.24	228.06	977.40	1629.00	1411.80/M	123-13-628-41-001
40	2.0	0.6	0.7	ED57406-ND	5.82	40.35	325.92	1396.80	2328.00	2017.60/M	123-13-640-41-001
						Low Profile					
8	0.4	0.3	0.4	ED5308-ND	.70	4.86	39.27	168.30	280.50	243.10/M	115-93-308-41-003
14	0.7	0.3	0.4	ED5314-ND	1.18	8.16	65.94	282.60	471.00	408.20/M	115-93-314-41-003
16	0.8	0.3	0.4	ED5316-ND	1.35	9.33	75.39	323.10	538.50	466.70/M	115-93-316-41-003
18	0.9	0.3	0.4	ED5318-ND	1.52	10.50	84.84	363.60	606.00	525.20/M	115-93-318-41-003
20	1.0	0.3	0.4	ED5320-ND	1.62	11.26	90.93	389.70	649.50	562.90/M	115-93-320-41-003
24	1.2	0.3	0.4	ED5324-ND	1.95	13.49	108.99	467.10	778.50	674.70/M	115-93-324-41-003
28	1.4	0.3	0.4	ED5328-ND	2.27	15.76	127.26	545.40	909.00	787.80/M	115-93-328-41-003
22	1.1	0.4	0.5	ED5422-ND	1.79	12.38	99.96	428.40	714.00	618.80/M	115-93-422-41-003
24	1.2	0.4	0.5	ED5424-ND	1.95	13.49	108.99	467.10	778.50	674.70/M	115-93-424-41-003
24	1.2	0.6	0.7	ED5624-ND	1.95	13.49	108.99	467.10	778.50	674.70/M	115-93-624-41-003
28	1.4	0.6	0.7	ED5628-ND	2.27	15.76	127.26	545.40	909.00	787.80/M	115-93-628-41-003
32	1.6	0.6	0.7	ED5632-ND	2.60	18.02	145.53	623.70	1039.50	900.90/M	115-93-632-41-003
40	2.0	0.6	0.7	ED5640-ND	3.25	22.52	181.86	779.40	1299.00	1125.80/M	115-93-640-41-003
48	2.4	0.6	0.7	ED5648-ND	3.90	27.01	218.19	935.10	1558.50	1350.70/M	115-93-648-41-003

MILL-MAX®

Single In-Line Strip Sockets - Solder Tail and Solderless

Materials:

- **Insulator Body:** Glass filled thermoplastic polyester, self-extinguishing rated UL 94V-O; color black; resistant against detergents, mineral acids, solvents, greases and oils (short time).
- **Receptacle (sleeve):** Screw machined brass, plated 200µ" tin-lead.
- **Pin:** Screw machined brass with 10µ" gold plating.
- **Contact:** Stamped beryllium-copper, plated 30µ" gold.
- **Mechanical Life:** 100 cycles min.

Electrical Data:

- **Rated Current:** 1A.
- **Current Rating:** Clips have rating of 3A
- **Rated Voltage:** 100 VRMS/150 VDC.
- **Contact Resistance:** 10mΩ max.
- **Insulation Resistance:** 10,000MΩ min.
- **Dielectric Strength:** 1000 VRMS min.
- **Capacitance:** 0.3 pF max.

Environmental Data:

- **Operating Temperature Range:** -55/ +125°C.
- **Vibration:** 10-2000 Hz, 15 g.
- **Shock (no elect. discontinuity greater than 1µs):** 150g.
- **Solderability:** IEC 68-2-20 Ta.
- **Resistance to Soldering Heat:** IEC 68-2-20, 260°C, 5s.
- **Resistance to Atmosphere Corrosion:** IEC 68-2-42 and 43.

Fig. 1 — Standard Solder Tail

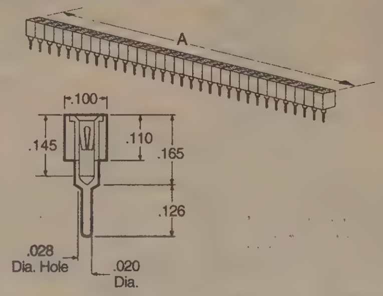


Fig. 2 — Pin Header Strip

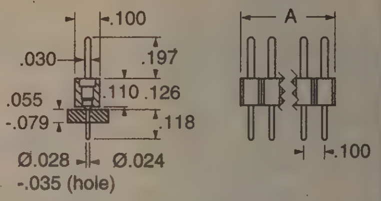


Fig. 3 — Socket Strip

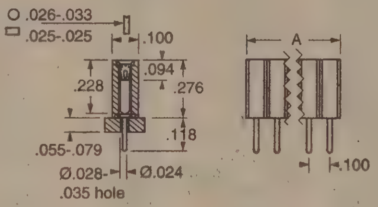


Fig. 4 — Compliant Solderless Press Fit

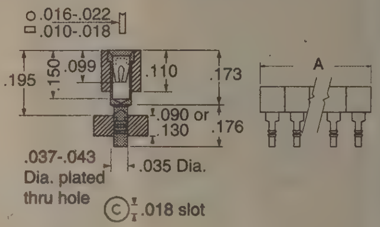


Fig. No.	No. of Pins	Dim. A	Plating Sleeve/Pin	Plating Clip	Digi-Key Part No	Pricing 1	Pricing 10	Pricing 100	Mill-Max Part No.
Strip Sockets Solder Tail — 7000 Series									
1	64	6.4	200µ" Sn	30µ" AU	ED7064-ND	2.89	24.48	200.25	310-93-164-41-001
Single Row Pin Header, Straight Solder Tail — 7200 Series									
2	64	6.4	10µ" AU	—	ED7264-ND	6.85	57.97	474.30	800-10-064-10-001
Single Row Pin Socket, Straight Solder Tail — 7100 Series									
3	50	5.0	200µ" Sn	30µ" AU	ED7150-ND	5.98	50.63	414.23	801-93-050-10-001
Solderless Press Fit Sockets — 7300 Series									
4	64	6.4	200µ" Sn	30µ" AU	ED7364-ND	7.35	62.15	508.50	346-93-164-41-013

Digi-Key Part No	Base Price	Pin Adder
7000 Series		
ED70XX-ND	.33	.04
7200 Series		
ED72XX-ND	.45	.10
7100 Series		
ED71XX-ND	.47	.11
7300 Series		
ED73XX-ND	.95	.10

HOW TO ORDER - 4 EASY STEPS

How do I order a ED7064 header with 33 pins?
Call Digi-Key where you'll happily receive the price.

or Determine the cost yourself

ED ☐☐☐☐ - ND
Series
Number of Desired Pins

How to Order - In 4 Easy Step	Our Example	Your Digi-Key Part Number
Step 1. Select needed "Digi-Key Part Number" and number of pins desired..	ED7033-ND	ED ____ - ND
Step 2. Begin with appropriate "Base Price" of your selected Part Number (refer to chart)........................	.33	______
Step 3. Multiply the number of pins you desire by "Pin Adder" of your selected Part Number (refer to chart)...	33 x .04 = 1.32	____ x ____ = ______
Step 4. Add Step 2 & Step 3 together for Final Cost!	Your Cost = $1.65	Your Cost = $______

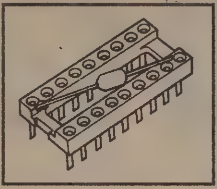
NOTE: For quantities of 10 or more, call 1-800-DIGI-KEY.

IC Sockets

With Integral Decoupling Capacitor Machine screw contact

pecial Features/Applications

To eliminate noise at the source before it can reach the chip
Advantages for uses such as high speed logic and memory applications
To eliminate long leads as potential sources of noise because capacitor leads are connected directly to the ground and voltage pin of the socket
To save minimum of 12% on board space



echnical Data

Insulator body material: glass filled polyester UL94VO
Pin: screw machined
ocket with integral glass encapsulated ceramic capacitor 1µF, 50 VDC

ype of Pins	No. of Pins	Digi-Key Part No.	Pricing 1	10	100	500	Mill-Max Part No.
Tin Plated, Solder Tab	14	ED2101-ND	1.68	14.56	117.60	504.00	110-93-314-41-801000
	16	ED2102-ND	1.80	15.60	126.00	540.00	110-93-316-41-801000
	18	ED2103-ND	1.92	16.67	134.61	576.90	110-93-318-41-801000
	20	ED2104-ND	1.96	16.98	137.13	587.70	110-93-320-41-801000
	24#	ED2106-ND	2.24	19.37	156.45	670.50	110-93-324-41-801000
	24	ED2105-ND	2.47	21.40	172.83	740.70	110-93-624-41-801000
	28	ED2107-ND	2.67	23.11	186.69	800.10	110-93-628-41-801000
	40	ED2108-ND	3.14	27.25	220.08	943.20	110-93-640-41-801000
Gold Plated, Solder Tab	14	ED2109-ND	1.98	17.19	138.81	594.90	110-13-314-41-801000
	16	ED2110-ND	2.17	18.82	152.04	651.60	110-13-316-41-801000
	18	ED2111-ND	2.32	20.12	162.54	696.60	110-13-318-41-801000
	20	ED2112-ND	2.40	20.80	168.00	720.00	110-13-320-41-801000
	24#	ED2114-ND	2.77	24.00	193.83	830.70	110-13-324-41-801000
	24	ED2113-ND	3.00	26.03	210.21	900.90	110-13-624-41-801000
	28	ED2115-ND	3.27	28.31	228.69	980.10	110-13-628-41-801000
	40	ED2116-ND	3.86	33.49	270.48	1159.20	110-13-640-41-801000
3-Level Tin Plated Wire-Wrap	14	ED2117-ND	2.72	23.53	190.05	814.50	123-93-314-41-801000
	16	ED2118-ND	3.00	26.00	210.00	900.00	123-93-316-41-801000
	18	ED2119-ND	3.24	28.11	227.01	972.90	123-93-318-41-801000
	20	ED2120-ND	3.38	29.30	236.67	1014.30	123-93-320-41-801000
	24	ED2121-ND	4.16	36.09	291.48	1249.20	123-93-624-41-801000
	28	ED2122-ND	4.64	40.25	325.08	1393.20	123-93-628-41-801000
	40	ED2123-ND	5.85	50.73	409.71	1755.90	123-93-640-41-801000

With .300 Contact Row Spacing.

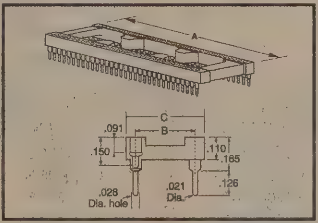
Shrink Dip Sockets – Solder Tail – Open Frame

High density Dual-in-Line Sockets and Strips for devices featuring .070" lead spacing.

Four-finger beryllium copper contacts meet high vibration and shock requirements.

sertion Characteristics: 4-finger standard.

ating: Sleeve (Pin) – 200µ" Sn.
ontact (Clip) – 30µ" Au.



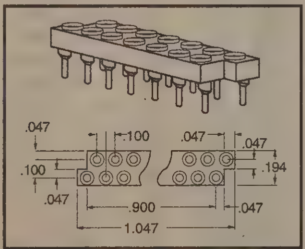
o. of ins	Dimensions (in.) A	B	C	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Mill-Max Part No.
16	0.572	0.3	0.39	ED22163-ND	1.60	11.10	89.67	384.30	640.50	117-93-316-41-005
28	0.992	0.4	0.49	ED22284-ND	2.71	18.77	151.62	649.80	1083.00	117-93-428-41-005
30	1.062	0.4	0.49	ED22304-ND	2.90	20.10	162.33	695.70	1159.50	117-93-430-41-005
48	1.692	0.4	0.49	ED22484-ND	4.64	32.16	259.77	1113.30	1855.50	117-93-448-41-005
20	0.712	0.6	0.69	ED22206-ND	1.93	13.39	108.15	463.50	772.50	117-93-620-41-005
28	0.992	0.6	0.69	ED22286-ND	2.71	18.77	151.62	649.80	1083.00	117-93-628-41-005
40	1.412	0.6	0.69	ED22406-ND	3.86	26.78	216.30	927.00	1545.00	117-93-640-41-005
42	1.482	0.6	0.69	ED22426-ND	4.05	28.11	227.01	972.90	1621.50	117-93-642-41-005
48	1.692	0.6	0.69	ED22486-ND	4.64	32.16	259.77	1113.30	1855.50	117-93-648-41-005
52	1.832	0.6	0.69	ED22526-ND	4.88	33.85	273.42	1171.80	1953.00	117-93-652-41-005
56	1.972	0.6	0.69	ED22566-ND	5.26	36.48	294.63	1262.70	2104.50	117-93-656-41-005
64	2.252	0.6	0.69	ED22646-ND	6.02	41.70	336.84	1443.60	2406.00	117-93-664-41-005
64	2.25	0.75	0.84	ED22647-ND	6.02	41.70	336.84	1443.60	2406.00	117-93-764-41-005
68	2.392	0.6	0.69	ED22686-ND	6.39	44.30	357.84	1533.60	2556.00	117-93-668-41-005

Zig Zag Sockets

Double row staggered strips will accommodate Single-in-Line Zig-Zag memory packages on high density boards, left stackable.

sertion Characteristics: 6-finger low force.

lating: Sleeve (Pin) – 200µ" Sn.
ontact (Clip) – 30µ" Au.



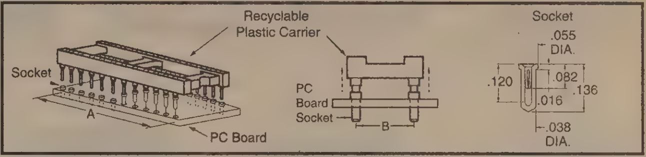
o. of ins	Insulator Body	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Mill-Max Part No.
20	Left Stackable	ED2220-ND	1.37	9.46	76.44	327.60	546.00	410-93-220-10-001

Dual-In-Line Socket Carriers Miniature

- Reuseable carriers
- Pin Carrier Assemblies assure maximum ventilation and better visibility for inspection and repair.
- Easy mounting due to the ***RECYCLABLE PLASTIC CARRIER***. No solder wicking problems.

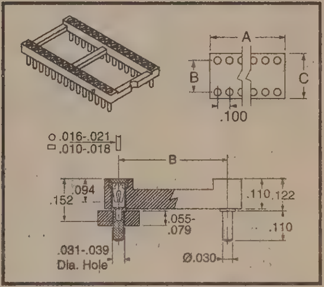
Requires .039" min. diameter holes in PCB.

Insertion Characteristics: 3-finger.
Plating: Sleeve (Pin) – 200µ" Sn. Contact (Clip) – 30µ" Au.



No. of Pins	Dimensions (in.) A	B	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Mill-Max Part No.
8	0.4	0.3	ED6008-ND	.93	6.45	52.08	223.20	372.00	614-93-308-31-012
14	0.7	0.3	ED6014-ND	1.63	11.28	91.14	390.60	651.00	614-93-314-31-012
16	0.8	0.3	ED6016-ND	1.86	12.90	104.16	446.40	744.00	614-93-316-31-012
18	0.9	0.3	ED6018-ND	2.09	14.51	117.18	502.20	837.00	614-93-318-31-012
20	1.0	0.3	ED6020-ND	2.33	16.12	130.20	558.00	930.00	614-93-320-31-012
24	1.2	0.3	ED6024-ND	2.79	19.34	156.24	669.60	1116.00	614-93-324-31-012
28	1.4	0.3	ED6028-ND	3.26	22.57	182.28	781.20	1302.00	614-93-328-31-012
24	1.2	0.6	ED6124-ND	2.79	19.34	156.24	669.60	1116.00	614-93-624-31-012
28	1.4	0.6	ED6128-ND	3.26	22.57	182.28	781.20	1302.00	614-93-628-31-012
32	1.6	0.6	ED6132-ND	3.72	25.79	208.32	892.80	1488.00	614-93-632-31-012
40	2.0	0.6	ED6140-ND	4.65	32.24	260.40	1116.00	1860.00	614-93-640-31-012

Dual-In-Line Socket – Low Profile Open Frame



- Dip Sockets with reduced height. (only .122" above PCB).
- Hi-Rel, 4-finger #30 clip.

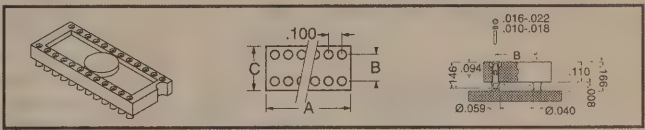
Plating: Sleeve (Pin) – 200µ" Sn.
Contact (Clip) – 200µ" Au.

No. of Pins	Dimensions (in.) A	B	C	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Mill-Max Part No.
8	0.4	0.3	0.4	ED58083-ND	.62	5.28	43.20	159.36	268.80	115-93-308-41-001
14	0.7	0.3	0.4	ED58143-ND	1.05	8.86	72.45	267.26	450.80	115-93-314-41-001
16	0.8	0.3	0.4	ED58163-ND	1.20	10.12	82.80	305.44	515.20	115-93-316-41-001
18	0.9	0.3	0.4	ED58183-ND	1.35	11.39	93.15	343.62	579.60	115-93-318-41-001
20	1.0	0.3	0.4	ED58203-ND	1.44	12.21	99.90	368.52	621.60	115-93-320-41-001
24	1.2	0.3	0.4	ED58243-ND	1.73	14.66	119.93	442.39	746.20	115-93-324-41-001
28	1.4	0.3	0.4	ED58283-ND	2.02	17.11	139.95	516.26	870.80	115-93-328-41-001
24	1.2	0.6	0.7	ED58246-ND	1.73	14.66	119.93	442.39	746.20	115-93-624-41-001
28	1.4	0.6	0.7	ED58286-ND	2.02	17.11	139.95	516.26	870.80	115-93-628-41-001
32	1.6	0.6	0.7	ED58326-ND	2.31	19.53	159.75	589.30	994.00	115-93-632-41-001
40	2.0	0.6	0.7	ED58406-ND	2.89	24.42	199.80	737.04	1243.20	115-93-640-41-001

Dual-In-Line Sockets – Surface Mount, Stub Tail, Closed Frame

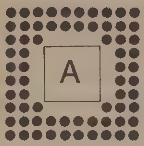
- Closed frame insulator is vision system compatible.
- High-temp Nylon 46, suitable for infra-red and vapor phase soldering.

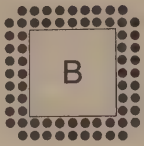
Plating: Sleeve (Pin) – 200µ" Sn.
Contact (Clip) – 200µ" Au.

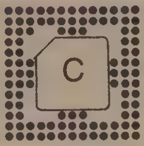


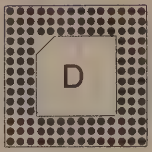
No. of Pins	Dimensions (in.) A	B	C	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Mill-Max Part No.
Vacuum Pad Top Surface Only										
8	0.4	0.3	0.4	ED2128-ND	.57	4.94	39.90	171.00	285.00	214-99-308-01-670800
14	0.7	0.3	0.4	ED2129-ND	.96	8.29	66.99	287.10	478.50	214-99-314-01-670800
16	0.8	0.3	0.4	ED2130-ND	1.10	9.49	76.65	328.50	547.50	214-99-316-01-670800
18	0.9	0.3	0.4	ED2131-ND	1.23	10.63	85.89	368.10	613.50	214-99-318-01-670800
20	1.0	0.3	0.4	ED2132-ND	1.32	11.44	92.40	396.00	660.00	214-99-320-01-670800
Vacuum Pads Top and Bottom										
24	1.2	0.6	0.7	ED2133-ND	1.58	13.70	110.67	474.30	790.50	214-99-624-01-670800
28	1.4	0.6	0.7	ED2134-ND	1.85	15.99	129.15	553.50	922.50	214-99-628-01-670800
32	1.6	0.6	0.7	ED2135-ND	2.11	18.30	147.84	633.60	1056.00	214-99-632-01-670800
40	2.0	0.6	0.7	ED2136-ND	2.64	22.85	184.59	791.10	1318.50	214-99-640-01-670800

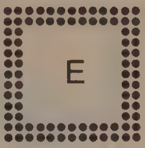
Pin Grid Array Sockets

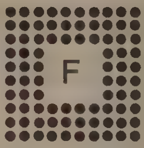


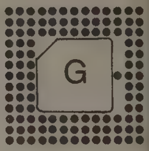


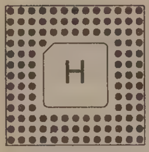


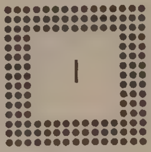


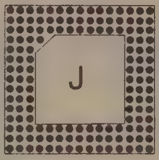


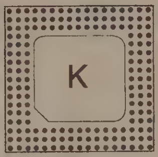


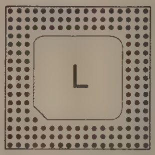


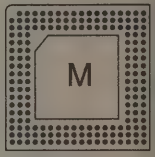


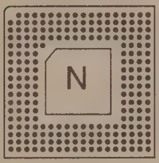


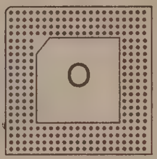


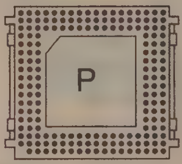


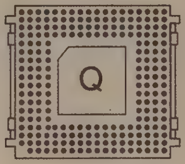


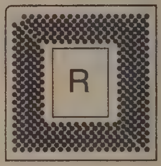


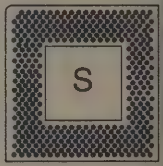






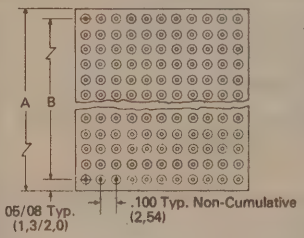


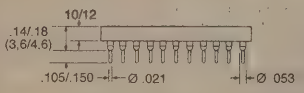




Insulator Size	A +0.00 -0.05	B ±0.005*
10 x 10	1.0	.9
11 x 11	1.1	1.0
13 x 13	1.3	1.2
14 x 14	1.4	1.3
15 x 15	1.5	1.4
17 x 17	1.7	1.6
18 x 18	1.8	1.7
19 x 19	1.9	1.8
20 x 20	2.0	1.9
21 x 21	2.1	2.0

*Non-cumulative





Material:

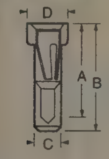
- Insulator body: Standard material is glass filled thermoplastic polyester (PBT), self-extinguishing, rated UL94V-0. Color Black
- Receptacle (sleeve): Screw-machined brass (QQ-B-626), plated 200µ" tin-lead (SnPb 90/10) over 80-120µ" nickel.
- Pin: Screw-machined brass (QQ-B-626), plated 200µ" tin-lead (SnPb 90/10) over 80-120µ" nickel.
- Contact (clip): Stamped Beryllium-copper (QQ-C-533) heat treated, plated gold flash, 30µ" gold, over 80-120µ" nickel.

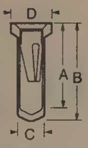
Electrical Data:

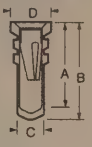
- Rated Current: 1A
- Rated Voltage: 100 VRMS/150 VDC
- Contact Resistance: 100 mΩ max.
- Insulation resistance: 10,000 MΩ min.
- Dielectric Strength: 1000 VRMS min.
- Capacity: 0.3 pF max.
- Operating temperature range: -55°C to +125°C

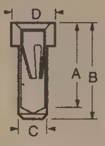
Pin Grid Array Size	No. of Pins	Foot-print (See Above)	Description (Type of Contacts)	Digi-Key Part No.	Pricing						Frame Style
					1	10	100	500	1,000	5,000	
10x10	68	A	Solder-Tail	ED2002-ND	3.37	29.20	235.83	1010.70	1684.50	1459.90/M	Open
11x11	68	B	Solder-Tail	ED2004-ND	3.37	29.20	235.83	1010.70	1684.50	1459.90/M	Open
13x13	101	C	Solder-Tail	ED2007-ND	4.68	40.56	327.60	1404.00	2340.00	2028.00/M	Open
14x14	132	D	Solder-Tail	ED2008-ND	6.12	53.04	428.40	1836.00	3060.00	2652.00/M	Open
13x13	88	E	Solder-Tail	ED2009-ND	4.36	37.80	305.34	1308.60	2181.00	1890.20/M	Open
10x10	84	F	Solder-Tail	ED2011-ND	4.16	36.09	291.48	1249.20	2082.00	1804.40/M	Open
13x13	114	G	Solder-Tail	ED2026-ND	5.28	45.79	369.81	1584.90	2641.50	2289.30/M	Open
13x13	121	H	Solder-Tail	ED2027-ND	5.61	48.62	392.70	1683.00	2805.00	2431.00/M	Open
15x15	144	I	Solder-Tail	ED2028-ND	6.68	57.85	467.25	2002.50	3337.50	2892.50/M	Open
15x15	145	J	Solder-Tail	ED2029-ND	6.72	58.27	470.61	2016.90	3361.50	2913.30/M	Open
17x17	168	K	Solder-Tail	ED2030-ND	7.79	67.50	545.16	2336.40	3894.00	3374.80/M	Open
17x17	169	L	Solder-Tail	ED2031-ND	7.84	67.91	548.52	2350.80	3918.00	3395.60/M	Open
10x10	68	A	3 Level Wire Wrap	ED2014-ND	9.50	82.29	664.65	2848.50	4747.50	4114.50/M	Open
11x11	68	B	3 Level Wire Wrap	ED2016-ND	9.50	82.29	664.65	2848.50	4747.50	4114.50/M	Open
13x13	101	C	3 Level Wire Wrap	ED2019-ND	13.19	114.32	923.37	3957.30	6595.50	5716.10/M	Open
14x14	132	D	3 Level Wire Wrap	ED2020-ND	17.24	149.40	1206.66	5171.40	8619.00	7469.80/M	Open
13x13	88	E	3 Level Wire Wrap	ED2021-ND	11.49	99.61	804.51	3447.90	5746.50	4980.30/M	Open
10x10	84	F	3 Level Wire Wrap	ED2023-ND	10.10	87.54	707.07	3030.30	5050.50	4377.10/M	Open
13x13	114	G	3 Level Wire Wrap	ED2036-ND	15.23	132.00	1066.17	4569.30	7615.50	6600.10/M	Open
13x13	121	H	3 Level Wire Wrap	ED2037-ND	15.80	136.94	1106.07	4740.30	7900.50	6847.10/M	Open
15x15	144	I	3 Level Wire Wrap	ED2038-ND	18.62	161.38	1303.47	5586.30	9310.50	8069.10/M	Open
15x15	145	J	3 Level Wire Wrap	ED2039-ND	18.75	162.50	1312.50	5625.00	9375.00	8125.00/M	Open
17x17	168	K	3 Level Wire Wrap	ED2040-ND	21.72	188.27	1520.61	6516.90	10861.50	9413.30/M	Open
17x17	169	L	3 Level Wire Wrap	ED2041-ND	21.85	189.38	1529.64	6555.60	10926.00	9469.20/M	Open
18x18	179	M	Solder-Tail	ED2042-ND	8.30	71.92	580.86	2489.40	4149.00	3595.80/M	Open
19x19	238	N	Solder-Tail	ED2043-ND	10.92	94.67	764.61	3276.90	5461.50	4733.30/M	Open
21x21	273	O	Solder-Tail	ED2044-ND	12.53	108.60	877.17	3759.30	6265.50	5430.10/M	Open
18x18	179	P	Solder-Tail	ED2045-ND	10.58	91.68	740.46	3173.40	5289.00	4583.80/M	Open
18x18	223	Q	Solder-Tail	ED2046-ND	13.18	114.22	922.53	3953.70	6589.50	5710.90/M	Open
18x18	391	R	Solder-Tail	ED2047-ND	30.50	264.32	2134.86	9149.40	15249.00	13215.80/M	Open
20x20	447	S	Solder-Tail	ED2048-ND	34.87	302.17	2440.62	10459.80	17433.00	15108.60/M	Open

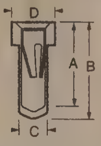
Pin Receptacles and P.C. Pins

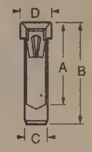
1


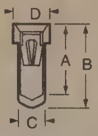
2


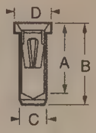
3


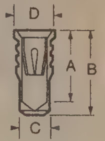
4


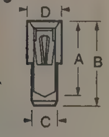
5


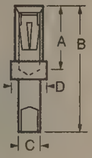
6


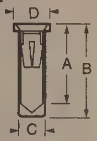
7


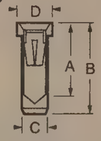
8


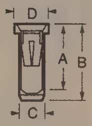
9


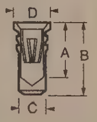
10


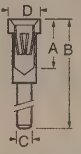
11


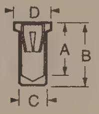
12


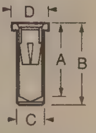
13


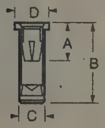
14


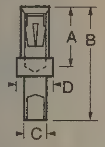
15


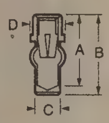
16


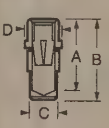
17


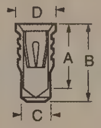
18


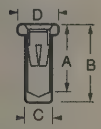
19


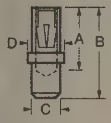
20


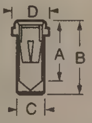
21


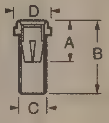
22


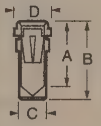
23


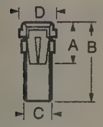
24


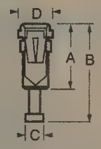
25


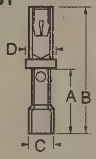
26


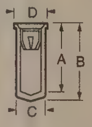
27


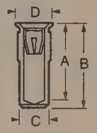
28


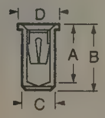
29


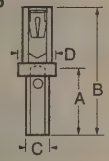
30


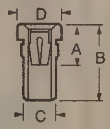
31


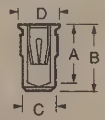
32


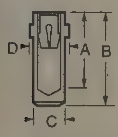
33


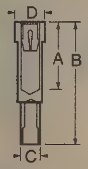
34


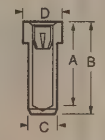
35


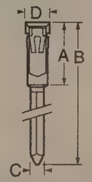
36


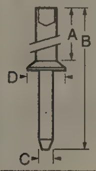
37


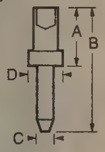
38


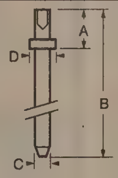
39


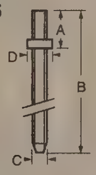
40


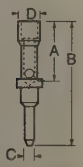
41


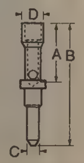
42


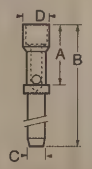
43


44


45


46


47


48


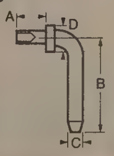
49


Fig. No.	Mounting Hole Diameter	Dimension				Digi-Key Part No.	Pricing		
		A	B	C	D		10	100	1000
.015" — .021" Pin Diameter									
1	.036	.138	.155	.034	.058	ED5036-ND	1.48	11.10	74.00
2	.040	.120	.136	.038	.055	ED5037-ND	.80	6.00	40.00
2	.040	.150	.170	.038	.055	ED5038-ND	.81	6.09	40.60
3	.041	.124	.140	.038	.055	ED5039-ND	1.57	11.79	78.60
3	.041	.154	.170	.038	.055	ED5040-ND	1.58	11.88	79.20
4	.040	.127	.146	.038	.055	ED5046-ND	.93	6.96	46.40
5	.040	.140	.160	.038	.056	ED5041-ND	1.77	13.26	88.40
.015" — .025" Pin Diameter									
6	.051	.205	.248	.049	.063	ED5045-ND	2.08	15.57	103.80
7	.053	.135	.160	.051	.072	ED5042-ND	1.71	12.84	85.60
8	.057	.142	.161	.055	.072	ED5044-ND	.99	7.44	49.60
9	.057	.150	.170	.053	.072	ED5004-ND	1.75	13.11	87.40
10	.061	.150	.180	.058	.080	ED5043-ND	1.60	12.03	80.20
.022" — .032" Pin Diameter									
11	.060	.170	.294	.040	.094	ED5015-ND	4.26	31.92	212.80
12	.063	.233	.259	.060	.077	ED5008-ND	2.25	16.89	112.60
13	.071	.210	.250	.068	.093	ED5006-ND	2.04	15.30	102.00
14	.076	.185	.206	.073	.090	ED5007-ND	2.00	15.03	100.20
.025" — .037" Pin Diameter									
15	.061	.165	.200	.057	.078	ED5005-ND	2.85	21.36	142.40
16	.042	.180	.320	.040	.078	ED5009-ND	2.38	17.88	119.20
16	.042	.180	.397	.040	.078	ED5010-ND	2.82	21.12	140.80
.037" — .043" Pin Diameter									
17	.071	.127	.150	.069	.090	ED5019-ND	2.71	20.31	135.40
.032" — .047" Pin Diameter									
18	.075	.180	.206	.072	.090	ED5016-ND	2.04	15.30	102.00
19	.075	.125	.221	.072	.090	ED5018-ND	4.21	31.56	210.40
20	.067	.200	.324	.065	.125	ED5021-ND	4.58	34.38	229.20
21	.076	.195	.220	.074	.102	ED5020-ND	4.32	32.40	216.00
22	.078	.195	.220	.072	.102	ED5025-ND	2.95	22.11	147.40
23	.076	.180	.206	.071	.090	ED5017-ND	2.42	18.12	120.80
24	.091	.220	.253	.088	.120	ED5013-ND	2.96	22.17	147.80
25	.089	.220	.317	.085	.125	ED5014-ND	3.66	27.48	183.20
26	.087	.195	.236	.085	.125	ED5012-ND	2.54	19.05	127.00
27	.087	.130	.236	.085	.125	ED5011-ND	2.54	19.08	127.20
28	.089	.190	.250	.080	.110	ED5027-ND	2.98	22.32	148.80
29	.089	.131	.250	.080	.110	ED5028-ND	3.14	23.58	157.20
30	.089	.190	.343	.060	.110	ED5026-ND	3.11	23.34	155.60
31	—	.282	.529	.105	.102	ED5022-ND	6.77	50.79	338.60
.040" — .050" Pin Diameter									
32	.102	.260	.290	.100	.118	ED5024-ND	2.52	18.87	125.80
33	.103	.260	.290	.088	.118	ED5023-ND	3.53	26.49	176.60
.048" — .064" Pin Diameter									
34	.102	.180	.213	.098	.120	ED5029-ND	3.28	24.57	163.80
35	—	.267	.530	.103	.141	ED5032-ND	7.31	54.81	365.40
36	.108	.134	.250	.102	.136	ED5031-ND	4.03	30.24	201.60
.045" — .067" Pin Diameter									
37	.104	.190	.223	.098	.120	ED5030-ND	4.09	30.69	204.60
.065" — .082" Pin Diameter									
38	.144	.340	.412	.142	.188	ED5035-ND	5.52	41.40	276.00
39	—	.375	.690	.100	.144	ED5033-ND	7.31	54.81	365.40
.084" — .102" Pin Diameter									
40	.144	.415	.465	.142	.188	ED5034-ND	6.68	50.10	334.00
.015" — .025" Pin Diameter									
41	.055	.200	.700	.025	.072	ED5001-ND	1.41	10.59	70.60
41	.055	.200	.560	.025	.072	ED5002-ND	1.26	9.42	62.80
41	.055	.200	.460	.025	.072	ED5003-ND	1.62	12.12	80.80
.025" Pin Diameter									
42	.035	.072	.260	.025	.062	ED5055-ND	.84	6.30	42.00
42	.035	.103	.291	.025	.062	ED5056-ND	.66	4.98	33.20
43	.043	.076	.201	.025	.062	ED5053-ND	.83	6.21	41.40
43	.043	.107	.232	.025	.062	ED5054-ND	.67	5.04	33.60
.040" Pin Diameter									
44	.043	.071	.221	.040	.070	ED5047-ND	.72	5.40	36.00
44	.043	.102	.252	.040	.070	ED5048-ND	.75	5.64	37.60
44	.043	.071	.259	.040	.070	ED5049-ND	.76	5.73	38.20
44	.043	.102	.290	.040	.070	ED5050-ND	.80	6.03	40.20
44	.043	.071	.371	.040	.070	ED5051-ND	1.11	8.34	55.60
44	.043	.102	.402	.040	.070	ED5052-ND	.95	7.14	47.60
45	.043	.102	.252	.040	.070	ED5057-ND	1.31	9.84	65.60
46	—	.282	.588	.040	.105	ED5061-ND	4.33	32.49	216.60
.062" Pin Diameter									
47	—	.282	.588	.062	.105	ED5060-ND	4.58	34.38	229.20
.080" Pin Diameter									
48	—	.282	.506	.080	.105	ED5059-ND	4.42	33.15	221.00
.040" Pin Diameter									
49	.043	.082	.257	.040	.070	ED5058-ND	2.65	19.86	132.40

ARIES® ELECTRONICS, INC.

I.C. Sockets

Dual Leaf Tin Plated Wire Wrap

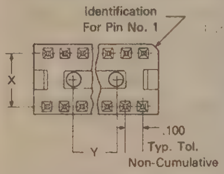
Contacts: Phosphor bronze CA510.
Contact Finish: Tin plating 200μ" minimum.

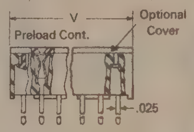
No. of Pins	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000
8	C8108-ND	1.32	11.44	92.40	396.00	660.00	572.00/M
14	C8114-ND	1.86	16.12	130.20	558.00	930.00	806.00/M
16	C8116-ND	2.04	17.68	142.80	612.00	1020.00	884.00/M
18	C8118-ND	2.40	20.80	168.00	720.00	1200.00	1040.00/M
20	C8120-ND	2.64	22.88	184.80	792.00	1320.00	1144.00/M
22	C8122-ND	2.94	25.48	205.80	882.00	1470.00	1274.00/M
24	C8124-ND	3.30	28.60	231.00	990.00	1650.00	1430.00/M
28	C8128-ND	3.78	32.76	264.60	1134.00	1890.00	1638.00/M
40	C8140-ND	5.40	46.80	378.00	1620.00	2700.00	2340.00/M

Dual Leaf Gold Inlay Wire Wrap

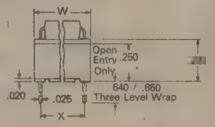
Contacts: Copper alloy CA725.
Contact Finish: Gold inlay 50μ" over 50μ" nickel interliner.

No. of Pins	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000
8	C9108-ND	1.53	13.26	107.10	459.00	765.00	663.00/M
14	C9114-ND	2.55	22.10	178.50	765.00	1275.00	1105.00/M
16	C9116-ND	2.91	25.22	203.70	873.00	1455.00	1261.00/M
18	C9118-ND	3.21	27.82	224.70	963.00	1605.00	1391.00/M
20	C9120-ND	3 57	30.94	249.90	1071.00	1785 00	1547.00/M
22	C9122-ND	3.87	33 54	270.90	1161 00	1935.00	1677.00/M
24	C9124-ND	4.26	36 92	298 20	1278.00	2130.00	1846 00/M
28	C9128-ND	5.01	43.42	350.70	1503.00	2505.00	2171.00/M
40	C9140-ND	6.93	60 06	485 10	2079.00	3465.00	3003.00/M





Pins	"V" ±.010	"W" Max.	"X" ±.005	"Y" ±.010
8	.465	.400	.300	n/a
14	.765	.400	.300	.300
16	.865	.400	.300	.400
18	.965	.400	.300	.400
20	1.065	.400	.300	.400
22	1.180	.500	.400	.500
24	1.280	.700	.600	.500
28	1.480	.700	.600	.500
40	2.080	.700	.600	.800



FEATURES:

- Universal mounting and packaging capabilities.
- Contacts accommodate .015" through .021" rectangular or round dual-in-line leads.
- Wire wrap posts held to true position of .015" providing a true position of .020" on boards for efficient automatic wire wrapping.

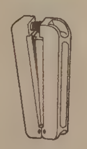
SPECIFICATIONS:

Material: Body, 94V-0 glass filled polyester.

Notes: Sockets meet requirements of Texas Instruments test specification TS-0003 and test report TR-0001. Contacts are replacable and have redundant spring elements. Cover is removable. Contact is designed and oriented in the plastic body to generate maximum possible contact. Socket is designed to achieve maximum density on boards. Closed entry cover is provided to facilitate automatic insertion and protect IC leads against damage. Accommodates standard (C) leads up to .001 ± .003x.018 ± .003. Sockets are capable of being automatically or simultaneously wire wrapped.

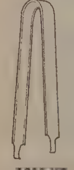
ARIES® ELECTRONICS, INC.

IC Pin Straightener



A998-ND
$30.00/1
$264.00/10
$2040.00/100

Dip Extractor



A999-ND
$3.75/1
$33.00/10
$255.00/100

A998-ND Anti-Static IC Pin Straightener: Straightens IC legs with one squeeze. Put .300 ICs in one side of tool, and .600 in other side of tool. This brings leads into tolerance .320 or .620.

Note: This tool does not straighten IC legs that are bent to such an extent that the pin-to-pin spacing is not .100.

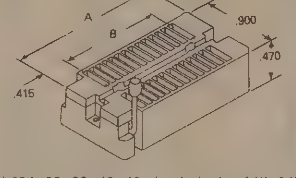
A999-ND Dip Extractor: An extremely handy, low cost tool for removing ICs from dip sockets.

Universal ZIF Test Sockets

The new Aries Universal Test Sprocket is a direct replacement for other test sockets currently on the market, with a number of significant advantages.

- .900 overall height with contact level up

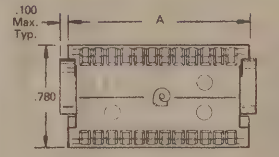
No. Of Pins	Dimensions A	B
24	1.74	1.10
28	1.94	1.30
32	2.14	1.50
40	2.54	1.90
48	2.94	2.30



- Available 24, 28, 32, 40, 48 pins in body of UL 94VO rated polyphenylene sulfide.
- Contacts available tin plated (for up to 105°C) or gold plated (for up to 150°C).
- Insulation Resistance – 1000 megohms min. Dielectric withstanding voltage – 1000 VAC min.
- Contact rating – 1 amp.
- All pin count sockets (24, 28, 32, 40, 48) go into p.c.b.'s with .300 to .600 centers.
- Sockets can be soldered into p.c. boards or plugged into any socket.
- Contacts are normally closed to eliminate dependence on plastic to sustain contact.

No. of Pins	Contact Plating	Digi-Key Part No.	Pricing 1	10	100	Aries Part No.
24	Tin	A300-ND	7 38	64.58	553.50	24-6554-10
24	Gold	A301-ND	10.66	93.28	799.50	24-6554-11
28	Tin	A302-ND	8.42	73.68	631.50	28-6554-10
28	Gold	A303-ND	11.56	101.15	867.00	28-6554-11
32	Tin	A304-ND	9.40	82.25	705.00	32-6554-10
32	Gold	A305-ND	12.82	112.18	961.50	32-6554-11
40	Tin	A306-ND	11.22	98.18	841.50	40-6554-10
40	Gold	A307-ND	15.30	133.88	1147.50	40-6554-11
48	Tin	A308-ND	13.16	115.15	987.00	48-6554-10
48	Gold	A309-ND	17.88	156.45	1341.00	48-6554-11

Zero Insertion Force Sockets

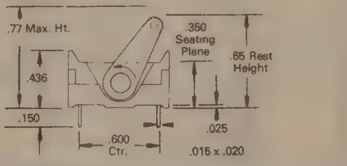


Specifications:

Contacts: Heat treated beryllium copper.

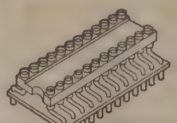
Plating: 100μ tin plating per MIL-T-10727.

Sockets: Glass filled thermoplastic.

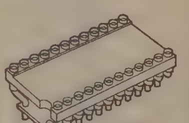


No. of Pins	Dim. "A"	Digi Key Part No.	Pricing 1	10	100	Aries Part No.
24	1.30	A150-ND	8.20	72 16	557 60	24-516-10
28	1.62	A146-ND	8.85	77.88	601.80	28-516-10
40	2.10	A152-ND	11.65	102.52	792.20	40-516-10

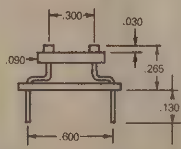
Adapter Sockets

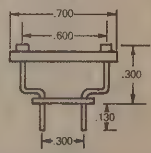


A501/502



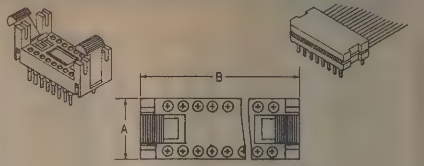
A503/504

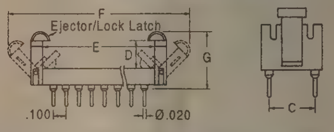




No. of Pins	Description	Digi-Key Part No.	Pricing 1	10	100	Aries Part No.
24	.300 to 600	A501-ND	7.15	58.50	468.00	1106396-24
28	.300 to .600	A502-ND	7.98	65.25	522.00	1106396-28
24	.600 to .300	A503-ND	7.15	58.50	468.00	1107254-24
28	.600 to .300	A504-ND	7.98	65.25	522.00	1107254-28

Lock/Eject DIP Sockets





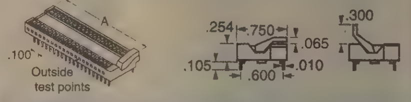
No. of Pins	Dimensions (in.) A	B	C	D	E	F	G
14	.40	.95	.30	.250	—	—	.550
16	.40	1.05	.30	.250	—	—	.550
24	.70	1.45	.60	.250	—	—	.550
14	.40	.95	.30	.280	.77	1.30	.54
16	.40	1 05	.30	.280	.83	1.54	.54
24	.70	1.49	.60	.182	1.27	1.80	.46
28	.70	1.69	.60	.182	1.47	2.00	.46
32	.70	1.89	.60	.182	1.69	2.20	.46
40	.70	2.29	.60	.182	2.07	2.60	.46

No. of Pins	Fits Jumper Connectors, such as:	Digi-Key Part No.	Pricing 1	10	100	Aries Part No.
14	Cable Conn.	A143-ND	2.95	25.96	200.60	14-531-10
16	Cable Conn.	A144-ND	3.08	27.06	209.10	16-531-10
24	Cable Conn	A145-ND	3.83	33.66	260.10	24-531-10
14	IC Packages	A514-ND	2.75	24.20	187.00	14-C280-10
16	IC Packages	A516-ND	2.98	26.18	202.30	16-C280-10
24	IC Packages	A524-ND	4.15	36.52	282.20	24-C182-10
28	IC Packages	A528-ND	4.40	38.72	299.20	28-C182-10
32	IC Packages	A532-ND	5.05	44 44	343.40	32-C182-10
40	IC Packages	A540-ND	6.40	56.32	435.20	40-C182-10

Zero Insertion Force Lo-Profile

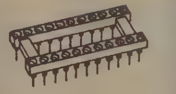
Features: A complete line of sizes, 24, 28 and 40 pin, low profile ZIF (zero insertion force) sockets provides a low cost solution for a test socket with a height of only .319 (8, 10) and even with handle in open position, measures just .554.

Specifications: Pin: Spring temper beryllium copper, tin plated. **Body:** Glass filled polyester. UL94VO rated. **Cam:** Cast metal.

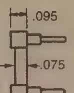


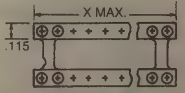
No. of Pins	Dim A	Digi-Key Part No.	Pricing 1	10	100	Aries Part No.
24	1.450	A346-ND	4.80	42.24	326.40	24-526-10
28	1.650	A347-ND	5.18	45.54	351.90	28-526-10
40	2.250	A348-ND	6.23	54.78	423.30	40-526-10

Open Frame Machine Pin Collet Sockets



Specifications:
Contacts: Collet – beryllium copper with 10μ in. gold plating. Body – brass. Collet accepts: .014-.022 (.38-.56) dia. round leads. Platform: Glass filled thermoplastic UL94V-O.
- Compatible with automatic insertion equipment. Collet is 10μ" gold plated.

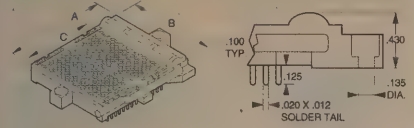




Pin Centers	No. of Pins	Dim "X"	Digi-Key Part No.	Pricing 1	10	100
.300	8	.400	A400-ND	.52	4.28	34.20
.300	14	.700	A401-ND	.85	6.98	55.80
.300	16	.800	A402-ND	.96	7.88	63.00
.300	18	.900	A403-ND	1.10	9.00	72.00
.300	20	1.000	A404-ND	1.21	9.90	79.20
.300	24	1.200	A405-ND	1.46	11.93	95.40
.400	22	1.100	A406-ND	1.32	10.80	86.40
.400	24	1.200	A407-ND	1.51	12.38	99.00
.600	24	1.200	A408-ND	1.49	12.15	97.20
.600	28	1.400	A409-ND	1.71	13.95	111.60
.600	32	1.600	A410-ND	1.95	15.98	127.80
.600	40	2 000	A411-ND	2.42	19.80	158.40
.600	48	2.400	A412-ND	2.92	23.85	190.80
.900	50	2.500	A413-ND	3.03	24.75	198.00
.900	64	3.200	A414-ND	3.88	31.73	253.80

ARIES ELECTRONICS, INC.

PGA ZIF Sockets



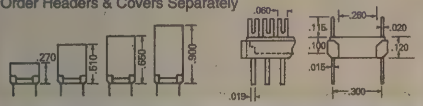
- The Aries ZIF PGA is an extremely rugged, yet smooth acting test socket.
- A strong metal cam activates the contacts which are normally closed. This prevents dependency on the plastic for contact force.
- Housing of glass filled PPS, UL-94V-O rated.

Contacts: Beryllium copper. **Temperature Rating:** -65°C +125°C. **Housing:** Glass filled PPS UL94VO rated. **Handle:** Stainless steel.

Grid Size	No. of Pins	Dimensions A	B	C	Digi-Key Part No.	Price Each
13 x 13	169	1.894	1.675	1.200	A314-ND	28.04
15 x 15	225	2.094	1.875	1.400	A315-ND	34.94
17 x 17	289	2.294	2.075	1.600	A316-ND	42.62
19 x 19	361	2.494	2.275	1.800	A317-ND	51.26
21 x 21	441	2.694	2.475	2.000	A318-ND	60.93

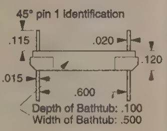
DIP Headers & Covers

Order Headers & Covers Separately



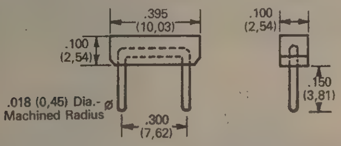
No. Of Pins	DIP Header Number	Pricing 1	10	100	Cover Selection Guide .27" Cover	.51" Cover	.65" Cover	.90" Cover
8	A101-ND	1.10	9.68	74.80	A105-ND	—	—	—
14	A102-ND	1.55	13.64	105.40	A106-ND	A107-ND	A108-ND	A109-ND
16	A103-ND	1.68	14.74	113.90	A110-ND	A111-ND	A112-ND	A113-ND
18	A133-ND	1.88	16.50	127.50	A137-ND	—	—	—
20	A104-ND	2.00	17.60	136.00	A114-ND	—	—	—
24	A134-ND	2 45	21.56	166.60	A138-ND	A139-ND	—	—
28	A135-ND	2.88	25.30	195.50	A140-ND	—	—	—
40	A136-ND	3.80	33.44	258.40	A142-ND	—	—	—

Cover	Pricing 1	10	100
A105-ND, A106-ND	.33	2.70	21.60
A107-ND-A111-ND	.36	2.93	23.40
A112-ND, A113-ND	.39	3.15	25.20
A114-ND	.41	3.38	27.00
A137-ND	.38	3.30	25.50
A138-ND	.40	3.52	27.20
A139-ND	.48	4.18	32.30
A140-ND	.53	4.62	35.70
A142-ND	.58	5.06	39.10



DIP Connectors

- Stacks on .100 centers. Body 30% glass filled thermoplastic.
- Pin .018 dia. spring tempered brass with round end for ease of insertion. • Pin 10μ gold plated (per MIL-G-45204) over 50μ nickel (per QQ-N-290). Aries DIP Connectors plug in as a "matched set" to give excellent retention in the bifurcated contact. Firm mating between matching Connector and Header rails prevent any lateral movement within the contacts.

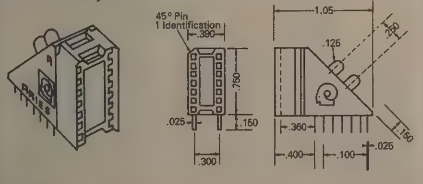


A123-ND ....**$.51 each; $4.25/10; $38.25/100**

Vertical Socket

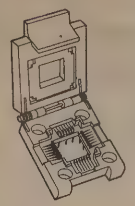
For Displays on .300 Centers, 14 pin

These low cost Vertisockets are recommended for high volume vertical display mounting applications. Available in Tin Plated only.



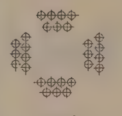
A116-ND..................**$2.81 each; $22.95/10; $183.60/100**

PLCC ZIF Test Sockets

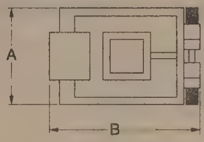


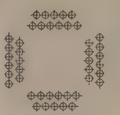
Features:
- Zero Insertion Force.
- Corner posts provide positive package registration.
- 12μ" Gold plating.
- 10,000 insertions min.

Application:
- Can be shimmed to accept many Ceramic, Leadless and J-Lead Packages.

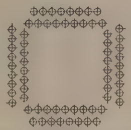


28 pin

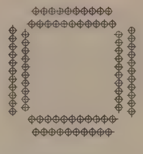




44 pin



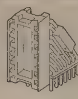
68 pin

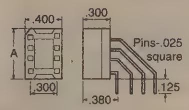


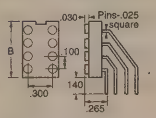
84 pin

No. of Pins	Dimensions A	B	Digi-Key Part No.	Price per Piece 1	10	100
28	1.181	1.605	A310-ND	54.36	47.57	40.77
44	1.339	1.772	A311-ND	58.12	50.86	43.59
68	1.654	2.343	A312-ND	62.86	55.01	47.15
84	1.890	2.580	A313-ND	80.62	70.55	60.47

Vertisockets Vertical Mount







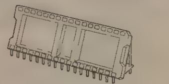
A117-ND—A121-ND **A122-ND—A125-ND**

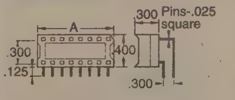
Features: • Restricted entry for contact protection. • Maximum electrical contact. • Accepts standard LEDs and Incandescent displays as well as .5" and .6" high large displays.

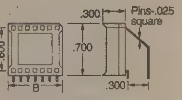
Contacts: Grade A spring tempered phosphor bronze. **Plating:** 10μ gold (per MIL-G-45204) over 50μ nickel (per QQN-290), 100μ tin plating (per MIL-T-10727) over 50μ nickel (per QQN-290). **Socket:** Glass filled thermoplastic.

No. of Pins	Pin Centers	Description	Dimensions A	B	Digi-Key Part No.	Pricing 1	10	100
8	300	Gold Plated	.45	—	A117-ND	4.28	37.62	290.70
14	.300	Gold Plated	.75	—	A118-ND	5.08	44.66	345.10
16	.300	Gold Plated	.85	—	A119-ND	6.60	58.08	448.80
14	.300	Tin Plated	.75	—	A120-ND	3.78	33.22	256.70
16	.300	Tin Plated	.85	—	A121-ND	5.13	45.10	348.50
10	.300	Collet Contacts	—	.495	A122-ND	6.55	57.64	445.40
14	.300	Collet Contacts	—	.695	A124-ND	8.15	71.72	554.20
16	.300	Collet Contacts	—	795	A125-ND	9.00	79.20	612.00

Vertisockets Horizontal Mount







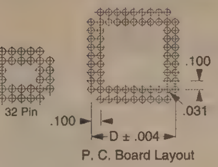
A126-ND—A129-ND **A130-ND—A132-ND**

Features: • Restricted entry for contact protection. • Maximum electrical contact. • Accepts standard LEDs and Incandescent displays as well as .5" and .6" high large displays.

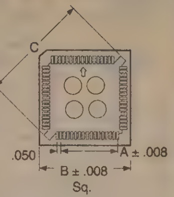
Contacts: Grade A spring tempered phosphor bronze. **Plating:** 10μ gold (per MIL-G-45204) over 50μ nickel (per QQN-290), 100μ tin plating (per MIL-T-10727) over 50μ nickel (per QQN-290). **Socket:** Glass filled thermoplastic.

No. of Pins	Pin Centers	Description	Dimensions A	B	Digi-Key Part No.	Pricing 1	10	100
8	.300	Gold Plated	.45	—	A126-ND	3.53	31.02	239 70
14	.300	Gold Plated	.75	—	A127-ND	4.30	37.84	292.40
16	.300	Gold Plated	.85	—	A128-ND	4.68	41.14	317 90
20	.300	Gold Plated	1.05	—	A129-ND	5.75	50.60	391.00
24	.600	Gold Plated	—	1.25	A130-ND	8.85	77.88	601.80
28	.600	Gold Plated	—	1.45	A131-ND	9.93	87.34	674.90
40	.600	Gold Plated	—	2.05	A132-ND	12.93	113.74	878.90

PLCC Sockets



P. C. Board Layout



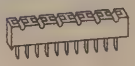
Solder Tail Features:
- Accepts JEDEC leaded Type A (plastic leaded chip carrier) PLCC.
- Contact solder tails on .100 grid.
- Low profile.
- Tin plated contacts.

Surface Mount Features:
- JEDEC pc board patterns for surface mount pins on .050 centers.
- Tin plated contacts.

No. of Pins	Dimensions A	B	C	D	Digi-Key Part No.	Pricing 1	10	100
Solder Tail								
28	.300	.713	.866	.490	A415-ND	1.78	15.62	120.70
32	.300x.400	.693x.797	.937	.490x.585	A416-ND*	1.85	16.28	125.80
44	.500	.965	1.142	.690	A417-ND	1.95	17.16	132.60
52	.600	1.063	1.319	.790	A418-ND	2.40	21.12	163.20
68	.800	1.201	1.563	.990	A419-ND	2.43	21.34	164.90
84	1.000	1.402	1.846	1.190	A420-ND	2.60	22.88	176.80
Surface Mount								
28	.300	.713	—	.490	A421-ND	2.28	20.02	154.70
32	.300x.400	.693x.797	,937	.490x.585	A422-ND*	2.45	21.56	166.60
44	.500	.913	—	.690	A423-ND	2.48	21.78	168.30
52	.600	1.013	—	.790	A424-ND	2.60	22.88	176.80
68	.800	1.213	—	.990	A425-ND	3.10	27.28	210.80
84	1.000	1.913	—	1.190	A426-ND	3.43	30.14	232.90
O.K. Industries Tool								
K293-ND	PLCC Extraction Tool							$19.95

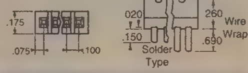
* Rectangular.

Strip Line SIP Socket



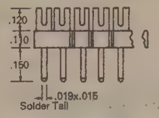
Contacts: Grade A spring temper phosphor bronze QQB-7500. **Plating:** 100μtin plating per MIL-T-10727. **Socket:** Glass filled thermoplastic.

STRIP-LINE
Bifurcated Contacts



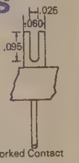
No. Of Pins	Solder Tail Part No.	Pricing 1	10	100	Wire Wrap Part No.	Pricing 1	10	100
12	A200-ND	1.16	9.45	75.60	A204-ND	2.45	20.03	160.20
20	A201-ND	1.54	12.60	100.80	A205-ND	3.60	29.48	235.80
25	A202-ND	1.93	15.75	126.00	A206-ND	4.51	36.90	295.20
34	A203-ND	2 17	17.78	142.20	A207-ND	5.56	45.45	363.60

Strip Line SIP Headers



25
Contact Header

PLATING = 100μ"
TIN



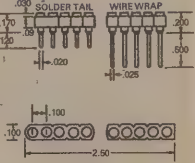
Coined Contacts

"Break" feature on Pin Line Headers assures Headers can be easily snapped off to any number of positions without loss or damage to any pins. No tool is required. The "break" feature minimizes stocking problems and gives immediate adaptability for any length Header requirement to any grid or matrix pattern.

A115-ND **$2.64/1; $21.60/10; $172.80/100**

Pin Line Sockets with "Break" Feature

Tin-plated Pin Line sockets can be snapped apart into any required number of pins without damage or loss of pins. Pin Line sockets are low profile and used for mounting devices with .100 spacing between pins. Rows of socket strips may be mounted on any centers or side-by-side for .100 grid or matrix patterns. Strips also butt end-to-end and maintain .100 spacing.

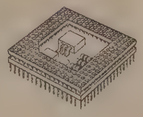


No. of Pins	Digi-Key Part No.	Pricing 1	10	100
Solder Tail Dip Socket with Screw Machined Pin				
25	A208-ND	2.42	19.80	158.40
Wire Wrap Socket with Screw Machined Pin				
25	A209-ND	7.45	60.98	487.80

ARIES ELECTRONICS, INC.

Upgrade Modules

Upgrade Socket for PGA packages allows placement of the DX4 chip into the socket provided as part of the Upgrade Module. Does not require any soldering.



Upgrade Adapter for SQFP packages allows the SQFP package to be converted to a leaded PGA package through soldering the Intel package to the Aries adapter.

Description	Digi-Key Part No.	Price Each 1	25	Aries Part No.
Socket Upgrade	A177-ND	35.45	31.43	97-486DX2UA
Socket Upgrade-Enhanced	A179-ND* ***NEW!***	39.00	34.58	97-486DX2UC

* Also works with INTEL & AMD's enhanced versions.

Adapters

Quad Flat Pack (QFP) to PGA

Adapters convert surface mount type Quad Flat Pack (QFP) packages to standard pin grid array through-hole packages on .100 pin spacing. This allows the surface mount QFP package to be used in standard PGA and PGA ZIF sockets, which is extremely useful for testing. Typically, surface mount QFP packages are less expensive than their through-hole PGA counterparts. The surface mount packages are often more readily available. Also, the user does not have to redesign a through-hole board in order to utilize the advantages of the surface mount QFP packages.

Fig. 1

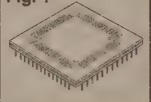


Fig. 2

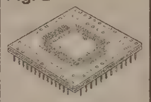


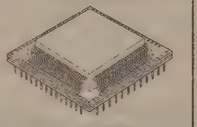
Fig. No.	Chip Type/ Mfg	Pads #	PGA Pins/ #	Matrix	Digi-Key Part No.	Price Each 1	25	Aries Part No.
1	JEDEC	132	132	13x13	A174-ND	25.04	22.20	95-132I25
1	JEDEC	196	196	17x17	A155-ND	22.07	19.62	55-196I25
2	EIAJ	100	100	13x13	A175-ND	24.20	21.46	96-100M65
2	EIAJ	160	160	15x15	A176-ND	24.20	21.46	96-160M65
2	EIAJ	184	184	15x15	A162-ND	21.35	18.98	56-184M65

Chip Specific Adapters

(Motorola & Intel)

Quad Flat Pack (QFP) to PGA

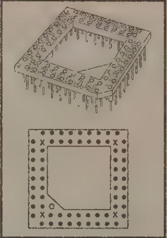
Contact Pins: .018 (,457) inch dia. Phos-Bronze. **Plating:** Gold over nickel interliner. **Rating:** 125°C maximum continuous use temperature.



Chip Type/ Mfg	PGA Pins #	Matrix	Pads #	Digi-Key Part No.	Price Each 1	25	Aries Part No.
Motorola/MC68030	128	13x13	132	A165-ND	23.62	21.00	57-68030
Motorola/DSP56000/1	88	13x13	132	A169-ND	24.53	21.81	57-56000
Intel/80486DX	168	17x17	196	A170-ND	13.50	12.00	57-486DX

Chip Carriers

- Your present PLCC devices can be used in thru-hole applications by soldering to our adapters.
- Your standard JEDEC footprints are converted to PGA footprints.
- Your PGA Sockets (LIF) will save space.
- Your p.c. board will have more space for conductor runs when converted to .100 (2,54) pin spacing.
- Polarization option available.
- Your standard test clip can be used for testing.



SPECIFICATIONS: Body: Copper Clad FR-4 Solder Plated. **Pins:** Brass, Tin/Lead Plated.

Pin Count	Digi-Key Part No.	Price Each 1	25	100	Aries Part No.
68	A171-ND	7.95	5.70	4.95	68-505-110

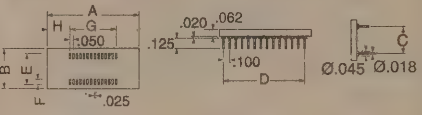
ARIES ELECTRONICS, INC.

Surface Mount SOIC to DIP and SOJ to DIP Adapters

Materials: Board: .062 (1.57) thick double-sided FR-4 with 1 oz. copper traces. **Pins:** Brass alloy 360, 1/2 hard per QQ-B-626

Plating: 200µ" min. 93/7 tin/lead per MIL-T-10727 type 1 over 100µ" min. nickel per QQ-N-290.

Suggested P.C.B. mounting hole = .028 (0.713 Dia.).



No. of Pins	Digi-Key Part No.	Dimensions A	B	C	D	E	F	G	H
20	A325-ND	1.000	.420	.300	.900	.350	.090	.600	.060
24	A322-ND	1.200	.450	.300	1.100	.420	.138	.550	.180
28	A320-ND	1.400	.700	600	1.300	.450	.075	.650	.375
28	A321-ND	1.400	.420	.300	1.300	.350	.090	.650	.375
32	A323-ND	1.600	.700	.600	1.500	.650	.200	.750	.425
32	A324-ND	1.600	.530	.400	1.500	.500	.090	.750	.425

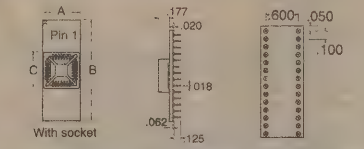
No. of Pins	Type	Digi-Key Part No.	Price Each 1	25	100	Aries Part No.
20	SOJ	A325-ND	6.75	6.00	5.25	20-350001-10
24	SOIC	A322-ND	5.06	4.50	3.94	24-350000-10
28	SOIC	A320-ND	8.44	7.51	6.57	28-650000-10
28	SOIC	A321-ND	6.75	6.00	5.25	28-350002-10
32	SOJ	A323-ND	11.48	10.21	8.94	32-650000-10
32	SOJ	A324-ND	10.13	9.01	7.89	32-450001-10

Surface Mount PLCC to DIP Adapters

Materials: Pins and Contacts: Phosphor bronze adaptor. **Body:** FR-4, .062 thick. **Socket:** LCP, UL 94V-0 rated. **Pads & Traces:** 1 oz. min. copper.

Plating: Pins: 200µ" tin per MIL-T-10727 over 100µ" nickel per QQ-N-290.

Contacts: 150µ" 90/10 tin/lead.



No. of Pins	Dimensions A	B	C	Digi-Key Part No.	Price Each 1	25	Aries Part No.
28	.77	1.40	.705	A326-ND	15.53	13.81	28-653000-10
44	.97	2.20	.910	A327-ND	17.55	15.60	44-653000-10
68	1.28	3.40	1.220	A328-ND	21.94	19.51	68-653000-10
84	1.48	4.20	1.420	A329-ND	22.95	20.40	84-653000-10

TO to DIP Adapter/Socket

Features:

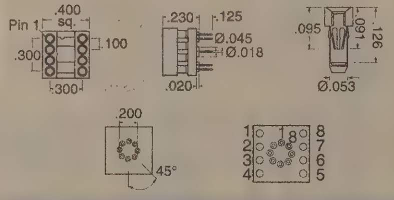
- 8-pin DIP IC socket on the top and a circular, 8-pin TO can male pin footprint on the bottom, can be readily mounted on boards having TO thru-hole footprints without having to redesign the board.

Specifications:

- Socket body is black UL 94V-0 glass-filled polyester thermoplastic
- Female pin body plating is 200µ min. Tin over 100µ min. Nickel.
- Contact plating is 10µ min. Gold 50µ min. Nickel.
- Male pin is Brass Alloy 360.
- Male pin plating is 200µ min. Tin.
- Current rating: 3 Amps.
- Operating temperature: 221°F (105°C) Tin plating.
- Accepts leads .015-.025 (.38-.64) in diameter, .100-.125 long.

Mounting Considerations:

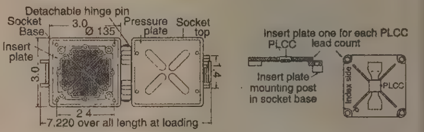
- Suggested PCB hole size: .028 ± .002 diameter.

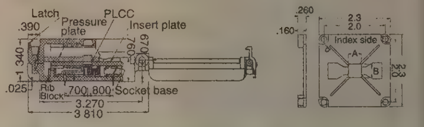


Digi-Key Part No.	Price Each 1	25	100	500	Aries Part No.
A330-ND	6.62	5.89	5.16	4.79	1109523

Surface Mount Universal PLCC ZIF Test Sockets

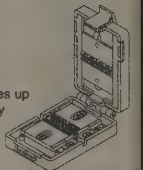
Specifications: Plastic Parts: UL 94V-0 glass-filled thermoplastic. **Contact Pin:** Beryllium copper. **Fasteners, Spring, Hinge Pins:** Stainless steel. **Temperature Range:** -65°C to +125°C. **Life Cycle:** 10,000 insertions maximum.


Detachable hinge pin
Socket Base
3.0
Ø 135
Pressure plate
Socket top
Insert plate
3.0
1.4
2.4
7.220 over all length at loading
Insert plate one for each PLCC lead count
PLCC
Insert plate mounting post in socket base
Index side
PLCC



No. Of Pins	Dimensions A	B	Digi-Key Part No.	Price Each 1	25	Aries Part No.
—	—	—	A331-ND	164.59	—	84-537-21
Adapter Plates						
20	.395/.397	.395/.397	A332-ND	13.50	12.00	20-537-20
28	.495/.497	.495/.497	A333-ND	13.50	12.00	28-537-20
32	.495/.497	.595/.597	A334-ND	13.50	12.00	32-537-20
44	.695/.697	.695/.697	A335-ND	13.50	12.00	44-537-20
52	.795/.797	.795/.797	A336-ND	13.50	12.00	52-537-20
68	.995/.997	.995/.997	A337-ND	13.50	12.00	68-537-20
84	1.195/1.197	1.195/1.197	A338-ND	13.50	12.00	84-537-20

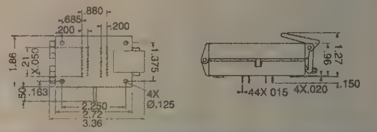
Surface Mount Universal SOIC ZIF Test Sockets



Socket Accepts: SOIC gull wing & J-lead devices up to 44 pin devices; .050 (1.27) lead pitch; body widths from .15 (3.81) to .60 (15.24).

Materials: Body: Glass-filled PPS, UL 94V-0 rated. **Contacts:** Beryllium copper alloy per QQ-C-543. **Hardware:** Stainless Steel.

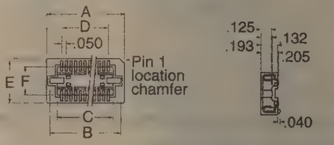
Plating: 20µ" min. gold per MIL-G-45204 over 100µ": min. nickel per QQ-N-290 over 20µ" min. copper per MIL-C-14550.



Digi-Key Part No.	Pricing 1	Aries Part No.
A339-ND	159.60	44-547-11

Surface Mount Series 538 SOJ J-Lead Sockets

Base Material: Black Nylon 6T. **Contact:** 120µ" min. tin-plated phosphor bronze. **Current Rating:** 1 amp. max. per contact. **Operating Temperature:** -55°C to +105°C. **Insulation resistance:** 10,000 megohms min. initial. **Normal force per contact:** 200 grams min. **Durability:** 40 cycles min.

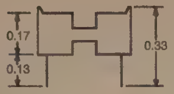


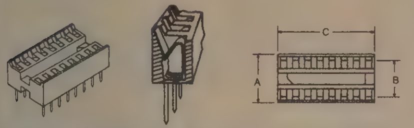
No. of Pins	Digi-Key Part No.	Dimensions A	B	C	D	E	F
24	A340-ND	.913	.831	.657	.550	.528	.331
26	A341-ND	.963	.876	.708	.600	.528	.331
28	A342-ND	1.017	.930	.758	.650	.528	.331
28	A343-ND	1.013	.930	.758	.650	.630	.429
32	A344-ND	1.113	1.030	.858	.750	.528	.331
40	A345-ND	1.314	1.231	1.034	.950	.630	.429

Digi-Key Part No.	Price Each 1	25	100	500	Aries Part No.
A340-ND	1.73	1.54	1.35	1.25	24-S538-00
A341-ND	1.85	1.65	1.45	1.34	26-S538-00
A342-ND	1.98	1.76	1.54	1.43	28-S538-00
A343-ND	1.98	1.76	1.54	1.43	28-L538-00
A344-ND	2.30	2.05	1.80	1.67	32-S538-00
A345-ND	2.84	2.53	2.22	2.06	40-L538-00

ASSMANN

I.C. Sockets
Solder Tail





Contacts: Phosphor bronze. Protection against capillary version. **Mechanical and electrical data:** Transitional resistance ≤ 12 m Ω. Capacity between adjacent contacts <0.9 pF. Capacity between opposite adjacent contacts <0.4 pF. Breakdown voltage 600 V_{eff}. Insertion force ≤ 1.5 N · Extraction force ≥ 0.7 N. **Insulators:** Polyester GV,VO,UL 94. Insulation resistance 10^{12} Ω. Operation temperature range - 65°C to +150°C.

Dimensions A	B	C	Digi-Key Part No.
0.39	0.30	0.30	AE8906-ND
0.39	0.30	0.30	AE9806-ND
0.39	0.30	0.39	AE8908-ND
0.39	0.30	0.39	AE9808-ND
0.39	0.30	0.70	AE8914-ND
0.39	0.30	0.70	AE9814-ND
0.39	0.30	0.80	AE8916-ND
0.39	0.30	0.80	AE9816-ND
0.39	0.30	0.90	AE8918-ND
0.39	0.30	1.90	AE9818-ND

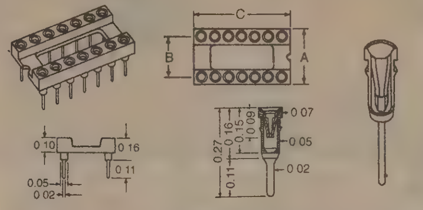
Dimensions A	B	C	Digi-Key Part No.
0.39	0.30	1.00	AE8920-ND
0.30	0.30	1.00	AE9820-ND
0.50	0.40	1.10	AE8922-ND
0.50	0.40	1.10	AE9822-ND
0.70	0.60	1.20	AE8924-ND
0.70	0.60	1.20	AE9824-ND
0.70	0.60	1.40	AE8928-ND
0.70	0.60	1.40	AE9828-ND
0.70	0.60	2.00	AE8940-ND
0.70	0.60	2.00	AE9840-ND

No. of Cont.	Contact Plating	Digi-Key Part No.	Pricing 1	10	100	500	Assmann Part No.
6	Tin	AE8906-ND	.18	1.56	12.60	54.00	A06-LC-TT
6	Gold	AE9806-ND	33	2.83	22.89	98.10	A06-LCG
8	Tin	AE8908-ND	.20	1.69	13.65	58.50	A08-LC-TT
8	Gold	AE9808-ND	.36	3.12	25.20	108.00	A08-LCG
14	Tin	AE8914-ND	.21	1.82	14.70	63.00	A14-LC-TT
14	Gold	AE9814-ND	.57	4.94	39.90	171.00	A14-LCG
16	Tin	AE8916-ND	.24	2.08	16.80	72.00	A16-LC-TT
16	Gold	AE9816-ND	.65	5.64	45.57	195.30	A16-LCG
18	Tin	AE8918-ND	.27	2.34	18.90	81.00	A18-LC-TT
18	Gold	AE9818-ND	.73	6.34	51.24	219.60	A18-LCG
20	Tin	AE8920-ND	.30	2.60	21.00	90.00	A20-LC-TT
20	Gold	AE9820-ND	.81	7.05	56.91	243.90	A20-LCG
22	Tin	AE8922-ND	.33	2.86	23.10	99.00	A22-LC-TT
22	Gold	AE9822-ND	.89	7.75	62.58	268.20	A22-LCG
24	Tin	AE8924-ND	.36	3.12	25.20	108.00	A24-LC-TT
24	Gold	AE9824-ND	.98	8.45	68.25	292.50	A24-LCG
28	Tin	AE8928-ND	.42	3.64	29.40	126.00	A28-LC-T
28	Gold	AE9828-ND	1.14	9.88	79.80	342.00	A28-LCG
40	Tin	AE8940-ND	.60	5.20	42.00	180.00	A40-LC-TT
40	Gold	AE9840-ND	1.63	14.12	114.03	488.70	A40-LCG

ASSMANN

I.C. Sockets Machine Pin

with gold plated precision spring contacts, open frame, solder pin terminals.



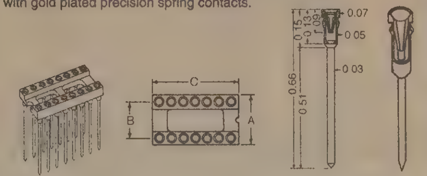
Contacts: Contact spring: copper alloy, slit 4 times. Surface gold over nickel. Absolute protection against capillary action. Connecting pins brass, solder version. **Mechanical and electrical data:** Depth of insertion 2.3 to 3.7 mm. Vibration 20 g after MIL-STD-202. Shock 150 g to MIL-STD-202. Insertion frequency > 1000. Transitional resistance after 100 insertion cycles ≤ 12 m Ω. Capacity between adjacent contacts < 0.9 pF. Capacity between opposite adjacent contacts < 0.4 pF. Air and creepage space between adjacent contacts > 0.4 mm. Tensile strength 1000 V_{eff}. **Insulators:** Polyester GV, VO self-extinguishing UL 94. Insulation resistance 10^{12} Ω. Operating temperature range -65°C to + 150°C. Retains shape in solder bath. Resistant to detergent. **Cont. Plating:** Pin: Tin Clip: Gold.

No. of Cont.	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	10	100	Assmann Part No.
8	0.40	0.30	0.40	AE7208-ND	.42	3.67	29.61	AR08-HZL
14	0.40	0.30	0.70	AE7214-ND	.74	6.42	51.87	AR14-HZL
16	0.40	0.30	0.80	AE7216-ND	.85	7.33	59.22	AR16-HZL
18	0.40	0.30	0.90	AE7218-ND	.95	8.24	66.57	AR18-HZL
20	0.40	0.30	1.00	AE7220-ND	1.06	9.18	74.13	AR20-HZL
22	0.50	0.40	1.10	AE7222-ND	1.16	10.09	81.48	AR22-HZL
24	0.70	0.60	1.20	AE7224-ND	1.27	11.00	88.83	AR24-HZL
28	0.70	0.60	1.40	AE7228-ND	1.48	12.84	103.74	AR28-HZL
40	0.70	0.60	2.00	AE7240-ND	2.12	18.36	148.26	AR40-HZL
48	0.70	0.60	2.40	AE7248-ND	2.54	22.02	177.87	AR48-HZL
64	1.00	0.90	3.20	AE7264-ND	3.39	29.37	237.22	AR64-HZL

ASSMANN

I.C. Sockets
Wire-Wrap

with gold plated precision spring contacts.

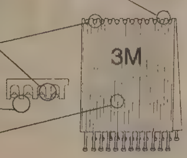


Contacts: Contact spring: copper alloy, slit 4 times. Surface gold over nickel. Absolute protection against capillary action. Connecting pins brass, solder version. **Mechanical and electrical data:** Depth of insertion 2.3 to 3.7 mm. Vibration 20 g after MIL-STD-202. Shock 150 g to MIL-STD-202. Insertion frequency > 1000. Transitional resistance after 100 insertion cycles ≤ 12 m Ω. Capacity between adjacent contacts < 0.9 pF. Capacity between opposite adjacent contacts < 0.4 pF. Air and creepage space between adjacent contacts > 0.4 mm. Tensile strength 1000 V_{eff}. **Insulators:** Polyester GV, VO self-extinguishing UL 94. Insulation resistance 10^{12} Ω. Operating temperature range -65°C to + 150°C. Retains shape in solder bath. Resistant to detergent. **Cont. Plating:** Pin: Tin, Clip: Gold

No. of Cont.	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	10	100	Assmann Part No.
8	0.40	0.30	0.40	AE7108-ND	.96	8.32	67.20	AR08-HZW
14	0.40	0.30	0.70	AE7114-ND	1.65	14.30	115.50	AR14-HZW
16	0.40	0.30	0.80	AE7116-ND	1.89	16.38	132.30	AR16-HZW
18	0.40	0.30	0.90	AE7118-ND	2.13	18.46	149.10	AR18-HZW
20	0.40	0.30	1.00	AE7120-ND	2.37	20.54	165.90	AR20-HZW
22	0.50	0.40	1.10	AE7122-ND	2.61	22.62	182.70	AR22-HZW
24	0.70	0.60	1.20	AE7124-ND	2.85	24.70	199.50	AR24-HZW
28	0.70	0.60	1.40	AE7128-ND	3.30	28 60	231.00	AR28-HZW
40	0.70	0.60	2.00	AE7140-ND	4.74	41.08	331.80	AR40-HZW

3M IC Test Clips

- Simplifies prototype and production testing, field service work, and Quality Control. • New one-piece body for each DIP size. TC-14 fits 14-pin DIP, etc.
- High reliability Gold contacts. • Proven 770 Alloy contacts.



New "open-nose" design now permits probe tip access at DIP leads.

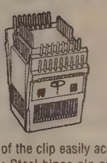
"Contact comb" fits between DIP leads – eliminating any possibilities of shorts.

New "duck-bill" contacts are flat-won't roll off new narrow DIP leads.

Rugged, engineering-grade thermoplastic body molded around contact pins

No. of Pins	Row to Row (In.)	Nail-Head Leads Part No.	Headless Leads Part No.	Pricing 1
Alloy 770				
8	.3	923695-ND	923690-08-ND	6.47
14	.3	923698-ND	923690-14-ND	6.68
16	.3	923700-ND	923690-16-ND	6.78
16	.5/.6	923702-ND	923690-16LSI-ND	12.57
18	.3	923703-ND	923690-18-ND	10.27
20	.3	923704-ND	923690-20-ND	10.85
22	.5/.6	923705-ND	923690-22-ND	14.05
24	.5/.6	923714-ND	923690-24-ND	14.85
24	.3	923715-ND	923689-24-ND	14.85
28	.5/.6	923718-ND	923690-28-ND	18.30
28	.3	923717-ND	923689-28-ND	18.30
36	.5/.6	923720-ND	923690-36-ND	20.59
40	.5/.6	923722-ND	923690-40-ND	21.74
48	.5/.6	923724-ND	923690-48-ND	29.79
64	.9	923726-ND	923690-64-ND	34.37
Gold Plated				
8	.3	923743-08-ND	923739-08-ND	8.35
14	.3	923743-14-ND	923739-14-ND	8.64
16	.3	923743-16-ND	923739-16-ND	8.92
16	.5/.6	923743-16-LSI-ND	923739-16-LSI-ND	15.67
18	.3	923743-18-ND	923739-18-ND	12.90
20	.3	923743-20-ND	923739-20-ND	13.59
22	.5/.6	923743-22-ND	923739-22-ND	17.62
24	.5/.6	923743-24-ND	923739-24-ND	18.64
24	.3	923742-24-ND	923738-24-ND	18.64
28	.5/.6	923743-28-ND	923739-28-ND	22.89
28	.3	923742-28-ND	923738-28-ND	22.89
36	.5/.6	923743-36-ND	923739-36-ND	25.82
40	.5/.6	923743-40-ND	923739-40-ND	27.26
48	.5/.6	923743-48-ND	923739-48-ND	37.31
64	.9	923743-64-ND	923739-64-ND	43.04

3M Surface Mount Test Clips
by 3M Electronic Specialty Products



Features: • Allow safe, convenient, fast and easy testing of normally hard-to-access. Small Outline Integrated Circuits (SOICs). • Eight sizes available for .30" and .15" package sizes. • Helical compression springs and insulating contact combs ensure contact integrity during testing. • Permits devices stacked as close as .0505" end-to-end to be tested simultaneously. • Standard .025" square contacts on .10" centers at the probe end of the clip easily accept test probes or single row female socket connectors. • Steel hinge pin and glass filled polyester body provide long service life. • Available with alloy 764 unplated and gold plated leads. • Allows safe, convenient testing of Plastic Leaded Chip Carrier (PLCC) style ICs. • All four sides of test clip open simultaneously for fast and easy attachment to PLCC being tested. • Stays securely clamped to PLCC until removed. • Helical compression springs and insulating contact combs ensure contact integrity during testing. • Permits testing of ICs with as little as .200" row to row spacing between devices. • Staggered contact rows on .100" centers. • Industry standard .025" square contact pins on the .100" centers. • Available with alloy 764 leads and gold plated leads.

No. of Pin	Descrip.	Narrow Part #	Pricing 1	Wide Part #	Pricing 1
SOIC					
8	Alloy 764	923650-08-ND	7.85	—	—
14	Alloy 764	923650-14-ND	8.47	—	—
16	Alloy 764	923650-16-ND	8.97	923660-16-ND	8.97
18	Alloy 764	—	—	923660-18-ND	10.04
20	Alloy 764	—	—	923660-20-ND	11.29
24	Alloy 764	—	—	923660-24-ND	11.29
28	Alloy 764	—	—	923660-28-ND	12.20
8	Gold Plated	923655-08-ND	8.74	—	—
14	Gold Plated	923655-14-ND	9.42	—	—
16	Gold Plated	923655-16-ND	9.97	923665-16-ND	9.97
18	Gold Plated	—	—	923665-18-ND	11.14
20	Gold Plated	—	—	923665-20-ND	11.34
24	Gold Plated	—	—	923665-24-ND	12.54
28	Gold Plated	—	—	923665-28-ND	13.55

No. of Pin	Descrip.	PLCC Part #	Pricing 1	LCC Part #	Pricing 1
PLCC & LCC					
20	Alloy 764	923670-20-ND	25.01	923680-20-ND	26.79
28	Alloy 764	923670-28-ND	26.69	923680-28-ND	36.71
44	Alloy 764	923670-44-ND	34.49	923680-44-ND	44.51
68	Alloy 764	923670-68-ND	40.06	923680-68-ND	54.29
20	Gold Plated	923675-20-ND	27.81	923685-20-ND	32.26
28	Gold Plated	923675-28-ND	33.37	923685-28-ND	43.39
44	Gold Plated	923675-44-ND	37.14	923685-44-ND	52.31
68	Gold Plated	923675-68-ND	44.19	923685-68-ND	65.68
84	Gold Plated	923675-84-I-ND	47.78	—	—

Chip Tester/Identifier

CHIP TESTER

- Very easy to use, no typing of logic numbers necessary. (Anyone can use it.) • Fast and accurate (results in less than one second). • Tests/identifies 54/74, CMOS, Fairchild, 9000 Motorola, MC 3000, National Semiconductor (70/80 and Signetics 82 Logic Series). • Small in size. L x W x H = 5.9" x 3.62" x 1.1". Runs off of 5 VDC wall transformer (included).

This unique chip tester/identifier will test or identify most Logic IC's. To operate, merely put the IC in the zip socket, lift the lock in lever, and results appear on the four-digit readout, i.e., if you plug a 74125 in the socket, the readout would be "125" if it is good or "···" if it is bad. Anyone can operate this chip tester/identifier. 14-20 pin.

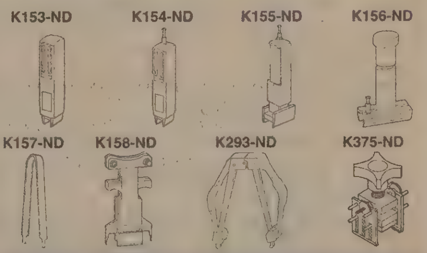
Digi-Key Part No. CT1-ND **$259.00**

Digi-Key Part No. CT2-ND **$277.40**
- CT1-ND with RAM Test, ROM installed (4164, 41256).

Digi-Key Part No. RU2-ND **$44.82**
- ROM upgrade kit for CT1-ND, (For testing 4164, 41256).

OK Industries Inc.

IC Insertion/ Extraction Tools

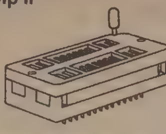


Description	Digi-Key Part No.	Pricing 1
14-16 Pin Dip/IC Inserter	K153-ND	9 75
14-16 Pin CMOS Safe Inserter	K154-ND	19.00
24-28 Pin CMOS Safe Inserter	K155-ND	19.00
36-40 Pin CMOS Safe Inserter	K156-ND	21.50
Extractor Tool, (8 to 24 pins)	K157-ND	2 95
Extractor Tool, (28 to 40 pins)	K158-ND	21.89
Insertion & Extraction Kit	K159-ND	69.81
Universal PLCC Extraction Tool	K293-ND	19.95
Low Cost Universal PLCC Extractor	K374-ND	7.95
Universal PGA Insert/Extract Kit*	K375-ND	230.73

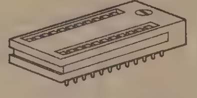
The K159 Kit contains: K154, K155, K156, K157 and K158.
* K375-ND, Comes complete with Case and two sets of Jaws.

TEXTOOL/3M Zero Insertion Force I.C. Sockets

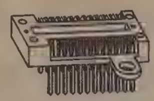
ZIP Dip II



Econo ZIF



Receptacle for ZIP DIP Sockets



ZIP Dip II Sockets: For test and burn-in of all common dual-in-line packages on .100" lead spacing. The zero insertion pressure feature allows easy insertion and removal without lead distortion. Receptacles are ideal for high use situations such as PROM programming.

Econo ZIF Sockets: Designed for OEM/end use applications where field replacement or programming of DIPs is required. The patented ZIF feature uses screwdriver rotation of a cam (instead of a lever) for security against vibration or accidental unloading. Leads are on .100" centers.

Receptacles for ZIP DIP

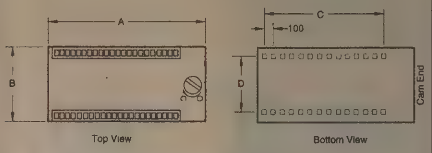
Features: • Matching receptacle for every ZIP DIP Socket • Mounting flange standard option to hold receptacle to board • Pre-tapped holes in receptacle body mate with screw-hole in socket to hold socket firmly to receptacle (2 screws provided with each receptacle) • Available in solder-tail options

Physical Specifications: • Insulation Material: Glass Reinforced Polysulfone, Flammability Rating: UL 94V-0 • Color: Green • Marking: Part Number Identification • Contact Material: Beryllium Copper • Plating: 30µ" (.076µm) Gold — MIL-G-45204, Type II, Grade C over 50µ" (1.3µm) Sulfamate Nickel per QQ-N-290A, Class 2 or 75µ" (1.9µm) Nickel Boron

Electrical Specifications: • Current Rating: 1Amp • Insulation Resistance: >1x10¹²Ω at 500 Vdc Withstanding Voltage: 1000Vrms at Sea Level **Environmental Specifications:** • Temperature Rating Operating: -67°F (-55°C) to +302°F (+150°C)

ZIP DIP Sockets .100 Centers - Double Dip

Features: • For DIPs with .100" lead spacing • Extra wide contact zone allows insertion of DIPs with distance between rows from .300" through .600" • Lever actuated zero insertion force mechanism • Socket easily disassembles for repairability



Top View

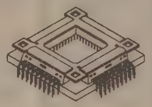
Bottom View

No. of Leads	Dimensions "A"	"B"	"C"	"D"
14	1.00	.50	.600	.300
16	1.10	.50	.700	.300
20	1.30	.50	.900	.300
24	1.50	.80	1.100	.600
28	1.70	.80	1.300	.600
40	2.30	.80	1.900	.600
48	2.74	.80	2.300	.600
64	3.54	1.10	3.100	.900

3M4099-ND Extraction Tool........................**$3.99**

No. of Pins	Contact Plating	Digi-Key Part No.	Pricing 1	10	3M Part No.
ZIP Dip Sockets					
14	Gold	3M1402-ND	11.71	83.72	2001403339-000006002
14	Tin	3M1405-ND	10.48	74.94	2001403339-000006005
16	Gold	3M1602-ND	12.73	91.00	2001603340-000006002
16	Tin	3M1605-ND	11.32	80.89	2001603340-000006005
18	Gold	3M1802-ND	13.75	98.29	2001803341-000006002
18	Tin	3M1805-ND	12.15	86.84	2001803341-000006005
20	Gold	3M2002-ND	14.75	105.43	2002003342-000006002
20	Tin	3M2005-ND	12.98	92.79	2002003342-000006005
22	Gold	3M2202-ND	15.77	112.71	2002203343-000006002
22	Tin	3M2205-ND	13.81	98.74	2002203343-000006005
24	Gold	3M2402-ND	16.79	120.00	2002403344-000006002
24	Tin	3M2405-ND	14.66	104.83	2002403344-000006005
28	Gold	3M2802-ND	18.80	134.42	2002803345-000006002
28	Tin	3M2805-ND	16.33	116.73	2002803345-000006005
40	Gold	3M4002-ND	24.88	177.85	2004003346-000006002
40	Tin	3M4005-ND	21.34	152.57	2004003346-000006005
64	Gold	3M6402-ND	43.08	307.96	2006404493-000006002
64	Tin	3M6405-ND	37.40	267.36	2006404493-000006005
Econo ZIF Sockets					
14	Gold	3M1403-ND	5.76	41.19	2001404839-000033003
14	Tin	3M1407-ND	5.57	39.85	2001404839-000033027
16	Gold	3M1603-ND	6.24	44.61	2001604840-000033003
16	Tin	3M1607-ND	6.03	43.12	2001604840-000033027
20	Gold	3M2003-ND	6.68	47.73	2002004842-000033003
20	Tin	3M2007-ND	6.32	45.20	2002004842-000033027
24	Gold	3M2403-ND	7.57	54.13	2002404844-000033003
24	Tin	3M2407-ND	7.26	51.90	2002404844-000033027
28	Gold	3M2803-ND	9.13	65.28	2002804845-000033003
28	Tin	3M2807-ND	8.74	62.45	2002804845-000033027
40	Gold	3M4003-ND	12.02	85.95	2004004846-000033003
40	Tin	3M4007-ND	11.46	81.93	2004004846-000033027
48	Gold	3M4803-ND	13.94	99.63	2004805201-000033003
48	Tin	3M4807-ND	13.27	94.87	2004805201-000033027
64	Gold	3M6403-ND	17.78	127.14	2006405200-000033003
64	Tin	3M6407-ND	16.89	120.74	2006405200-000033027
ZIP DIP Receptacle					
14	Gold	3M1401-ND	11.61	82.97	2001403592-006006002
14	Tin	3M1404-ND	10.46	74.80	2001403592-006006005
16	Gold	3M1601-ND	12.56	89.81	2001603593-006006002
16	Tin	3M1604-ND	11.23	80.30	2001603593-006006005
18	Gold	3M1801-ND	13.50	96.51	2001803593-006006002
18	Tin	3M1804-ND	12.02	85.95	2001803594-006006005
20	Gold	3M2001-ND	14.46	103.35	2002003595-006006002
20	Tin	3M2004-ND	12.79	91.45	2002003595-006006005
22	Gold	3M2201-ND	15.39	110.04	2002203596-006006002
22	Tin	3M2204-ND	13.58	97.10	2002203596-006006005
24	Gold	3M2401-ND	16.35	116.88	2002403597-006006002
24	Tin	3M2404-ND	13.31	95.17	2002403597-006006005
28	Gold	3M2801-ND	18.24	130.41	2002803598-006006002
28	Tin	3M2804-ND	15.91	113.76	2002803598-006006005
40	Gold	3M4001-ND	23.92	171.01	2004003599-006006002
40	Tin	3M4004-ND	20.59	147.21	2004003599-006006005
64	Gold	3M6401-ND	35.28	252.20	2006405119-006006002
64	Tin	3M6404-ND	29.95	214.13	2006405119-006006005
Double Dip Socket ZIP					
24	—	3M2406-ND	28.39	202.98	2002401286-000006003
28	—	3M2806-ND	28.60	204.46	2002806023-000006002
32	—	3M3206-ND	31.26	223.50	2003207282-000006002
40	—	3M4006-ND	36.57	261 41	2004006182-000006002

3M OEM PQFP Sockets



Features: • Accepts JEDEC MO-069 packages, lead sizes 84 through 196 • .025" centerline contacts for high-density packaging • Lid design separates, maintains IC lead spacing • Lid acts as package carrier and transport protector • Lid is compatible with conventional package shipping tubes and trays • Slotted, "open" socket walls and corners permit airflow around captured package (aids in package heat dissipation) • Hinged socket latches audibly "snap" signals secure lid/package assembly to base, expedites package withdrawal • .100" through hole contacts standard

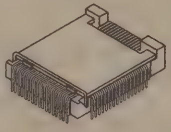
Physical Specifications:
• **Insulation Socket and Lid:** • Material: Glass Filled Polyethersulfone (PES) • Flammability: UL94 V-0 • Color: Black
• **Latching Aid:** • Material: Polycarbonate (PC) • Color: Black
• **Contact:** • Material: Beryllium Copper (C172) Plating • Underplate: 50µ" (1.27µm) Sulfamate Nickel • Wiping Area: 200µ" (5.08µm) 60/40 Tin Lead • Soldertails: 200µ" (5.08µm) 60/40 Tin Lead
• **Marking:** Raised Letters

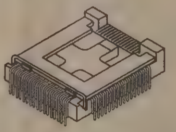
Electrical Specifications: • Current Rating: 1Amp • Insulation Resistance: >1x10¹²Ω • Withstanding Voltage: 1000 Vrms at Sea Level

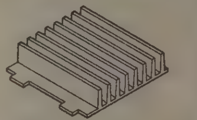
Environmental Specifications: • Temperature Rating Operating: -55°C to +105°C

No. of Contacts	Digi-Key Part No.	Pricing 1	10	3M Part No.
PQFP Socket Tin				
84	3M8409-ND	15.70	112.27	2008407242-07001800
100	3M1009-ND	18.53	132.49	2010007243-00001800
132	3M1329-ND	24.21	173.09	2013207244-07001800
164	3M1649-ND	29.79	212.94	2016407245-00001800
196	3M1969-ND	35.44	253.38	2019607246-00001800

3M OEM Type "A" LCC Sockets







Features: • Accepts JEDEC leadless type "A" ceramic chip carriers • Variety of lid options available • "U" lid for I.C.E. adaptor I/O cable egress • Head Sink(s) acceptable and available • Thruster spring helps register substrate three corner notches, maintain centering • Polarizing post on bottom of socket • Thru hole contact tails • No tools required for package insertion/removal • Full contact probe-ability • High temperature PPS plastic and BeCu contacts for rugged performance

Physical Specifications:

• **Insulation:** • Material: Glass Filled Polyphenylene Sulfide (PPS) • Flammability: UL94 V-0 • Color: Black • **Lid Material:** Aluminum • **Latch Material:** Stainless Steel • **Thruster & Contact Material:** Beryllium Copper (C172) Plating • Through Hole Version: • Underplate: 50µ" (1.27µm) Nickel • Wiping Area: 30µ" (0.76µm) Gold • Solder Tails: 30µ" (0.76µm) Gold • Surface Mount Version: • Underplate: 50µ" (1.27µm) Sulfamate Nickel • Wiping Area: Gold Flash Over 30µ" (0.76µm) 80/20 Palladium Nickel • Solder Tails: Gold Flash Over 30µ" (0.76µm) 80/20 Palladium Nickel • **Marking:** Raised Letters

Electrical Specifications: • Current Rating: 1Amp • Insulation Resistance: >1x10¹²Ω • Withstanding Voltage: 1000 Vrms at Sea Level

Environmental Specifications: • Operating Temperature Rating: -55° to +105°C

Lid Type	No. of Contacts	Digi-Key Part No.	Pricing 1	10	3M Part No.
LCC Sockets					
Full	68	3M6809A-ND	15.69	145.11	2006805400-000011002
No Lid	68	3M6809B-ND	15.25	141.12	2006805400-011011002
U-Shaped	68	3M6809C-ND	15.69	145.11	2006805400-050011002
Finned Heat Sink	68	3M6809D-ND	18.00	166.53	2006805400-064011002
LCC Socket Lid					
Full	—	3MLLSF-ND	.41	3.78	2006805400-002075000
U-Shaped	—	3MLLSU-ND	.41	3.78	2006805400-010075000
Finned Heat Sink	—	3MLLSH-ND	2.54	23.52	2006805400-007077000

BLUE EARTH RESEARCH™ Micro–440e™ Programmable Controller & Acc.

The original Micro-440 has been enhanced and now includes a ROMless 80C51FA CPU along with a socketed 32K EPROM.

The Micro–440e is an electronic chameleon that adapts to any challenge—from embedded control, automation, and data logging, to new product design and hobby projects.

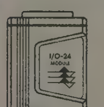
The unit comes completely assembled and ready for programming. Just connect 12 volts and your PC's serial port. The Micro–440e features the BASIC language which is simple to learn and allows you to create powerful control applications with ease. Once programmed, the controller is capable of stand alone operation through an autoexecute mode.

The Micro–440e's tiny size, low cost, and powerful architecture makes it an excellent controller choice for OEM's, industry, schools, laboratories, consultants, and personal control applications.

SPECIFICATIONS: High integration 12MHz 80C51FA includes high speed I/O capability, watch dog timer, high performance UART. • 32K socketed EPROM contains powerful, yet easy to learn, floating point BASIC interpreter and debug monitor programs. • 32K bytes of static RAM with write protect feature for storing programs and collected data. • Dual RS–232C serial ports for communicating with a PC and printer or other serial devices. • 8 high speed analog inputs convert 0-5 volt analog signals to 8-bit digital values in 40μS. • Clock/calendar module for time and date based operations including timed exit from low power modes. • Precision 5V regulator allows operation from almost any filtered 6-16 volt DC source. • Molded high impact ABS case protects internal components and provides professional appearance. • Low power CMOS components require just 70 mA maximum operating current. • 14 digital I/O lines plus expansion port for increasing memory or adding peripherals. • 850 mAh lithium battery maintains clock operation and retains RAM memory contents for 10+ years. • 6 layer circuit board incorporates surface mount construction for enhanced performance and reliability. • Innovative design uses premium components including gold plated connectors for high reliability.

Digi-Key Part No.	BE Research Part No.	Price.
BE-01E-ND	BE-01E	199.00
Order User's Manual (PM-03) and Complete Starter Packages below.		

MICRO–440e EXPANSION MODULES



I/O, Memory and 12-Bit A/D expansion modules come in the same case as the Micro 440e and plug directly into the Micro's expansion port. Multiple expanders can be connected with ribbon cable assemblies. All 3 expanders include documentation and a 5 1/4" application disk. All accessory modules come with a case.

I/O Expander:

• 82C55A peripheral interface device • 24 Reconfigureable I/O : (12) .5 amp MOSFET type outputs : (12) TTL/CMOS compatible I/O lines • Reprogrammable PLD address decoder • Interfaces directly to: Dot matrix LCD modules 4 x 4 keypads

Memory Expander:

• Accepts 28 or 32 pin DIP packages • Supports RAM or EPROM, 8K to 128K byte • Write disable feature protects RAM data • Nonvolatile RAM with optional backup battery • Reprogrammable PLD address decoder • 16K byte page addressable memory • Available with or without memory

12–Bit A/D Expander:

• Burr-Brown autocalibrating ADC7802 • 4 channel multiplexer • Internal sample/hold • 15μS maximum conversion time • .5 LSB maximum error (-40°C to +85°C) • 0V – 5V input range • Reprogrammable PLD address decoder • Prototyping area for input scaling • Available with Low Power PAL

Application Module:

• (2) IRL530 power MOSFET transistors • Piezo sound transducer • 7 segment LED with decimal point • Potentiometer • 5 volt regulator • Power supply jack

ST-I/O Module:

• Analog input protection resistors • 26 screw terminals • Application note

Prototyping Module:

• For prototyping or attaching custom circuitry to the Micro-440e. • D-Sub connector on either end, 25 pin male/25 pin female. • PCB with plated thru holes on .1" centers

Ribbon Cable Assemblies:

• Makes it easy to add expansion modules to the Micro-440e. NOTE: Adding like expanders requires the PLD in at least one of the modules to be reprogrammed.

Description	Digi-Key Part No.	Price	BE Rsrch. Part No.
I/O Expander			
Standard 12/12	BE-40-ND	79.00	BE-40
24 I/O Only	BE-40-002-ND	74.00	BE-40-002
24 MOSFET Out Only	BE-40-003-ND	84.50	BE-40-003
Memory Expander			
Without Memory	BE-41-ND	69.00	BE-41
W/32Kx8 SRAM*	BE-41-104-ND	84.00	BE-41-104
W/128Kx8 SRAM*	BE-41-105-ND	114.00	BE-41-10
12-BIT A/D Expander			
12-Bit A/D Module	BE-42-ND	119.00	BE-42
Low Power 12-Bit A/D	BE-42-100-ND	129.00	BE-42-100
Application Module			
Application Module	BE-02-ND	57.50	BE-025
ST-I/O Module			
ST-I/O, Resist. Only	BE-45-002-ND	69.00	BE-45-002
12 MOSFET Trans	BE-45-001-ND	79.00	BE-45-001
12 Trans. & LED's	BE-45-ND	79.00	BE-45
Prototyping Module			
Prototyping Module	BE-31-ND	23.80	BE-31
Ribbon Cable Assemblies			
2 Module Cable Assy.	CA-08-ND	24.95	CA-08
3 Module Cable Assy.	CA-09-ND	29.50	CA-09

VALUE PRICED PACKAGES

Hardware Package: • Micro-–440e Controller: • 12 Volt D.C. Supply • 400 Page User Manual • Pocket Reference • 9-Pin PC Interface Cable • 9-25 Pin Cable Adapter • ST-I/O or Application Module

Hardware Package Also Available With: • 464 Page MCS®-51 Manual. (BE-03E-ND & BE-03E-ST-ND)

Macro Assembler Package: • Hardware Package • 464 Page MCS®-51 Manual • A51 Macro Assembler • Object-Hex-Symbol Convertor • MonScope-51 Symbolic Debugger: Serial Communications, Text Editor • 256 Page Software Manual • For MS-DOS® Computers • **INCLUDES BOTH 3 1/2" & 5 1/4" DISKS**

Macro Assembler Upgrade Package: Available only as an upgrade for previously purchased Micro–440e Hardware Packages. • A51 Macro Assembler • Object-Hex-Symbol Convertor MonScope-51 Symbolic Debugger: Serial Communications, Text Editor • 256 Page Software Manual • For MS-DOS® Computers. • **INCLUDES BOTH 3 1/2" & 5 1/4" DISKS**

Description	Digi-Key Part No.	Price	BE Rsrch. Part No.
Hardware Pkg.	BE-43E-ND*	299.00	BE-43E
Hardware Pkg. with ST-I/O	BE-43E-ST-ND†	319.00	BE-43E-ST
Hardware Pkg.	BE-03E-ND*	319.00	BE-03E
Hardware Pkg. with ST-I/O	BE-03E-ST-ND†	339.00	BE-03E-ST
Macro Assembler Pkg.	BE-05E-ND*	399.00	BE-05E
Assembler Pkg. with ST-I/O	BE-05E-ST-ND†	419.00	BE-05E-ST
Macro Assemble Upgrade	SP-01E-ND	129.00	SP-01E

* Comes with BE-02-ND, † Comes with BE-45-ND
(Refer to MICRO-440e Expansion Modules section)

BASIKIT SOFTWARE

Integrated Programming Environment: • MS-DOS program for fast and easy BASIC program development on the Micro-440e using line and full screen editors. • Serial window for COM1-COM4 with baud rates of 300-38,400 including enhanced BASIC program Upload/Download. • Write modular BASIC programs with symbolic labels and convert to line numbers. • Convert line numbers to labels and renumber. • Log program changes to a disk file. • Move between the Micro 440e's BASIC interpreter and MONITOR-51 mode, MonScope-51, your text editor, and MS-DOS commands with 1 or 2 keystrokes. • Extensive help file for commands and statements • Several program development utilities, including: • VARLIST analyzes memory requirements, identifies variable name errors, and cross references all subroutines, labels, and variables. • VARNAME reduces variable names to 2 or 3 characters (bytes).

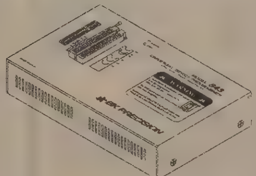
Description	Digi-Key Part No.	Price	BE Rsrch. Part No.
w/manual & three 5 1/4" disks	MDL-100-ND	200.00	MDL-100

ACCESSORIES

Description	Digi-Key Part No.	Price	BE Rsrch. Part No.
Micro-440e 25-Pin PC Cable	CA-01-ND	14.75	CA-01
Micro-440e 9-Pin PC Cable	CA-02-ND	14.75	CA-02
ST-I/O 25-Pin PC Cable	CA-11-ND	14.75	CA-11
ST-I/O 9-Pin PC Cable	CA-12-ND	14.75	CA-12
9-25 Pin Cable Adapter	CA-10-ND	4.95	CA-10
Micro 440e User's Manual — Complete Micro-440e programming & operating information, including theory & application examples	PM-03-ND	40.00	PM-0
MCS® 51 Reference Manual — Complete hardware/software technical reference manual for MCS-51 microcontrollers, with application notes	PM-01-ND	34.00	PM-01
MS-DOS Software User's Manual — Reference manual for using the A51 Macro Assembler & Mon-Scope-51 symbolic debugger	PM-02-ND	29.00	PM-02
Micro-440e Pocket Reference	PM-04-ND	6.00	PM-04

BK PRECISION
MAXTEC INTERNATIONAL CORP.

NEW! Eprom and Universal Programmers



Models 840 and 841: • Program EPROM's, EEPROM's, and MICRO's (with adapter) • Library contains over 500 IC's • 32 pin sockets • 4 sockets on 841.

Models 842 and 843: • Program PAL's, GAL's, EPROM's, EEPROM's, Micros and Bipolar PROM • Library contains over 1800 IC's • Tests TTL and CMOS logic IC's • 48 pin socket • Tests chips up to 256 MB • Model 843 plugs directly into PC printer port.

SOFTWARE FEATURES:

Device Functions: Blank check, Read, Program, Verify, Checksum, Encryption (includes Data Compare & Auto Program for Models 842 and 843).

Buffer Functions: Clear, Edit, Fill, File Load, File Save.

Programming Algorithms: Normal, Intelligent, Quick Pulse, Flash programming.

Miscellaneous Functions: Manages 8, 16, 32 bit data split, Macros, Batch execution, DOS shell, Auto device search, Self test.

SPECIFICATIONS:

Host Computer: IBM PC/XT/AT/386/486.

Interface: Model 840 & 841: 8-bit ISA bus adapter card.
Model 842: 8 bit ISDA bus adapter card.
Model 843: Standard Parallel Port (LPT1, LPT2).

Programming Socket: Model 840: (1) 32 pin ZIF (.300-.600 pin spacing). **Model 841:** (4) 32 pin ZIF (.300-.600 pin spacing). **Model 842 and 843:** (1) 48 pin ZIF (.300-.600 pin spacing).

DIMENSIONS: (L x W x H)

Programming Module: Model 840 & 841: 5.7"x 3.3" x 1.3"
Model 842 & 843: 9.5" x 6.5" x 1.5"

Interface Card: Model 840 & 841: 5.8"x 4.3"
Model 843: 4.25" x 4.25"

POWER REQUIREMENTS: (Model 843 only)

UL Listed, CSA certified, TUV licensed: 115/230V, 1.50/0.75A, 50/60 Hz.

ACCESSORIES:

Model 840, 841, and 842: Instruction Manual, Software Diskette, 40 pin Ribbon Cable. **Model 843:** Universal Power Transformer, Instruction Manual, Software Diskette, Printer Cable (6 ft.).

Description	Digi-Key Part No.	Price 1
EPROM Programmer Parallel	BK840-ND	229.00
EPROM Programmer Parallel/4 IC	BK841-ND	299.00
Universal Programmer w/Interface	BK842-ND	849.00
Universal Programmer Parallel	BK843-ND	995.00
Optional Adapters (not included)		
Adapter 4-Gang For BK842/843	BKAM-4G-ND	325.00
Adapter 20 Pin Pal for BK842/843	BKPA20-20-ND	159.00
Adapter SOP For BK842/843	BKPA44-48A-ND	209.00

DEUS EX MACHINA
ENGINEERING

Low-Cost Programmer for Xilinx EPLDs & SPROMs

XPGM resides in your PC, and connects to external adapter sockets via a 30-inch ribbon cable. Because XPGM puts the power of your PC to work, it's faster than microcontroller-based serial-interface programmers. XPGM has been certified by Xilinx. Since XPGM programs only Xilinx EPLDs and SPROMS, its "no-compromise" interface is easy to use. XPGM is a command-line driven programmer. Adapters feature premium sockets for "live bug" insertion. Xilinx' factory-approved algorithms make XPGM reliable. Programmer comes complete with cables and software.

System Requirements:

XPGM requires at least an AT-class computer, but needs only an 8-bit slot. • Hardware maps to one of 16 possible base addresses in the range 200 - 2F0 hex.. • Any type of video display will work. • Uses less than 384 Kb of system memory • DOS 5.0, or greater, recommended. • Will run from the MS-DOS prompt within Windows.

Description	Digi-Key Part No.	Price 1
XPGM Programmer comes with User's Guide and software. Choose the adapters you need from those listed below.	XPGM-P-ND*	295.00
XPGM User's Guide alone (included with above)	9209B-ND	10.00
Optional Adapters (not included)		
Adapter for use with SPROMs in 8-pin DIP	XPGMA0-ND	99.00
Adapter for use with XC7236 and XC7236A in 44-pin PLCC	XPGMA1-ND	109.32
Adapter for use with XC7272 and XC7272A in 68-pin PLCC	XPGMA2-ND	133.08
Adapter for use with XC7272 and XC7272A in 84-pin PLCC	XPGMA3-ND	145.70
Adapter for use with XC7300 family in 44-Pin PLCC	XPGMA5-ND	109.00
Adapter for use with XC7354 68-pin PLCC	XPGMA6-ND	133.08
Adapter for use with XC7372 & XC73108 84-pin PLCC	XPGMA7-ND	145.70
Adapter for use with XC7372 68-pin PLCC	XPGMA13-ND	133.00
Adapter for use with SPROMs in 8-pin SO and VO	XPGMA16-ND	109.00

** EPLD development requires DS550-ND show with Xilinx Development Systems.*

XILINX

Programmable Gate Arrays

A Technical Overview:

In the XC2000, XC3000, and XC4000 devices, Xilinx offers three evolutionary and compatible generations of Field Programmable Gate Arrays (FPGAs). Here is a short description of their common features. Every Xilinx FPGA performs the function of a custom LSI circuit, like a gate array, but the Xilinx device is user-programmable and even reprogrammable in the system. Xilinx sells standard off-the-shelf devices in three families, and many different sizes, speeds, operating temperature ranges, and packages. The user selects the appropriate Xilinx device, and then converts the design idea or schematic into a configuration data file, using the Xilinx development system software running on a PC or workstation, and loads this file into the Xilinx FPGA. The XC4000 devices have dedicated fast carry circuits that improve the efficiency and speed of adders, subtractors, comparators, accumulators and synchronous counters. XC2000/XC3000/XC3100 inputs can be globally programmed for either TTL-like input thresholds or CMOS thresholds. XC4000 has fixed TTL-like input thresholds. The FPGA can either actively read its configuration data out of external serial or byte-parallel PROM (master modes), or the configuration data can be written into the FPGA (slave and peripheral modes).

XC2000:

Features: Interfaces to popular design environments like Viewlogic, Mentor Graphics and OrCAD • Compatible arrays with logic cell complexity equivalent to 1,000 and 1,500 gates • TTL or CMOS input thresholds.

Description: The designer can define individual I/O blocks for interface to external circuitry, define logic blocks to implement logic functions and define interconnection networks to compose larger scale logic functions.

XC3000:

Features: Interfaces to popular design environments like Viewlogic, Mentor Graphics and OrCAD • Replaces TTL, MSI, and other PLD logic • Avoids the NRE, time delay, and risk of conventional masked gate arrays • Static memory technology • Toggle rates of 70 to 125 MHz, delays from 9 to 5.5 ns • Unlimited reprogrammability • Easy design iteration

XC3000A, XC3100A:

XC3000A and XC3100A are new, functionally enhanced variations of the XC3000 and XC3100 families. They have better connectivity, bitstream error checking, and better start-up behavior. Any XC3000 or XC3100 design can be upgraded to the XC3000A or XC3100A with no change, not even to the bitstream.

XC4000:

Features: Interfaces to popular design environments like Viewlogic, Mentor Graphics and OrCAD. Gates available from 2,000 to 20,000.

Description: The XC4000 provide the benefits of custom CMOS VLSI, while avoiding the initial cost, time delay, and inherent risk of a conventional masked gate array. XC4000-family devices have generous routing resources. XC4000A devices have reduced sets of routing resources, sufficient for their smaller size. The devices are customized by loading configuration data into the internal memory cells.

9204B-ND	Programmable Logic Data Book	$1.95

FPGA (Field Programmable Gate Arrays)

Package	Speed MHz	Gates	#CLB	I/O Pins	Flip-Flops	Voltage (V)	Digi-Key Part No.	Price Each 1	25	100	Xilinx Part No.
XC2000 Series											
68PLCC	70	1800	100	74	174	4.75V-5.25V	10130-ND	22.00	20.00	16.90	XC2018-70PC68C
84PLCC	70	1800	100	74	174	4.75V-5.25V	10131-ND	22.80	20.75	17.55	XC2018-70PC84C
68PLCC	70	1200	64	58	122	4.75V-5.25V	10132-ND	17.30	15.75	13.30	XC2064-70PC68C
XC3000/XC3100 Series											
68PLCC	70	2000	64	58	256	4.75V-5.25V	10133-ND	16.75	14.15	12.25	XC3020-70PC68C
84PLCC	70	2000	64	64	256	4.75V-5.25V	10134-ND	17.55	14.85	12.85	XC3020-70PC84C
100PQFP	70	2000	64	64	256	4.75V-5.25V	10135-ND	20.65	17.45	15.15	XC3020-70PQ100C
44PLCC	100	3000	100	34	360	4.75V-5.25V	10138-ND	21.10	17.85	15.45	XC3030-100PC44C
68PLCC	100	3000	100	58	360	4.75V-5.25V	10139-ND	21.80	18.45	16.00	XC3030-100PC68C
84PLCC	100	3000	100	74	360	4.75V-5.25V	10140-ND	22.45	19.00	16.45	XC3030-100PC84C
100PQFP	100	3000	100	80	360	4.75V-5.25V	10141-ND	24.80	21.00	18.20	XC3030-100PQ100C
84PLCC	70	3000	100	74	360	4.75V-5.25V	10142-ND	22.45	19.00	16.45	XC3030-70PC84C
100PQFP	70	3000	100	80	360	4.75V-5.25V	10143-ND	24.80	21.00	18.20	XC3030-70PQ100C
84PLCC	100	4200	144	74	480	4.75V-5.25V	10147-ND	26.35	22.30	19.35	XC3042-100PC84C
100PQFP	100	4200	144	82	480	4.75V-5.25V	10148-ND	29.45	24.90	21.60	XC3042-100PQ100C
100PQFP	125	4200	144	82	480	4.75V-5.25V	10149-ND	34.35	29.10	25.20	XC3042-125PQ100C
84PLCC	70	4200	144	74	480	4.75V-5.25V	10150-ND	26.35	22.30	19.35	XC3042-70PC84C
100PQFP	70	4200	144	82	480	4.75V-5.25V	10151-ND	29.45	24.90	21.60	XC3042-70PQ100C
84PLCC	70	6400	224	74	688	4.75V-5.25V	10154-ND	47.55	40.25	34.85	XC3064-70PC84C
160PQFP	70	6400	224	120	688	4.75V-5.25V	10155-ND	65.75	55.60	48.20	XC3064-70PQ160C
175PPGA	100	9000	320	144	928	4.75V-5.25V	10158-ND	143.30	121.25	105.10	XC3090-100PP175C
160PQFP	100	9000	320	137	928	4.75V-5.25V	10159-ND	85.20	75.35	65.30	XC3090-100PQ160C
208PQFP	100	9000	320	144	928	4.75V-5.25V	10160-ND	94.15	83.25	72.15	XC3090-100PQ208C
84PLCC	3nsec	2000	64	64	256	4.75V-5.25V	10163-ND	38.35	32.45	28.10	XC3120-3PC84C
84PLCC	3nsec	4200	144	74	480	4.75V-5.25V	10170-ND	65.45	55.35	48.00	XC3142-3PC84C
XC3000A/XC3100A SERIES											
68PLCC	7nsec	2000	64	58	256	4.75V-5.25V	10136-ND	13.75	11.60	10.50	XC3020A-7PC68C
84PLCC	7nsec	2000	64	64	256	4.75V-5.25V	10137-ND	14.55	12.30	11.10	XC3020A-7PC84C
44PLCC	7nsec	3000	100	34	360	4.75V-5.25V	10144-ND	14.65	12.40	11.20	XC3030A-7PC44C
84PLCC	7nsec	3000	100	74	360	4.75V-5.25V	10145-ND	16.00	13.55	12.20	XC3030A-7PC84C
100PQFP	7nsec	3000	100	80	360	4.75V-5.25V	10146-ND	17.35	14.70	13.25	XC3030A-7PQ100C
84PLCC	7nsec	4200	144	74	480	4.75V-5.25V	10152-ND	20.10	17.00	15.35	XC3042A-7PC84C
100PQFP	7nsec	4200	144	82	480	4.75V-5.25V	10153-ND	22.20	18.75	16.95	XC3042A-7PQ100C
84PLCC	7nsec	6400	224	70	688	4.75V-5.25V	10156-ND	37.65	31.85	28.75	XC3064A-7PC84C
160PQFP	7nsec	6400	224	120	688	4.75V-5.25V	10157-ND	50.65	42.85	38.70	XC3064A-7PQ160C
84PLCC	7nsec	9000	320	70	928	4.75V-5.25V	10161-ND	62.35	55.15	49.45	XC3090A-7PC84C
160PQFP	7nsec	9000	320	138	928	4.75V-5.25V	10162-ND	69.30	61.30	54.95	XC3090A-7PQ160C
68PLCC	3nsec	2000	64	58	256	4.75V-5.25V	10164-ND	17.35	14.70	13.65	XC3120A-3PC68C
84PLCC	3nsec	2000	64	64	256	4.75V-5.25V	10165-ND	17.10	14.45	13.45	XC3120A-3PC84C
44PLCC	3nsec	3000	100	34	360	4.75V-5.25V	10167-ND	21.25	18.00	16.70	XC3130A-3PC44C
84PLCC	3nsec	3000	100	74	360	4.75V-5.25V	10168-ND	22.75	19.25	17.85	XC3130A-3PC84C
100PQFP	3nsec	3000	100	80	360	4 75V-5.25V	10169-ND	25.10	21.25	19.71	XC3130A-3PQ100C
84PLCC	3nsec	4200	144	74	480	4.75V-5.25V	10171-ND	26.90	22.75	21.15	XC3142A-3PC84C
100PQFP	3nsec	4200	144	82	480	4.75V-5.25V	10172-ND	30.10	25.45	23.65	XC3142A-3PQ100C
84PLCC	3nsec	6400	224	70	688	4.75V-5.25V	10173-ND	45.00	38.10	35.35	XC3164A-3PC84C
84PLCC	3nsec	9000	320	70	928	4.75V-5.25V	10174-ND	65.80	58.60	54.45	XC3190A-3PC84C
160PQFP	3nsec	9000	320	138	928	4.75V-5.25V	10175-ND	69.00	61.45	57.06	XC3190A-3PQ160C
XC4000/XC4000A Series											
84PLCC	6nsec	2000	64	61	256	4.75V-5.25V	10176-ND	35.85	33.10	30.70	XC4002A-6PC84C
84PLCC	6nsec	3000	100	61	360	4.75V-5.25V	10177-ND	49.85	46.00	42.70	XC4003A-6PC84C
160PQFP	5nsec	5000	196	112	616	4.75V-5.25V	10178-ND	110.00	101.55	94.30	XC4005-5PQ160C
84PLCC	6nsec	5000	196	61	616	4.75V-5.25V	10179-ND	88.60	81.75	75.95	XC4005A-6PC84C
84PLCC	6nsec	3000	100	61	360	4.75V-5.25V	10320-ND	58.40	53.90	50.05	XC4003-6PC84C
100PQFP	6nsec	3000	100	77	360	4.75V-5.25V	10321-ND	63.15	58.30	54.15	XC4003-6PQ100C
84PLCC	5nsec	5000	196	61	616	4.75V-5.25V	10322-ND	100.90	93.15	86.50	XC4005-5PC84C
208PQFP	5nsec	5000	196	112	616	4.75V-5.25V	10323-ND	119.50	110.30	102.45	XC4005-5PQ208C
208PQFP	5nsec	8000	324	144	936	4.75V-5.25V	10324-ND	193.40	178.55	165.80	XC4008-5PQ208C
208PQFP	5nsec	10000	400	160	1120	4.75V-5.25V	10325-ND	279.85	258.30	239.85	XC4010-5PQ208C
160PQFP	5nsec	10000	400	—	1120	4.75V-5.25V	10326-ND	161.25	148.85	138.20	XC4010D-5PQ160C
208PQFP	5nsec	13000	576	160	1536	4.75V-5.25V	10327-ND	456.75	421.60	391.50	XC4013-5PQ208C
240PQFP	6nsec	13000	576	192	1536	4.75V-5.25V	10328-ND	396.10	365.60	339.50	XC4013-6PQ240C

SPROMS (Serial Configuration Proms) for FPGA

Package	Memory Size	Description	Digi-Key Part No.	Price Each 1	25	100	Xilinx Part No.
8 DIP	36K	Serial Configuration Prom	10128-ND	4.28	3.62	3.36	XC1736DPD8C
8 DIP	65K	Serial Configuration Prom	10129-ND	5.46	4.62	4.29	XC1765DPD8C
SO-8	36K	Serial Configuration Prom	10335-ND	5.64	4.77	4.44	XC1736DS08C
SO-8	65K	Serial Configuration Prom	10336-ND	7.28	6.16	5.72	XC1765DS08C
8 DIP	128K	Serial Configuration Prom	10337-ND	10 19	8.62	8.01	XC17128DPD8C

XILINX EPLD's (Erasable Programmable Logic Devices)

EPLD XC7200 and XC7300: In the XC7200 and XC7300 devices, Xilinx offers two evolutionary and compatible generations of Erasable Programmable Logic Devices (EPLDs) Xilinx EPLDs combine the advantages of LSI-high-level of integrations, small size, low cost, high-reliability — with the user's need to create applications-specific circuits, without incurring the cost, delay, and risk of mask-programmable gate arrays. Every Xilinx EPLD provides multiple programmable logic structures, called Function Blocks (FBs), interconnected together through an unrestricted Universal Interconnect Matrix (UIM). Each FB contains 9 Macrocells driven by a programmable AND/OR array. Any device input and any Macrocell output can be connected to the input of any other Macrocell. This unrestricted programmable interconnect structure, combined with the familiar and/or logic or the traditional PAL architecture, make EPLDs easy to use and easy to understand; and it completely eliminates the issue of routability

Package	Speed	Macro-cells	No. of Function Blocks	Max Signal Pins	Flip-Flops	Supply Voltage	Digi-Key Part No.	Price Each 1	25	100	Xilinx Part No.
7200 Series											
44PLCC	25nsec	36	4	36	—	4.75 - 5 25V	10180-ND	10.70	9.05	8.45	XC7236A-25PC44C
44WLCC	25nsec	36	4	36	—	4.75 - 5.25V	10181-ND	30 70	26.00	24 15	XC7236A-25WC44C
84PLCC	25nsec	72	8	72	—	4.75 - 5.25V	10182-ND	38.25	32.35	29.85	XC7272A-25PC84C
84WLCC	25nsec	72	8	72	—	4.75 - 5.25V	10183-ND	65.70	55.61	51.65	XC7272A-25WC84C
7300 Series											
44PLCC	7nsec	36	4	36	36	4.75 - 5.25V	10329-ND	9.10	7.70	7.15	XC7336-7PC44C
44WLCC	7nsec	36	4	36	36	4.75 - 5.25V	10330-ND	53.20	45.00	41.85	XC7336-7WC44C
44PLCC	5nsec	36	4	36	36	4.75 - 5.25V	10331-ND	13.65	11.55	10.70	XC7336-5PC44C
44WLCC	5nsec	36	4	36	36	4.75 - 5.25V	10332-ND	106.70	90.30	83.85	XC7336-5WC44C
44PLCC	15nsec	36	4	36	72	4.75 - 5 25V	10186-ND	4 55	3 85	3.55	XC7336-15PC44C
44WLCC	15nsec	36	4	36	72	4.75 - 5.25V	10187-ND	24.15	20.30	19.00	XC7336-15WC44C
44PLCC	15nsec	54	6	36	108	4.75 - 5.25V	10188-ND	8.10	6.85	6.35	XC7354-15PC44C
44WLCC	15nsec	54	6	36	108	4.75 - 5.25V	10190-ND	32.00	27.00	25.15	XC7354-15WC44C
68PLCC	15nsec	54	6	54	108	4.75 - 5.25V	10189-ND	11.35	9.60	8.95	XC7354-15PC68C
68WLCC	15nsec	54	6	54	108	4.75 - 5.25V	10191-ND	33.60	28.30	26.30	XC7354-15WC68C
68WLCC	15nsec	72	8	56	126	4.75 - 5 25V	10333-ND	46.85	39.65	36.85	XC7372-15WC68C
68PLCC	15nsec	72	8	56	126	4.75 - 5.25V	10334-ND	14.20	12.00	11.15	XC7372-15PC68C
84PLCC	15nsec	72	8	72	126	4.75 - 5.25V	10192-ND	15.65	13.25	12.30	XC7372-15PC84C
84WLCC	15nsec	72	8	72	126	4.75 - 5.25V	10193-ND	49.20	41.65	38.65	XC7372-15WC84C
84PLCC	15nsec	108	12	72	198	4.75 - 5.25V	10184-ND	19.00	16.10	14.95	XC73108-15PC84C
84WLCC	15nsec	108	12	72	198	4.75 - 5.25V	10185-ND	83.15	70.25	61.10	XC73108-15WC84C

Development Systems

VIEWLOGIC STAND ALONE - BASE SYSTEM (PC): Includes: • View-Draw Schematic Editor with library support for XC2000, XC3000, XC3000A, XC4000 FPGAs and XC7200 and XC7300 EPLDs. • ViewSim Functional and Timing Simulator for designs up to 5,000 gates. • Core Implementation Software for EPLDs and FPGAs with device support for XC2000, XC3000, XC3000A, XC3100, XC3100A up to XC3x42/A, and XC4000 up to XC4003. • Software Support and Updates for the first year. **Required Hardware Environment:** • Fully compatible PC386/486 • MS-DOS version 5.0(min.) • Min 70 MB hard-disk space • VGA display • 3-button serial mouse • One parallel and two serial ports • 8 MB of RAM for XC3042 • 16 MB of RAM for all supported XC3000A and XC4000 FPGAs.

VIEWLOGIC BASE SYSTEM (PC): Includes: • Viewlogic Schematic Interface library support for XC2000, XC3000, XC3000A, XC3100, XC3100A, XC4000 FPGAs, and XC7200 and XC7300 EPLDs. • Viewlogic Functional and Timing Simulation Interface. • Core Implementation Software for EPLDs and FPGAs with device support for XC2000, XC3000, XC3000A, XC3100, XC3100A up to XC3x42/A, and XC4000 up to XC4003 **Note:** • This pkg. does not include Viewlogic schematic capture or simulation tools. • Interface and libraries support Workview 4.1, Workview PLUS, and PRO series. • XDE-Xilinx Design Editor - not included. • This Base Pkg. does not come with a standard 1-year update contract. Instead, when Xilinx releases a new version of software, customers will be notified and may purchase the Base Update at the listed price. **Required Hardware Environment:** • Fully compatible PC386/486 • MS-DOS version 5.0 (minimum) • Min. 60 MB disk space • VGA display • 3-Button Serial Mouse • One parallel and two serial ports • 8 MB of RAM for XC3042 • 16 MB of RAM for alll supported XC3000A, XC4000 FPGAs.

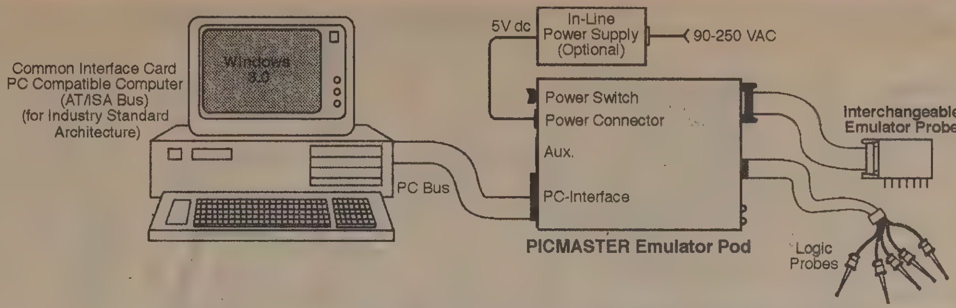
XEPLD TRANSLATOR FOR EPLDS - DS-550: The XEPLD Translator provides a complete, user-friendly, multi platform design environment for creating behavioral or schematic designs. XEPLD allows users to easily create, verify, and implement logic designs targeting the entire range of Xilinx XC7000-series devices. **Includes:** • Translator software to process XC7000 family designs • Auto. optimization and mapping • Automatic use of UIM resources • Auto. arithmetic functions • N-to1 PAL conversion • Complete optimization and collapsing • High speed compilation.

DSVLSA-ND*	***NEW!***	Viewlogic Stand Alone Base System	**$2495.00**
DSVLA-ND*	***NEW!***	Viewlogic Base System	**$995.00**
DS550A-ND*	***NEW!***	XEPLD Translator for EPLD	**$89.00**

* Software on CD-ROM

MICROCHIP

PICMASTER System



PICMASTER Universal In-Circuit Emulator System

General System Features: • Complete Hi-Performance PC-based Microcontroller Development System for the PIC16/17 families. • For use on PC-compatible 386, and 486 machines under Microsoft® Windows™ 3.X environment • Assembler and Simulator Software, Emulator System, and EPROM Programmer unit, sample kit, and demonstration hardware and software provide a complete microcontroller product development environment.

Emulator System: • Hi-Performance In-Circuit Emulation of Microchip Microcontrollers. • Real-time instruction emulation • Single and Multiple instruction step execution. • Program Memory emulation and memory mapping capability up to 64K words. Instruction execution can be mapped into either emulation memory or user prototype memory. • Real-time trace memory capture of 40 bits of information for each instruction cycle in an 8K x 40 trace buffer. Trace region can range from 0 to 64K in any address combination. • Real-time trace data can be captured and displayed without halting emulation. • Unlimited number of hardware breakpoints can be set anywhere in the program memory. • External Break with "AND"/"OR" capability with internal breakpoints. • Multiprocessor emulation capability. Up to eight PICMASTER emulators can be synchronized on a single PC, for multi-processor development. • Extended 48-bit cycle counter. • Trigger Output available on any range of addresses. • Full Symbolic Debug Capability. Symbolic display and alter of all register files, special purpose registers, stack registers, and bank registers. • Selectable Internal Emulator Clock or User Target (Prototype) System Clock. • User selectable internal or external Power Supply (provided).

EPROM Programmer System: • PRO MATE-II™ Device Programmer unit for all current PIC16/17 products. • Operates as a Stand-alone Unit or in Conjunction with a PC-compatible host system. • Performs READ, PROGRAM, and VERIFY functions in Stand-alone mode. • PC Host Software provides file display and editing, file transfer to and from programmer unit, device serialization, and program voltage calibration.

Demo Board: The PICDEM Demonstration Board provides a user with a simple hardware tool through which software can be exercised and debugged. A step-by-step tutorial enables first-time users of PICMASTER to become familiar with all the features of the emulator. A generous prototype area allows the user to build additional hardware for their project.

System Description: The PICMASTER Universal In-Circuit Emulator System is intended to provide the product development engineer with a complete microcontroller design tool set for all microcontrollers in the PIC16/17 family. The PICMASTER system currently supports the PIC16C54, PIC16C54A, PIC16C55, PIC16C56, PIC16C57 and PIC16C58A at clock frequencies of 20MHz; the PIC16C61, PIC16C620, PIC16C621, PIC16C622, PIC16C64, PIC16C71, PIC16C73, PIC16C74, PIC16C84 to 10MHz; and the PIC17C42 at 16MHz. Interchangeable target probes allow the system to be easily reconfigured for emulation of different processors. The universal architecture of the PICMASTER allows expansion to support all new microcontroller architectures with data and program memory paths to 16-bits. Provided with the PICMASTER System is a high performance, real-time In-Circuit Emulator, a microcontroller programmer unit, a macro assembler program, and a simulator program. Sample programs are provided to help quickly familiarize the user with the development system and the PIC16/17 microcontroller families. Coupled with the user's choice of text editor, the system is ready for development of products containing any of Microchip's microcontroller products. A "Quick Start" Product Sample Pak containing user programmable parts is included for additional convenience (only devices supported by the specified probe header). Microchip provides additional customer support to developers through an electronic Bulletin Board System (BBS). Customers have access to the latest updates in software as well as application source code examples. Consult Digi-Key's Technical Support for information on accessing the BBS system.

PRO MATE-II™ Development Kit:

The PRO MATE-II™ is compatible with and is replacing the existing PRO MATE™ programmer. The new PRO MATE-II™ was designed primarily to comply with the new European "CE" requirements for radiated emissions and ESD. The PRO MATE-II™ provides improved socket module alignment and improved LCD display and buttons. The PRO MATE-II™ socket modules are fully compatible with both PRO MATE™ and PRO MATE-II™. Likewise, the older PRO MATE™ socket modules are fully compatible with both the PRO MATE™ and the new PRO MATE-II™.

Programs all PIC16C5X, PIC16CXX and PIC17CXX Microcontrollers: PRO MATE-II™ is a universal programmer/development tool that provides product developers with the ability to program user software into PIC16C5X, PIC16CXX and PIC17CXX 8-bit microcontrollers. It comes with Microchip's PIC16CXX simulator/assembler software and PIC17CXX assembler software. The PRO MATE-II™ programmer operates either as a stand-alone unit or in conjunction with a PC host system. PC host software provides file display and editing and transfer to and from the programming unit.

Description of Contents: • PRO MATE-II™ Universal Programmer Unit • PRO MATE-II™ Universal Power Supply • PRO MATE-II™, PIC16CXX Assembler/Simulator and PIC17CXX Assembler Software • PRO MATE-II™ Documentation • RS-232 Interface Cable

Description	Digi-Key Part No.	Pricing 1
Emulators		
PICMASTER Emulator PIC14000 with PRO MATE-II™	EM147001-ND ***NEW!***	3345.00
PICMASTER Emulator PIC14000 without PRO MATE-II™	EM147002-ND ***NEW!***	2490.00
PICMASTER Emulator 16C5X with PRO MATE-II™	EM167015-ND	3345.00
PICMASTER Emulator 16C5X without PRO MATE-II™*	EM167016-ND	2490.00
PICMASTER Emulator 16C61 with PRO MATE-II™	EM167021-ND	3345.00
PICMASTER Emulator 16C61 without PRO MATE-II™*	EM167022-ND	2490.00
PICMASTER Emulator 16C62X with PRO MATE-II™	EM167023-ND	3345.00
PICMASTER Emulator 16C62X without PRO MATE-II™*	EM167024-ND	2490.00
PICMASTER Emulator 16C62/64/65/72/73/74 with PRO MATE-II™	EM167025-ND	3345.00
PICMASTER Emulator 16C62/64/65/72/73/74 w/o PRO MATE-II™*	EM167026-ND	2490.00
PICMASTER Emulator 16C71/710/711 with PRO MATE-II™	EM167027-ND	3345.00
PICMASTER Emulator 16C71/710/711 without PRO MATE-II™*	EM167028-ND	2490.00
PICMASTER Emulator 16C84/83 with PRO MATE-II™	EM167029-ND	3345.00
PICMASTER Emulator 16C84/83 without PRO MATE-II™*	EM167030-ND	2490.00
PICMASTER Emulator 17C42/43/44 with PRO MATE-II™	EM177007-ND	3345.00
PICMASTER Emulator 17C42/43/44 without PRO MATE-II™*	EM177008-ND	2490.00
Probes for Emulators		
Probe Kit for PICMASTER Emulator PIC14000	AC145001-ND ***NEW!***	425.00
Probe Kit for PICMASTER Emulator 16C5X	AC165004-ND	425.00
Probe Kit for PICMASTER Emulator 16C61	AC165007-ND	425.00
Probe Kit for PICMASTER Emulator 16C62X	AC165008-ND	425.00
Probe Kit for PICMASTER Emulator 16C62/64/65/72/73/74	AC165009-ND	425.00
Probe Kit for PICMASTER Emulator 16C71/710/711	AC165010-ND	425.00
Probe Kit for PICMASTER Emulator 16C83/84	AC165011-ND	425.00
Probe Kit for PICMASTER Emulator 17C42/43/44	AC175002-ND	425.00
Programmer		
PRO MATE-II™ Universal Programmer	DV007003-ND ***NEW!***	695.00
Sockets for PRO MATE-II™ / PRO MATE™		
Dip Socket Module for PRO MATE-II™ PIC14000	AC144001-ND ***NEW!***	159.00
SO/SSOP Socket Module for PRO MATE-II™ PIC14000	AC144002-ND ***NEW!***	189.00
Dip Socket Module for PRO MATE-II™ 16C5X	AC164001-ND	159.00
SOIC Socket Module for PRO MATE-II™ 16C5X	AC164002-ND	159.00
SSOP Socket Module for PRO MATE-II™ 16C5X	AC164015-ND	189.00
Dip/SOIC Socket Module for PRO MATE-II™ 61/62X/71/84	AC164010-ND	159.00
SSOP Socket Module for PRO MATE-II™ 62X	AC164018-ND	159.00
Dip Socket Module for PRO MATE-II™ 64/65/73/74/62	AC164012-ND	159.00
PLCC Socket Module for PRO MATE-II™ 64/74/65	AC164013-ND	159.00
PQFP Socket Module for PRO MATE-II™ 64/74/65	AC164014-ND	159.00
SOIC Socket Module for PRO MATE-II™ 16C62/73	AC164017-ND	159.00
Dip Socket Module for PRO MATE-II™ 17C42/43/44	AC174001-ND	159.00
PLCC Socket Module for PRO MATE-II™ 17C42/43/44	AC174002-ND	159.00
PQFP Socket Module for PRO MATE-II™ 17C42/43/44	AC174004-ND	159.00

* System does not include PRO MATE-II™ Programmer, PRO MATE™ Power Supply, Socket, Sample Part, or PRO MATE-II™ Interface Cable.

MICROCHIP

NEW! Low Cost Emulators

ICEPIC16CXX Modular, Real Time Emulator System for PIC16CXX

Are you snowed under? If so, you'll need an ICEPIC!

ICEPIC is a family of modular, low-cost emulators for PIC16C5X and PIC16CXX microcontroller products.

ICEPIC runs under Windows 3.1, offering a nice, user-friendly graphical user interface.

The **ICEPIC** System is supplied as a complete package: emulator unit, power supply, RS232 cable, probe header cable(s) to connect to the application circuit, and with one personality daughter board. Full supporting software including Microchip's MPASM.

Host Computer Minimum Requirements:

- 386 or greater PC compatible.
- EGA or VGA monitor.
- 4Mbytes of RAM.
- At least 4Mbytes of Hard Disk Space.
- Microsoft Windows 3.1 or higher, DOS 3.3 or higher.
- 1 Free Serial Port.
- A pointing device, e.g., Mouse.

FEATURES:

- Full speed, real time emulation to 20MHz.
- Source level debug in assembler or "C".
- Microchip emulation chip inside.
- Compatible with Microchip's software tools (including MPC "C" compiler).
- High speed RS232 interface (57.6Kbps).
- Runs under Microsoft Windows 3.X.
- Simple to use toolbar.
- Unlimited number of break points.
- Single, multiple and procedure step.
- Display and modify any register (program or data).
- Display and work in HEX/DEC/BIN.
- User selectable processor speeds (via oscillator module).
- Same interface for all PIC16C5X & 16CXX.
- Full context sensitive help.

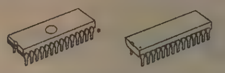
Which Emulator System Do I Need?		
PIC Microcontroller;	Complete System (Including Daughter Board)	Daughter Boards
16C54, 16C55, 16C56, 16C57, 16C58	EM167201	AC165201
16C620, 16C621, 16C622	EM167202	AC165202
16C64, 16C62	EM167203	AC165203
16C74, 16C73, 16C65. 16C63	EM167204	AC165204
16C71, 16C61	EM167205	AC165205
16C84	EM167206	AC165206

Description	Digi-Key Part No.	Pricing 1
ICEPIC Emulator w/16C5X Board	EM167201-ND	759.00
ICEPIC Emulator w/16C62X Board	EM167202-ND	799.00
ICEPIC Emulator w/16C64 Board	EM167203-ND	849.00
ICEPIC Emulator w/16C74 Board	EM167204-ND	849.00
ICEPIC Emulator w/16C71 Board	EM167205-ND	799.00
ICEPIC Emulator w/16C84 Board	EM167206-ND	799.00
Daughter Board for 16C5X	AC165201-ND	269.00
Daughter Board for 16C62X	AC165202-ND	299.00
Daughter Board for 16C62/64	AC165203-ND	349.00
Daughter Board for 16C73/74	AC165204-ND	349.00
Daughter Board for 16C61/71	AC165205-ND	299.00
Daughter Board for 16C84	AC165206-ND	299.00

MICROCHIP

8 Bit RISC Microcontrollers

PIC16C5X Series



General Description: Microchip's long history of innovation has proven its commitment to develop and market leading edge products. With its PIC, Microchip has engineered *the most advanced low-to mid range 8-Bit Microcontroller family on the market today*. The flexibility of CMOS OTP EPROM Technology, the superior performance of RISC Architecture and the smallest packaging combined with affordable pricing are the prime reasons systems designers select PIC as their Microcontroller of Choice. With PIC, the 8-12 week lead time typical of ROM MCUs is reduced to just days. In addition, PIC's code compaction factor takes weeks off system design time. PIC's small die size combined with Microchip's advanced CMOS technology, support a *wide performance range* and low operating and standby currents. Low currents are ideal for long-life battery dependent applications. One of PIC's strongest suits is its I/O capability.

PIC16C5X (Use Programmer PICSTART Plus or PICPGM)

Features: Only 33 single word instructions to learn • All single cycle instructions (200 ns) except for program branches which are two-cycle • 12-bit wide instructions • 8-bit wide data path • 512 - 2K x 12 on-chip EPROM program memory • 25 to 72 x 8 general purpose registers (SRAM) • 7 special function hardware registers • 2 level deep hardware stack • Direct, Indirect and relative addressing modes for data and instructions • 8 bit real time clock/counter (RTCC) with 8-bit programmable prescaler • Oscillator start-up timer • Watchdog timer (WDT) with its own on-chip RC oscillator.

PIC16C54A (Use Programmer PICSTART Plus or PICPGM)

Features: The PIC16C54A expands the baseline family with a low end device that offers lower power consumption and enhanced electrical characteristics. The PIC16C54A provides a cost reduction path for PIC16C57 and PIC16C58A users that require less program memory or data memory for a new application. Also some current PIC16C54 users may migrate to the PIC16C54A to enjoy the advantages of lower power consumption and enhanced electrical characteristics. Software can be ported from the PIC16C54 directly to the PIC16C54A with no software code changes. The PIC16C54A is equipped with special microcontroller-like features that reduce system cost and power requirements. There are four oscillator configurations to choose from, including power saving LP (Low Power) oscillator and cost saving RC oscillator.

PIC16C58A (Use Programmer PICSTART Plus or PICPGM)

Features: The PIC16C58A expands the baseline family support with a larger memory, small pin count device. The PIC16C58A provides upward migration path to PIC16C54 and PIC16C56 customers that require more program or data memory. In addition, PIC16C57 customers that do not require as much I/O capability can migrate down to 18 pins to save cost and board space. The PIC16C58A positions in the high-end of the baseline family between the PIC16C56 and the PIC16C57 providing the same memory capability of the PIC16C57 in the smaller 18 pin package. Only small code changes are necessary to interface to the I/O pins will be required The PIC16C58A is equipped with special microcontroller-like features that reduce system cost and power requirements. There are four user selectable oscillator configurations to choose from, including power saving LP (Low Power) oscillator and cost saving RC oscillator.

Maximum output current sinked by any I/O pin = 25mA; sourced by any I/O pin = 20mA. Do not exceed more than 800 mw of total power dissipation. EPROM = Erasable PROM; OTP= One Time Programmable Only

9211B-ND	Embedded Control PIC Applications Handbook 1994/95	**$9.95**
9270B-ND	Microchip MCU Data Book 1995/96	**$4.00**
9230B-ND	Microchip Memory Data Book 1995/96	**$7.80**

Memory Size		Config-uration	I/O Lines	Supply Voltage	* Supply Current @ 25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
512 x 12	32 x 8	EPROM	12	3.0 - 6.25	—	Xtal/RC	DC-20MHz	0° — 70°C	18-CDip	PIC16C54/JW-ND	7.90	—	—
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	18-Dip	PIC16C54-RC/P-ND★	3.38	67.25	224.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C54-RC/SO-ND★	3.43	68.75	229.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	18-Dip	PIC16C54-XT/P-ND★	3.38	67.25	224.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	18-Soic	PIC16C54-XT/SO-ND★	3.43	68.75	229.00
512 x 12	32 x 8	OTP	12	4.5 - 5.5	9.0mA	Xtal	DC-20MHz	0° — 70°C	18-Dip	PIC16C54-HS/P-ND★	3.85	77.00	257.00
512 x 12	32 x 8	OTP	12	4.5 - 5.5	9 0mA	Xtal	DC-20MHz	0° — 70°C	18-Soic	PIC16C54-HS/SO-ND★	3.93	78.50	262.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	18-Dip	PIC16C54-LP/P-ND★	3.53	70.75	236.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	18-Soic	PIC16C54-LP/SO-ND★	3.60	72.00	240.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	RC	DC-4MHz	-40° — 85°C	18-Dip	PIC16C54-RCI/P-ND★	3.70	74.00	247.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	18-Dip	PIC16C54-XTI/P-ND★	3.70	74.00	247.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	18-Soic	PIC16C54-XTI/SO-ND	3.78	75.50	252.00
512 x 12	32 x 8	EPROM	12	3.0 - 6.25	—	Xtal/RC	DC-20MHz	0° — 70°C	18-CDip	PIC16C54A/JW-ND	7.90	—	—
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Dip	PIC16C54A-04/P-ND★	3.38	67.25	224.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C54A-04/SO-ND★	3.43	68.75	229.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	0° — 70°C	20-SSOP	PIC16C54A-04/SS-ND	3.70	74.00	247.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Dip	PIC16LC54A-04/P-ND★	3.53	70.75	236.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Soic	PIC16LC54A-04/SO-ND★	3.60	72.00	240.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	20-SSOP	PIC16LC54A-04/SS-ND	3.90	77.75	259.00
512 x 12	32 x 8	OTP	12	3.0 - 6 25	4.8mA	Xtal/RC	DC-10MHz	0° — 70°C	18-Dip	PIC16C54A-10/P-ND★	3.60	72.00	240.00
512 x 12	32 x 8	OTP	12	3.0 - 6 25	4.8mA	Xtal/RC	DC-10MHz	0° — 70°C	18-Soic	PIC16C54A-10/SO-ND★	3.68	73.50	245.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	4.8mA	Xtal/RC	DC-10MHz	0° — 70°C	20-SSOP	PIC16C54A-10/SS-ND	3.95	79.25	264.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Dip	PIC16C54A-20/P-ND★	3.85	77.00	257.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Soic	PIC16C54A-20/SO-ND★	3.93	78.50	262.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	0° — 70°C	20-SSOP	PIC16C54A-20/SS-ND	4.25	84.75	283.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	-40° — 85°C	18-Dip	PIC16C54A-04I/P-ND★	3.70	74.00	247.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	-40° — 85°C	18-Soic	PIC16C54A-04I/SO-ND★	3.78	75.50	252.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	18-Dip	PIC16LC54A-04I/P-ND★	3.90	77.75	259.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	18-Soic	PIC16LC54A-04I/SO-ND★	3.98	79.25	264.00
512 x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	20-SSOP	PIC16LC54A-04I/SS-ND	4.28	85.50	285.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	4.8mA	Xtal/RC	DC-10MHz	-40° — 85°C	18-Dip	PIC16C54A-10I/P-ND★	3.95	79.25	264.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	4.8mA	Xtal/RC	DC-10MHz	-40° — 85°C	18-Soic	PIC16C54A-10I/SO-ND★	4.05	80.75	269.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Dip	PIC16C54A-20I/P-ND★	4.25	84.75	283.00
512 x 12	32 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Soic	PIC16C54A-20I/SO-ND★	4.33	86.50	288.00
512 x 12	32 x 8	EPROM	20	3.0 - 6.25	—	Xtal/RC	DC-20MHz	0° — 70°C	28-CDip	PIC16C55/JW-ND	8.20	—	—
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	28-Dip	PIC16C55-RC/P-ND★	3.75	74.75	249.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	28-Soic	PIC16C55-RC/SO-ND★	3.90	77.75	259.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	28-DIP .3"	PIC16C55-RC/SP-ND★	3.75	74.75	249.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	28-Dip	PIC16C55-XT/P-ND★	4.00	80.00	267.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	28-Soic	PIC16C55-XT/SO-ND★	4.15	83.25	277.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	28-DIP .3"	PIC16C55-XT/SP-ND★	4.00	80.00	267.00
512 x 12	32 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	28-Dip	PIC16C55-HS/P-ND★	4.58	91.75	305.00
512 x 12	32 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	28-Soic	PIC16C55-HS/SO-ND★	4.78	95.25	318.00
512 x 12	32 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	28-DIP .3"	PIC16C55-HS/SP-ND★	4.58	91.75	305.00
512 x 12	32 x 8	OTP	20	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	28-Dip	PIC16C55-LP/P-ND★	3.93	78.50	262.00
512 x 12	32 x 8	OTP	20	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	28-Soic	PIC16C55-LP/SO-ND★	4.08	81.75	272.00
512 x 12	32 x 8	OTP	20	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	28-DIP .3"	PIC16C55-LP/SP-ND★	3.93	78.50	262.00
512 x 12	32 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	-40° — 85°C	28-Dip	PIC16C55-HSI/P-ND★	5.05	100.75	336.00
512 x 12	32 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	-40° — 85°C	28-Soic	PIC16C55-HSI/SO-ND★	5.25	104.75	349.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	-40° — 85°C	28-Dip	PIC16C55-RCI/P-ND★	4.13	82.25	274.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	28-Dip	PIC16C55-XTI/P-ND★	4.40	88.00	293.00
512 x 12	32 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	28-Soic	PIC16C55-XTI/SO-ND★	4.58	91.50	305.00
1K x 12	32 x 8	EPROM	12	3.0 - 6.25	—	Xtal/RC	DC-20MHz	0° — 70°C	18-CDip	PIC16C56/JW-ND	9.09	—	—
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	18-Dip	PIC16C56-RC/P-ND★	3.90	78.25	261.00
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C56-RC/SO-ND★	4.00	79.75	266.00
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	18-Dip	PIC16C56-XT/P-ND★	6.63	83.75	279.00
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	18-Soic	PIC16C56-XT/SO-ND★	4.28	85.25	284.00
1K x 12	32 x 8	OTP	12	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	18-Dip	PIC16C56-HS/P-ND★	4.80	95.75	319.00
1K x 12	32 x 8	OTP	12	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	18-Soic	PIC16C56-HS/SO-ND★	4.88	97.75	326.00
1K x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	18-Dip	PIC16C56-LP/P-ND★	4.10	82.00	274.00
1K x 12	32 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	18-Soic	PIC16C56-LP/SO-ND★	4.20	83.75	279.00
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	RC	DC-4MHz	-40° — 85°C	18-Dip	PIC16C56-RCI/P-ND★	4.30	86.00	287.00
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	18-Dip	PIC16C56-XTI/P-ND★	4.60	92.00	307.00
1K x 12	32 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	18-Soic	PIC16C56-XTI/SO-ND★	4.70	94.00	313.00
1K x 12	32 x 8	OTP	12	4.5 - 5.5	9mA	Xtal	DC-20MHz	-40° — 85°C	18-Dip	PIC16C56-HSI/P-ND★	5.28	105.50	351.00
1K x 12	32 x 8	OTP	12	4.5 - 5.5	9mA	Xtal	DC-20MHz	-40° — 85°C	18-Soic	PIC16C56-HSI/SO-ND★	5.38	107.50	358.00
2K x 12	72 x 8	EPROM	20	3.0 - 6.25	—	Xtal/RC	DC-20MHz	0° — 70°C	28-CDip	PIC16C57/JW-ND	11.00	—	—
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	28-Dip	PIC16C57-RC/P-ND★	4.75	95.25	317.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	28-Soic	PIC16C57-RC/SO-ND★	4.95	99.00	330.35
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	0° — 70°C	28-DIP .3"	PIC16C57-RC/SP-ND★	4.75	95.25	317.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	28-Dip	PIC16C57-XT/P-ND★	5.10	101.75	340.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	28-Soic	PIC16C57-XT/SO-ND★	5.30	106.00	353.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	0° — 70°C	28-DIP .3"	PIC16C57-XT/SP-ND★	5.10	101.75	340.00
2K x 12	72 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	28-Dip	PIC16C57-HS/P-ND★	5.83	116.50	389.00

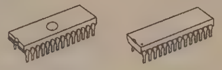
Memory Size		Configuration	I/O Lines	Supply Voltage	* Supply Current @ 25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
2K x 12	72 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	28-Soic	PIC16C57-HS/SO-ND★	6.08	121.25	404.00
2K x 12	72 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	0° — 70°C	28-DIP .3"	PIC16C57-HS/SP-ND★	5.83	116.50	389.00
2K x 12	72 x 8	OTP	20	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	28-Dip	PIC16C57-LP/P-ND★	5.00	100.00	333.00
2K x 12	72 x 8	OTP	20	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	28-Soic	PIC16C57-LP/SO-ND★	5.20	104.00	347.00
2K x 12	72 x 8	OTP	20	2.5 - 6.25	15µA‡	Xtal	DC-40KHz	0° — 70°C	28-DIP .3"	PIC16C57-LP/SP-ND★	5.00	100.00	333.00
2K x 12	72 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	-40° — 85°C	28-Dip	PIC16C57-HSI/P-ND★	6.43	128.25	428.00
2K x 12	72 x 8	OTP	20	4.5 - 5.5	9mA	Xtal	DC-20MHz	-40° — 85°C	28-Soic	PIC16C57-HSI/SO-ND★	6.68	133.50	445.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	RC	DC-4MHz	-40° — 85°C	28-Dip	PIC16C57-RCI/P-ND★	5.23	104.75	349.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	28-Dip	PIC16C57-XTI/P-ND★	5.60	112.00	374.00
2K x 12	72 x 8	OTP	20	3.0 - 6.25	1.8mA	Xtal	DC-4MHz	-40° — 85°C	28-Soic	PIC16C57-XTI/SO-ND★	5.83	116.50	388.00
2K x 12	72 x 8	EPROM	12	3.0 - 6.25	—	Xtal/RC	DC-20MHz	0° — 70°C	18-CDip	PIC16C58A/JW-ND	10.29	—	—
2K x 12	72 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Dip	PIC16C58A-04/P-ND★	4.43	88.50	295.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C58A-04/SO-ND★	4.50	90.25	301.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	1.8mA	Xtal/RC	DC-4MHz	0° — 70°C	20-SSOP	PIC16C58A-04/SS-ND	4.85	97.25	324.00
2K x 12	72 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Dip	PIC16LC58A-04/P-ND★	4.65	92.75	309.00
2K x 12	72 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Soic	PIC16LC58A-04/SO-ND★	4.73	94.75	316.00
2K x 12	72 x 8	OTP	12	2.5 - 6.25	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	20-SSOP	PIC16LC58A-04/SS-ND	5.10	102.00	340.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	4.8mA	Xtal/RC	DC-10MHz	0° — 70°C	18-Dip	PIC16C58A-10/P-ND★	4.73	94.50	315.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	4.8mA	Xtal/RC	DC-10MHz	0° — 70°C	18-Soic	PIC16C58A-10/SO-ND★	4.83	96.50	322.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	4.8mA	Xtal/RC	DC-10MHz	0° — 70°C	20-SSOP	PIC16C58A-10/SS-ND	5.20	104.00	347.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Dip	PIC16C58A-20/P-ND★	5.05	101.25	337.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Soic	PIC16C58A-20/SO-ND★	5.15	103.25	344.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	0° — 70°C	20-SSOP	PIC16C58A-20/SS-ND★	5.58	111.25	371.00
2K x 12	72 x 8	OTP	12	3.0 - 6.25	9mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Dip	PIC16C58A-20I/P-ND★	5.58	111.25	371.00

★ Digi-Key now offers a programming service using customer supplied Master IC and software disk for Microchips PIC family. The following formats are supported by our programming center: BIN16 — 16-bit binary format (default for PGM16/TASM16), INHXM8 — Merged 8-bit Intel™ Hex (Parallax) format, INHXS8 — Split 8-bit Intel™ Hex format, INHX16 — 16-bit Intel™ Hex format. For further information and price quotes, please call 1-800-344-4539, and request the programming center.

MICROCHIP

8 Bit RISC Microcontrollers

PIC16C62X Series



PIC16C62X (Use Programmer PICSTART Plus or PICPGM-ND)

General Description: The PIC16C62X are 18-pin EPROM-based members of the versatile PIC16CXX family of low-cost, high-performance, CMOS, fully-static, 8-bit microcontrollers. The PIC16C620 and PIC16C621 have 80 bytes of RAM. The PIC16C622 has 128 bytes of RAM. Each device has 13 I/O pins and an 8-bit timer/counter with an 8-bit programmable prescaler. In addition, the PIC16C62X add two analog comparators with a programmable on-chip voltage reference module. The comparator module is ideally suited for applications requiring a low-cost analog interface, e.g., battery chargers, threshold detectors, white goods controllers etc.

Features: High-Performance RISC-like CPU: • Only 35 single word instructions to learn • All single cycle instructions (200ns), except for program branches which are two-cycle • Operating speed: DC - 20MHz clock input, DC - 200ns instruction cycle • Interrupt capability • 16 special function hardware registers • 8 level deep hardware stack • Direct, Indirect and relative addressing modes. **Peripheral Features:** • 13 I/O pins with individual direction control • 25mA sink/source per I/O for direct LED drive • Analog comparator module with: 2 analog comparators, Programmable on-chip voltage reference (VREF) module, Programmable input multiplexing form device inputs and internal voltage reference, Comparator outputs can be output signals • TMR0: 8-bit timer/counter with 8-bit programmable prescaler

Special Microcontroller Features: • Power-on-reset (POR) • Power-up Timer (PWRT) and Oscillator start-up timer (OST) • Brown-out protection • Watchdog timer (WDT) with its own on-chip RC oscillator for reliable operation • Programmable code protection • Power saving SLEEP mode • Fuse selectable oscillator options • Serial in-system programming (via two pins) • 4 user programmable ID locations

CMOS Technology: • Low-power, high-speed CMOS EPROM technology • Fully static design • Wide operating voltage range - 3.0V to 6.0V • Commercial and industrial temperature range • Low power consumption - < 2mA @ 5v, 4Mhz; 15µA typical @ 3V, 32KHz; < 1µA typical standby current @ 3V

82118-ND	Embedded Control PIC Applications Handbook 1994/95	**$9.95**
82290-ND	Microchip MCU Data Book 1995/96	**$4.00**

Memory Size		Configuration	I/O Lines	Supply Voltage	* Supply Current @ 25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
512 x 14	80 x 8	EPROM	13	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°	18-CDip	PIC16C620/JW-ND	8.51	—	—
512 x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Dip	PIC16C620-04/P-ND	3.90	78.25	261.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Soic	PIC16C620-04/SO-ND	4.00	79.75	266.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	20-SSOP	PIC16C620-04/SS-ND	4.30	86.00	287.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	18-Dip	PIC16C620-20/P-ND	4.18	83.75	279.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	18-Soic	PIC16C620-20/SO-ND	4.28	85.25	284.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	20-SSOP	PIC16C620-20/SS-ND	4.60	92.00	307.00
512 x 14	80 x 8	OTP	13	3.0 - 6.0	26µA	Xtal/RC	DC-200KHz	0° - 70°	18-Dip	PIC16LC620-04/P-ND	4.10	82.00	274.00
512 x 14	80 x 8	OTP	13	3.0 - 6.0	26µA	Xtal/RC	DC-200KHz	0° - 70°	18-Soic	PIC16LC620-04/SO-ND	4.20	83.75	279.00
512 x 14	80 x 8	OTP	13	3.0 - 6.0	26µA	Xtal/RC	DC-200KHz	0° - 70°	20-SSOP	PIC16LC620-04/SS-ND	4.53	90.25	301.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Dip	PIC16C620-04I/P-ND	4.30	86.00	287.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Soic	PIC16C620-04I/SO-ND	4.38	87.75	292.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°	18-Dip	PIC16C620-20I/P-ND	4.60	92.00	307.00
512 x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°	18-Soic	PIC16C620-20I/SO-ND	4.70	94.00	313.00
512 x 14	80 x 8	OTP	13	3.0 - 6.0	26µA	Xtal/RC	DC-200KHz	-40° - 85°	18-Dip	PIC16LC620-04I/P-ND	4.53	90.25	301.00
512 x 14	80 x 8	OTP	13	3.0 - 6.0	26µA	Xtal/RC	DC-200KHz	-40° - 85°	18-Soic	PIC16LC620-04I/SO-ND	4.60	92.25	307.00
1K x 14	80 x 8	EPROM	13	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°	18-CDip	PIC16C621/JW-ND	9.61	—	—
1K x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Dip	PIC16C621-04/P-ND	4.43	88.50	295.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Soic	PIC16C621-04/SO-ND	4.50	90.25	301.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	20-SSOP	PIC16C621-04/SS-ND	4.85	97.25	324.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	18-Dip	PIC16C621-20/P-ND	4.73	94.50	315.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	18-Soic	PIC16C621-20/SO-ND	4.83	96.50	322.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	20-SSOP	PIC16C621-20/SS-ND	5.20	104.00	347.00
1K x 14	80 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Dip	PIC16LC621-04/P-ND	4.65	92.75	309.00
1K x 14	80 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Soic	PIC16LC621-04/SO-ND	4.73	94.75	316.00
1K x 14	80 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	0° - 70°	20-SSOP	PIC16LC621-04/SS-ND	5.10	102.00	340.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Dip	PIC16C621-04I/P-ND	4.85	97.25	324.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Soic	PIC16C621-04I/SO-ND	4.95	99.25	331.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°	18-Dip	PIC16C621-20I/P-ND	5.20	104.00	347.00
1K x 14	80 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°	18-Soic	PIC16C621-20I/SO-ND	5.30	106.25	354.00
1K x 14	80 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Dip	PIC16LC621-04I/P-ND	5.10	102.00	340.00
1K x 14	80 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Soic	PIC16LC621-04I/SO-ND	5.20	104.25	347.00
2K x 14	128 x 8	EPROM	13	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°	18-CDip	PIC16C622/JW-ND	11.10	—	—
2K x 14	128 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Dip	PIC16C622-04/P-ND	8.08	102.00	340.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Soic	PIC16C622-04/SO-ND	5.20	104.00	347.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	20-SSOP	PIC16C622-04/SS-ND	5.60	112.25	374.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	18-Dip	PIC16C622-20/P-ND	5.45	109.25	364.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	18-Soic	PIC16C622-20/SO-ND	5.58	111.25	371.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°	20-SSOP	PIC16C622-20/SS-ND	6.00	120.00	400.00
2K x 14	128 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Dip	PIC16LC622-04/P-ND	5.35	107.00	357.00
2K x 14	128 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Soic	PIC16LC622-04/SO-ND	5.45	109.25	364.00
2K x 14	128 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	0° - 70°	20-SSOP	PIC16LC622-04/SS-ND	5.90	117.75	393.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Dip	PIC16C622-04I/P-ND	5.60	112.25	374.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Soic	PIC16C622-04I/SO-ND	5.73	114.50	381.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°	18-Dip	PIC16C622-20I/P-ND	6.00	120.00	400.00
2K x 14	128 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°	18-Soic	PIC16C622-20I/SO-ND	6.13	122.50	408.00
2K x 14	128 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Dip	PIC16LC622-04I/P-ND	5.90	117.75	393.00
2K x 14	128 x 8	OTP	13	3.0 - 6.0	26µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Soic	PIC16LC622-04I/SO-ND	6.00	120.25	401.00

‡ Clock Frequency = 32KHz; * ***NOTE:*** Does not include current through Rext. The current through the resistor can be estimated by the formula Ir = Vdd/2 Rext (mA) with Rext in kOhm.

MICROCHIP

8 Bit RISC Microcontrollers

PIC16C6X Series

General Description: The PIC16C6X is a family of low-cost, high-performance, CMOS, full-static 8-bit microcontrollers.

(Use Programmer PICSTART Plus or PICPGM-ND)

All PIC16/17 microcontrollers employ an advanced RISC-like architecture. The PIC16CXX has enhanced core features, eight-level deep stack, and multiple internal and external interrupt sources. The separate instruction and data buses of the Harvard architecture allow a 14-bit wide instruction word with the separate 8-bit wide data. The two stage instruction pipeline allows all instructions to execute in a single cycle, except for program branches (which require two cycles). A total of 35 instructions (reduced instruction set) are available. Additionally, a large register set gives some of the architectural innovations used to achieve a very high performance.

High-Performance RISC-like CPU:

- Only 35 single word instructions to learn
- All single cycle instructions (200ns) except for program branches which are two-cycle
- Operating speed: DC - 20MHz clock input, DC - 200ns instruction cycle
- Interrupt capability
- Eight level deep hardware stack
- Direct, indirect and relative addressing modes

The **PIC16C65** device has 192 bytes of RAM and 33 I/O pins. In addition, several peripheral features are available including: three timer/counters, two capture/compare/PWM modules and two serial ports. The synchronous serial port can be configured as either a 3-wire Serial Peripheral Interface (SPI) or the two-wire Inter-Integrated Circuit (I²C) bus. The Serial Communications Interface (SCI) can be configured as either synchronous or asynchronous (USART). An 8-bit Parallel Slave Port is also provided.

The **PIC16C64** device has 128 bytes of RAM and up to 33 I/O pins. In addition, several peripheral features are available including: three timer/counters, one capture/compare/PWM module and one serial port. The synchronous serial port can be configured as either a 3-wire Serial Periperal Interface (SPI) or the two-wire Inter-Integrated Circuit (I²C) bus. An 8-bit Parallel Slave Port is also provided.

The **PIC16C61** device has 36 bytes of RAM and up to 13 I/O pins. In addition, a timer/counter is available.

Special Microcontroller Features:

- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Programmable code-protection
- Power saving SLEEP mode
- Fuse selectable oscillator options
- Serial in-system programming (via two pins)

NEW! PIC16C62
(Use Programmer PICSTART Plus or PICPGM-ND)

High-Performance RISC CPU:

- Only 35 single word instructions to learn
- All single cycle instructions (200ns) except for program branches which are two-cycle
- Operating speed: DC - 20MHz clock input, DC - 200ns instruction cycle
- 2048x14 on-chip EPROM program memory
- 128x8 general purpose registers (SRAM)
- Interrupt capability
- Eight levels deep hardware stack
- Direct, indirect and relative addressing modes

Peripheral Features:

- 22 I/O pins with individual direction control
- High current sink/source for direct LED drive
- One pin that can be configured as capture input, PWM output, or compare output
- Capture is 16-bit, max resolution 12.5ns (typ), Compare is 16-bit, max resolution 200ns, 1 to 10-bit PWM resolution. Maximum PWM Frequency at 8-bit resolution = 80 kHz; maximum PWM frequency at 10-bit resolution = 20 kHz
- TMR0: 8-bit timer/counter with 8-bit programmable prescaler
- TMR1: 16-bit timer/counter (time-base for capture/compare). TMR1 can be incremented during sleep via external crystal/clock (for real-time clock)
- TMR2: 8-bit timer/counter with 8-bit period register (time-base for PWM), prescaler and postscaler
- Synchronous Serial Port (SSP) with SPI and I²C™ interface

Special Microcontroller Features:

- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Brown-out Protection
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Programmable code-protection
- Power saving SLEEP mode
- Selectable oscillator options
- Serial in-system programming (via two pins)

NEW! PIC16C63
(Use Programmer PICSTART Plus or PICPGM-ND)

High-Performance RISC-like CPU:

- Only 35 single word instructions to learn
- All single cycle instructions (200ns) except for program branches which are two-cycle
- Operating speed: DC - 20MHz clock input, DC - 200ns instruction cycle
- 4096 x 14 pm-chip EPROM program memory • 192 x 8 general purpose registers (SRAM)
- Interrupt capability • Eight levels deep hardware stack
- Direct, indirect and relative addressing modes

Peripheral Features:

- 22 I/O pins with individual direction contro
- High current sink/source for direct LED drive
- Two pin that can be configured as capture input, PWM output, or compare output
- Capture is 16-bit, max resolution 12.5ns (typ), Compare is 16-bit, max resolution 200ns
- 1 to 10-bit PWM resolution. Maximum PWM Frequency at 8-bit resolution = 80 kHz; maximum PWM frequency at 10-bit resolution = 20 kHz
- TMR0: 8-bit timer/counter with 8-bit programmable prescaler
- TMR1: 16-bit timer/counter (time-base for capture/compare) TMR1 can be incremented during sleep via external crystal/clock (for real-time clock) • TMR2: 8-bit timer/counter with 8-bit period register (time-base for PWM), prescaler and postscaler • Synchronous serial port (SSP) with SPI and I²C™ Interface • Universal Synchronous Asynchronous Receiver Transmitter (USART)

Special Microcontroller Features:

- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Brown-out Protection
- Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation
- Programmable code-protection
- Power saving SLEEP mode
- Selectable oscillator options
- Serial in-system programming (via two pins)

92118-ND	Embedded Control PIC Applications Handbook 1994/95	**$9.95**
[redacted]	***NEW!*** Microchip MCU Data Book 1995/96	**$4.00**
[redacted]	***NEW!*** Microchip Memory Data Book 1995/96	**$7.80**

Memory Size		Config-uration	I/O Lines	Supply Voltage	* Supply Current @ 25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
1K x 14	36 x 8	EPROM	13	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	18-CDip	PIC16C61/JW-ND	15.18	—	—
1K x 14	36 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°C	18-Dip	PIC16C61-04/P-ND★	4.80	106.50	310.00
1K x 14	36 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°C	18-Soic	PIC16C61-04/SO-ND★	5.05	106.50	310.00
1K x 14	36 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°C	18-Dip	PIC16C61-20/P-ND★	7.03	138.25	403.00
1K x 14	36 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	0° - 70°C	18-Soic	PIC16C61-20/SO-ND★	7.28	138.25	403.00
1K x 14	36 x 8	OTP	13	3.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°C	18-Dip	PIC16LC61-04/P-ND★	8.48	122.25	356.00
1K x 14	36 x 8	OTP	13	3.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°C	18-Soic	PIC16LC61-04/SO-ND★	8.48	122.25	356.00
1K x 14	36 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°C	18-Dip	PIC16C61-04I/P-ND★	5.91	144.75	341.00
1K x 14	36 x 8	OTP	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°C	18-Soic	PIC16C61-04I/SO-ND★	5.91	144.75	341.00
1K x 14	36 x 8	OTP	13	4.0 - 6.0	9mA	Xtal/RC	DC-20MHz	-40° - 85°C	18-Dip	PIC16C61-20I/P-ND★	7.93	188.25	443.00
1K x 14	36 x 8	OTP	13	4.5 - 5.5	9mA	Xtal/RC	DC-20MHz	-40° - 85°C	18-Soic	PIC16C61-20I/SO-ND★	7.93	188.25	443.00
1K x 14	36 x 8	OTP	13	3.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°C	18-Dip	PIC16LC61-04I/P-ND★	6.93	166.50	392.00
1K x 14	36 x 8	OTP	13	3.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°C	18-Soic	PIC16LC61-04I/SO-ND★	6.93	166.50	392.00
2K x 14	128 x 8	EPROM	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-CDip .3"	PIC16C62A/JW-ND ***NEW!***	14.75	—	—
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	0° - 70°C	28-DIP .3"	PIC16C62A-04/SP-ND ***NEW!***	5.35	106.75	356.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	0° - 70°C	28-Soic	PIC16C62A-04/SO-ND ***NEW!***	5.48	110.25	367.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	0° - 70°C	28-SSOP	PIC16C62A-04/SS-ND ***NEW!***	5.90	119.75	398.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-10MHz	0° - 70°C	28-DIP .3"	PIC16C62A-10/SP-ND ***NEW!***	5.70	114.25	381.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-10MHz	0° - 70°C	28-Soic	PIC16C62A-10/SO-ND ***NEW!***	5.85	117.50	392.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-DIP .3"	PIC16C62A-20/SP-ND ***NEW!***	6.10	122.25	407.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-Soic	PIC16C62A-20/SO-ND ***NEW!***	6.25	125.50	418.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-SSOP	PIC16C62A-20/SS-ND ***NEW!***	6.68	135.25	449.00
2K x 14	128 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-400KHz	0° - 70°C	28-DIP .3"	PIC16LC62A-04/SP-ND ***NEW!***	5.60	112.00	374.00
2K x 14	128 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-400KHz	0° - 70°C	28-Soic	PIC16LC62A-04/SO-ND ***NEW!***	5.75	115.50	385.00
2K x 14	128 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-400KHz	0° - 70°C	28-SSOP	PIC16LC62A-04/SS-ND ***NEW!***	6.18	125.00	416.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	-40° - 85°C	28-DIP .3"	PIC16C62A-04I/SP-ND ***NEW!***	5.88	117.50	391.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	-40° - 85°C	28-Soic	PIC16C62A-04I/SO-ND ***NEW!***	6.03	120.75	402.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-20MHz	-40° - 85°C	28-DIP .3"	PIC16C62A-20I/SP-ND ***NEW!***	6.73	134.50	448.00
2K x 14	128 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-20MHz	-40° - 85°C	28-Soic	PIC16C62A-20I/SO-ND ***NEW!***	6.88	137.75	459.00

Memory Size		Config-uration	I/O Lines	Supply Voltage	* Supply Current @ 25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
2K x 14	128 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-400KHz	-40° - 85°C	28-DIP .3"	PIC16LC62A-04I/SP-ND ***NEW!***	6.15	122.75	409.00
2K x 14	128 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-400KHz	-40° - 85°C	28-Soic	PIC16LC62A-04I/SO-ND ***NEW!***	6.28	126.25	420.00
4K x 14	192 x 8	EPROM	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-CDip .3"	PIC16C63/JW-ND ***NEW!***	19.35	—	—
4K x 14	192 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	0° - 70°C	28-DIP .3"	PIC16C63-04/SP-ND ***NEW!***	8.75	174.75	583.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	0° - 70°C	28-Soic	PIC16C63-04/SO-ND ***NEW!***	8.93	178.25	594.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-10MHz	0° - 70°C	28-DIP .3"	PIC16C63-10/SP-ND ***NEW!***	9.35	187.00	624.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-10MHz	0° - 70°C	28-Soic	PIC16C63-10/SO-ND ***NEW!***	9.53	190.50	635.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-DIP .3"	PIC16C63-20/SP-ND ***NEW!***	10.00	200.25	667.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	28-Soic	PIC16C63-20/SO-ND ***NEW!***	10.18	203.50	678.00
4K x 14	192 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°C	28-DIP .3"	PIC16LC63-04/SP-ND ***NEW!***	9.18	183.50	612.00
4K x 14	192 x 8	OTP	22	3.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°C	28-Soic	PIC16LC63-04/SO-ND ***NEW!***	9.35	187.00	623.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	-40° - 85°C	28-DIP .3"	PIC16C63-04I/SP-ND ***NEW!***	9.63	192.25	641.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	<2mA	Xtal/RC	DC-4MHz	-40° - 85°C	28-Soic	PIC16C63-04I/SO-ND ***NEW!***	9.80	195.75	652.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	-40° - 85°C	28-DIP .3"	PIC16C63-20I/SP-ND ***NEW!***	11.00	220.25	734.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	—	Xtal/RC	DC-20MHz	-40° - 85°C	28-Soic	PIC16C63-20I/SO-ND ***NEW!***	11.18	223.50	745.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°C	28-DIP .3"	PIC16LC63-04I/SP-ND ***NEW!***	10.05	201.00	670.00
4K x 14	192 x 8	OTP	22	4.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°C	28-Soic	PIC16LC63-04I/SO-ND ***NEW!***	10.23	204.50	681.00
2K x 14	128 x 8	EPROM	33	4.5 - 5.5	—	Xtal/RC	DC - 20MHz	0° - 70°C	40-CDip	PIC16C64/JW-ND	20.39	—	—
2K x 14	128 x 8	OTP	33	4.5 - 5.5	2.0mA	Xtal/RC	DC - 4MHz	0° - 70°C	40-Dip	PIC16C64-04/P-ND	9.25	185.00	617.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	2.0mA	Xtal/RC	DC - 4MHz	0° - 70°C	44-PLCC	PIC16C64-04/L-ND	9.80	194.25	647.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	—	Xtal/RC	DC - 10MHz	0° - 70°C	40-Dip	PIC16C64-10/P-ND	9.90	198.00	660.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	—	Xtal/RC	DC - 10MHz	0° - 70°C	44-PLCC	PIC16C64-10/L-ND	10.45	207.25	690.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC - 20MHz	0° - 70°C	40-Dip	PIC16C64-20/P-ND	10.60	212.00	706.00
2K x 14	128 x 8	OTP	33	4.0 - 6.0	22.5µA	Xtal/RC	DC - 200KHz	0° - 70°C	40-Dip	PIC16LC64-04/P-ND	9.73	194.25	648.00
2K x 14	128 x 8	OTP	33	4.0 - 6.0	22.5µA	Xtal/RC	DC - 200KHz	0° - 70°C	44-PLCC	PIC16LC64-04/L-ND	10.25	203.50	678.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC - 20MHz	0° - 70°C	44-PLCC	PIC16C64-20/L-ND	11.13	221.25	737.00
2K x 14	128 x 8	OTP	33	4.0 - 6.0	2.0mA	Xtal/RC	DC-4MHz	-40° - 85°C	40-Dip	PIC16C64-04I/P-ND	10.18	203.50	679.00
2K x 14	128 x 8	OTP	33	4.0 - 6.0	2.0mA	Xtal/RC	DC-4MHz	-40° - 85°C	44-PLCC	PIC16C64-04I/L-ND	10.73	212.75	709.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° - 85°C	40-Dip	PIC16C64-20I/P-ND	11.65	233.00	777.00
2K x 14	128 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° - 85°C	44-PLCC	PIC16C64-20I/L-ND	12.20	242.25	807.00
4K x 14	192 x 8	EPROM	33	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	40-CDip	PIC16C65/JW-ND	18.98	—	—
4K x 14	192 x 8	OTP	33	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° - 70°C	40-Dip	PIC16C65-04/P-ND	10.18	203.75	679.00
4K x 14	192 x 8	OTP	33	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° - 70°C	44-PLCC	PIC16C65-04/L-ND	10.63	213.00	709.00
4K x 14	192 x 8	OTP	33	4.5 - 5.5	—	Xtal/RC	DC-10MHz	0° - 70°C	40-Dip	PIC16C65-10/P-ND	10.90	218.00	726.00
4K x 14	192 x 8	OTP	33	4.5 - 5.5	—	Xtal/RC	DC-10MHz	0° - 70°C	44-PLCC	PIC16C65-10/L-ND	11.35	227.25	757.00
4K x 14	192 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° - 70°C	40-Dip	PIC16C65-20/P-ND	11.65	233.25	777.00
4K x 14	192 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° - 70°C	44-PLCC	PIC16C65-20/L-ND	12.10	242.50	808.00
4K x 14	192 x 8	OTP	33	3.0 - 6.0	2mA	Xtal/RC	DC-200KHz	0° - 70°C	40-Dip	PIC16LC65-04/P-ND	10.70	213.75	713.00
4K x 14	192 x 8	OTP	33	3.0 - 6.0	2mA	Xtal/RC	DC-200KHz	0° - 70°C	44-PLCC	PIC16LC65-04/L-ND	11.15	223.25	743.00
4K x 14	192 x 8	OTP	33	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° - 85°C	40-Dip	PIC16C65-04I/P-ND	11.20	224.00	747.00
4K x 14	192 x 8	OTP	33	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° - 85°C	44-PLCC	PIC16C65-04I/L-ND	11.65	233.25	777.00
4K x 14	192 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° - 85°C	40-Dip	PIC16C65-20I/P-ND	12.83	256.50	855.00
4K x 14	192 x 8	OTP	33	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° - 85°C	44-PLCC	PIC16C65-20I/L-ND	13.28	265.75	885.00
4K x 14	192 x 8	OTP	33	3.0 - 6.0	2mA	Xtal/RC	DC-200KHz	-40° - 85°C	40-Dip	PIC16LC65-04I/P-ND	11.70	234.25	781.00
4K x 14	192 x 8	OTP	33	3.0 - 6.0	2mA	Xtal/RC	DC-200KHz	-40° - 85°C	44-PLCC	PIC16LC65-04I/L-ND	12.18	243.50	811.00

MICROCHIP

8 Bit RISC Microcontrollers

PIC17C42

PIC17C42
(Use Programmer PICBD17-ND or PICSTART Plus)

PIC17C42 Overview: PIC17C42 is the first member of a high performance EPROM based 8-bit CMOS microcontroller family. The PIC17C42 integrates a powerful CPU (160 ns instruction cycle) with an array of peripheral resources making it ideal for complex real-time control applications. Microchip's EPROM technology allows the user to test and develop code on window cerdip package version and move into production with the cost effective One Time Programmable (OTP) versions.

Architectural Overview: The high performance of the PIC17C42 can be attributed to a number of architectural features commonly found in RISC microprocessors. To begin with the PIC17C42 uses a modified Harvard architecture, in which program and data are accessed from separate memories. Full 16-bit wide program memory access bus fetches a 16 bit instruction in a single cycle. A two-stage pipeline overlaps fetch and execution of instructions. Consequently, all instructions (55 in all) execute in a single cycle (160ns @ 25MHz) except for program branches and two special instructions that transfer data between program and data memory.

Features: • Fully static design • 8-bit wide data path • 16-bit wide instructions • 64K x 16 of addressable program memory space • Direct, indirect (with auto increment and decrement), immediate and relative addressing

Special Microcontroller Features: Fuse selectable oscillator options: standard crystal oscillator, low frequency crystal oscillator, RC oscillator or external clocking.

9211B-ND	Embedded Control PIC Applications Handbook 1994/95	**$9.95**
9229B-ND	***NEW!*** Microchip MCU Data Book 1995/96	**$4.00**
9230B-ND	***NEW!*** Microchip Memory Data Book 1995/96	**$7.80**

Memory Size		Config-uration	I/O Lines	Supply Voltage	Supply Current @25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
2K x 16	232 x 8	EPROM	33	4.5 - 5.5	—	Xtal/RC	DC-25MHz	0° - 70°C	40-CDip	PIC17C42-25/JW-ND	21.01	—	—
2K x 16	232 x 8	OTP	33	4.5 - 5.5	11mA	Xtal/RC	DC-16MHz	0° - 70°C	40-Dip	PIC17C42-16/P-ND★	12.68	253.50	845.00
2K x 16	232 x 8	OTP	33	4.5 - 5.5	19mA	Xtal/RC	DC-25MHz	0° - 70°C	40-Dip	PIC17C42-25/P-ND★	13.58	271.25	905.00
2K x 16	232 x 8	OTP	33	4.5 - 5.5	19mA	Xtal/RC	DC-25MHz	0° - 70°C	44-PLCC	PIC17C42-25/L-ND	14.03	280.75	935.00

† Contains an independant 128 x 8 Serial Eprom;   • EEPROM Memory;   ‡ Clock Frequency = 32KHz

★ Digi-Key now offers a programming service using customer supplied Master IC and software disk for Microchips PIC family. The following formats are supported by our programming center: BIN16 — 16-bit binary format (default for PGM16/TASM16), INHXM8 — Merged 8-bit Intel™ Hex (Parallax) format, INHXS8 — Split 8-bit Intel™ Hex format, INHX16 — 16-bit Intel™ Hex format. For further information and price quotes, please call 1-800-344-4539, and request the programming center.

MICROCHIP

8 Bit CMOS Microcontrollers with A/D Converter

PIC16C7X

General Description: The PIC16C7X is a family of low-cost, high-performance, CMOS, full-static 8-bit microcontrollers with integrated analog-to-digital (A/D converters, in the PIC16CXX mid-range family).

(Use Programmer PICSTART Plus or PICPGM-ND)

The **PIC16C71** devices have 36 bytes of RAM, and the **PIC16C711** has 68 bytes of RAM. The **PIC16C71/711** devices have 13 I/O pins. In addition, a timer/counter is available. Also a 4-channel high-speed 8-bit A/D is provided. The 8-bit resolution is ideally suited for applications requiring low-cost analog interface, e.g., thermostat control, pressure sensing, etc.

The **PIC16C72** device has 128 bytes of RAM and up to 22 I/O pins. In addition, several peripheral features are available including: three timer/counters, one Capture/Compare/PWM module and one serial port. The Synchronous Serial Port can be configured as either a 3-wire Serial Periperal Interface (SPI) or the two-wire Inter-Integrated Circuit (I^2C) bus. Also a 5-channel high-speed 8-bit A/D is provided. The 8-bit resolution is ideally suited for applications requiring low-cost analog interface, e.g., thermostat control, pressure sensing, etc.

The **PIC16C73** devices have 192 bytes of RAM and 22 I/O pins. In addition, several peripheral features are available including: three timer/counters, two Capture/Compare/PWM modules and two serial ports. The Synchronous Serial Port can be configured as either a 3-wire Serial Periperal Interface (SPI) or the two-wire Inter-Integrated Circuit (I^2C) bus. The Universal Synchronous Asynchronous Receiver Transmitter (USART) is also known as the Serial Communications interface or SCI. Also a 5-channel high-speed 8-bit A/D is provided. The 8-bit resolution is ideally suited for applications requiring low-cost analog interface, e.g., thermostat control, pressure sensing, etc.

The **PIC16C74** devices have 192 bytes of RAM and 33 I/O pins. In addition, several peripheral features are available including: three timer/counters, two Capture/Compare/PWM modules and two serial ports. The Synchronous Serial Port can be configured as either a 3-wire Serial Periperal Interface (SPI) or the two-wire Inter-Integrated Circuit (I^2C) bus. The Universal Synchronous Asynchronous Receiver Transmitter (USART) is also known as the Serial Communications interface or SCI. An 8-bit Parallel Slave Port is provided. Also an 8-channel high-speed 8-bit A/D is provided. The 8-bit resolution is ideally suited for applications requiring low-cost analog interface, e.g., thermostat control, pressure sensing, etc.

Features:
• High-Performance RISC CPU • Only 35 single word instructions to learn • All single cycle instructions (200ns) except for program branches which are two-cycle • Operating speed: DC - 20MHz clock input, DC - 200ns instruction cycle • Interrupt capability • Eight level deep hardware stack • Direct, indirect and relative addressing modes • Power-on Reset (POR) • Power-up Timer (PWRT) and Oscillator Start-up Timer (OST) • Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation • Programmable code-protection • Power saving SLEEP mode • Selectable oscillator options • 8-bit multichannel analog-to-digital converter • Low-power, high-speed CMOS EPROM technology • Fully static design • Wide operating voltage range: 3.0V to 6.0V • High Sink/Source Current 25/25 mA • Commercial, Industrial and Automotive Temperature Range • Low-power consumption: <2 mA @ 5V, 4MHz; 15 µA typical @ 3V, 32 kHz; < 1 µA typical standby current

82070-ND ***NEW!*** Microchip PIC16C7X Family Data Book.........**$6.95**

Memory Size		Configuration	I/O Lines	Supply Voltage	Supply Current @25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
1K x 14	36 x 8	EPROM	13 (4 A/D)	4.0 - 6.0	< 3.3mA	Xtal/RC	DC-20MHz	0° — 70°C	18-CDip	PIC16C71/JW-ND	11.49	—	—
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	< 3.3mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Dip	PIC16C71-04/P-ND★	5.90	118.25	394.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	< 3.3mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C71-04/SO-ND★	6.03	120.50	402.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Dip	PIC16C71-20/P-ND★	6.33	126.50	421.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Soic	PIC16C71-20/SO-ND★	6.45	129.00	430.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Dip	PIC16LC71-04/P-ND★	6.20	124.00	414.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Soic	PIC16LC71-04/SO-ND★	6.33	126.50	422.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	< 3.3mA	Xtal/RC	DC-4MHz	-40° — 85°C	18-Dip	PIC16C71-04I/P-ND★	6.50	130.00	433 00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Dip	PIC16C71-20I/P-ND★	6.95	139.00	464.00
1K x 14	36 x 8	OTP	13 (4 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Soic	PIC16C71-20I/SO-ND★	7.10	141.75	473.00
1K x 14	68 x 8	EPROM	13 (4 A/D)	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° — 70°C	18-CDip	PIC16C711/JW-ND ***NEW!***	11.49	—	—
1K x 14	68 x 8	OTP	13 (4 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Dip	PIC16C711-04/P-ND ***NEW!***	5.90	118.25	394.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C711-04/SO-ND ***NEW!***	6.03	120.50	402.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	20-SSOP	PIC16C711-04/SS-ND ***NEW!***	6.63	132.50	442.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Dip	PIC16C711-20/P-ND ***NEW!***	6.33	126.50	421.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	18-Soic	PIC16C711-20/SO-ND ***NEW!***	6.45	129.00	430.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	20-SSOP	PIC16C711-20/SS-ND ***NEW!***	7.10	141.75	473.00
1K x 14	68 x 8	OTP	13 (4 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Dip	PIC16LC711-04/P-ND ***NEW!***	6.20	124.00	414.00
1K x 14	68 x 8	OTP	13 (4 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° — 70°C	18-Soic	PIC16LC711-04/SO-ND ***NEW!***	6.33	126.50	422.00
1K x 14	68 x 8	OTP	13 (4 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° — 70°C	20-SSOP	PIC16LC711-04/SS-ND ***NEW!***	6.95	139.25	464.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° — 85°C	18-Dip	PIC16C711-04I/P-ND ***NEW!***	6.50	130.00	433.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° — 85°C	18-Soic	PIC16C711-04I/SO-ND ***NEW!***	6.63	132.50	442.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Dip	PIC16C711-20I/P-ND ***NEW!***	6.95	139.00	464.00
1K x 14	68 x 8	OTP	13 (4 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	18-Soic	PIC16C711-20I/SO-ND ***NEW!***	7.10	141.75	473.00
1K x 14	68 x 8	OTP	13 (4 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	18-Dip	PIC16LC711-04I/P-ND ***NEW!***	6.83	136.50	455.00
1K x 14	68 x 8	OTP	13 (4 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	18-Soic	PIC16LC711-04I/SO-ND ***NEW!***	6.95	139.25	464.00
2K x 14	128 x 8	EPROM	22 (5 A/D)	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° — 70°C	28-CDip .3"	PIC16C72/JW-ND ***NEW!***	16.03	—	—
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	28-Dip .3"	PIC16C72-04/SP-ND ***NEW!***	6.15	122.75	409.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	18-Soic	PIC16C72-04/SO-ND ***NEW!***	6.30	126.25	420.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	28-SSOP	PIC16C72-04/SS-ND ***NEW!***	6.75	135.75	451.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-10MHz	0° — 70°C	28-SDip .3"	PIC16C72-10/SP-ND ***NEW!***	6.58	131.25	438.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-10MHz	0° — 70°C	28-Soic	PIC16C72-10/SO-ND ***NEW!***	6.73	134.75	449.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	28-SDip .3"	PIC16C72-20/SP-ND ***NEW!***	7.03	140.50	469.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	28-Soic	PIC16C72-20/SO-ND ***NEW!***	7.18	144.00	480.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	28-SSOP	PIC16C72-20/SS-ND ***NEW!***	7.63	153.50	511.00
2K x 14	128 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° — 70°C	28-SDip .3"	PIC16LC72-04/SP-ND ***NEW!***	6.45	129.00	430.00
2K x 14	128 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° — 70°C	28-Soic	PIC16LC72-04/SO-ND ***NEW!***	6.60	132.25	441.00
2K x 14	128 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° — 70°C	28-SSOP	PIC16LC72-04/SS-ND ***NEW!***	7.05	141.75	472.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° — 85°C	28-SDip .3"	PIC16C72-04I/SP-ND ***NEW!***	6.75	135.00	450.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° — 85°C	28-Soic	PIC16C72-04I/SO-ND ***NEW!***	6.90	138.50	461.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	28-SDip .3"	PIC16C72-20I/SP-ND ***NEW!***	7.73	154.50	515.00
2K x 14	128 x 8	OTP	22 (5 A/D)	4.5 - 5.5	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	28-Soic	PIC16C72-20I/SO-ND ***NEW!***	7.90	158.00	526.00
2K x 14	128 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	28-SDip .3"	PIC16LC72-04I/SP-ND ***NEW!***	7.05	141.25	471.00
2K x 14	128 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	-40° — 85°C	28-Soic	PIC16LC72-04I/SO-ND ***NEW!***	7.23	144.50	482.00
4K x 14	192 x 8	EPROM	22 (5 A/D)	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° — 70°C	28-CDip .3"	PIC16C73/JW-ND	20.77	—	—
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	28-Dip .3"	PIC16C73-04/SP-ND	10.18	203.75	679.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° — 70°C	28-Soic	PIC16C73-04/SO-ND	10.35	207.00	690.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	—	Xtal/RC	DC-10MHz	0° — 70°C	28-SDip .3"	PIC16C73-10/SP-ND	10.90	218.00	726.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	—	Xtal/RC	DC-10MHz	0° — 70°C	28-Soic	PIC16C73-10/SO-ND	11.08	221.25	737.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	28-SDip .3"	PIC16C73-20/SP-ND	11.65	233.25	777.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	0° — 70°C	28-Soic	PIC16C73-20/SO-ND	11.85	236.50	788.00
4K x 14	192 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA	Xtal/RC	DC-200KHz	0° — 70°C	28-SDip .3"	PIC16LC73-04/SP-ND	10.70	213.75	713.00
4K x 14	192 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA	Xtal/RC	DC-200KHz	0° — 70°C	28-Soic	PIC16LC73-04/SO-ND	10.88	217.25	724.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° — 85°C	28-SDip .3"	PIC16C73-04I/SP-ND	11.20	224.00	747.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° — 85°C	28-Soic	PIC16C73-04I/SO-ND	11.38	227.50	758.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	—	Xtal/RC	DC-10MHz	-40° — 85°C	28-SDip .3"	PIC16C73-10I/SP-ND	11.98	239.75	799.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	—	Xtal/RC	DC-10MHz	-40° — 85°C	28-Soic	PIC16C73-10I/SO-ND	12.18	243.00	810.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	28-SDip .3"	PIC16C73-20I/SP-ND	12.83	256.50	855.00
4K x 14	192 x 8	OTP	22 (5 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	-40° — 85°C	28-Soic	PIC16C73-20I/SO-ND	13.00	259.75	866.00
4K x 14	192 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA	Xtal/RC	DC-4MHz	-40° — 85°C	28-SDip .3"	PIC16LC73-04I/SP-ND	11.70	234.25	781.00
4K x 14	192 x 8	OTP	22 (5 A/D)	3.0 - 6.0	22.5µA	Xtal/RC	DC-4MHz	-40° — 85°C	28-Soic	PIC16LC73-04I/SO-ND	11.90	237.50	792.00
4K x 14	192 x 8	EPROM	33 (8 A/D)	4.0 - 6.0	—	Xtal/RC	DC-20MHz	0° - 70°C	40-CDip	PIC16C74/JW-ND	19.93	—	—
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° - 70°C	40-Dip	PIC16C74-04/P-ND	11.45	228.75	763.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	0° - 70°C	44-PLCC	PIC16C74-04/L-ND	11.90	238.00	793.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	6.7mA	Xtal/RC	DC -10MHz	0° - 70°C	40-Dip	PIC16C74-10/P-ND	12.25	244.75	816.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	6.7mA	Xtal/RC	DC -10MHz	0° - 70°C	44-PLCC	PIC16C74-10/L-ND	12.70	254.00	846.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	0° - 70°C	40-Dip	PIC16C74-20/P-ND	13.10	262.00	873.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	0° - 70°C	44-PLCC	PIC16C74-20/L-ND	13.55	271.25	903.00
4K x 14	192 x 8	OTP	33 (8 A/D)	2.5 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° - 70°C	40-Dip	PIC16LC74-04/P-ND	12.00	240.25	801.00
4K x 14	192 x 8	OTP	33 (8 A/D)	2.5 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	0° - 70°C	44-PLCC	PIC16LC74-04/L-ND	12.45	249.50	831.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	2.7mA	Xtal/RC	DC-4MHz	-40° - 85°C	40-Dip	PIC16C74-04I/P-ND	12.58	251.75	839.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	6.7mA	Xtal/RC	DC -10MHz	-40° - 85°C	40-Dip	PIC16C74-10I/P-ND	13.48	269.25	898.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	-40° - 85°C	40-Dip	PIC16C74-20I/P-ND	14.40	288.25	960.00
4K x 14	192 x 8	OTP	33 (8 A/D)	4.0 - 6.0	13.5mA	Xtal/RC	DC-20MHz	-40° - 85°C	44-PLCC	PIC16C74-20I/L-ND	14.85	297.50	991.00
4K x 14	192 x 8	OTP	33 (8 A/D)	2.5 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	-40° - 85°C	40-Dip	PIC16LC74-04I/P-ND	13.15	263.00	877.00
4K x 14	192 x 8	OTP	33 (8 A/D)	2.5 - 6.0	22.5µA‡	Xtal/RC	DC-200KHz	-40° - 85°C	44-PLCC	PIC16LC74-04I/L-ND	13.60	272.50	907.00

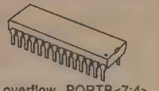
† Contains an Independant 128 x 8 Serial Eprom; • EEPROM Memory; ‡ Clock Frequency = 32KHz

★ Digi-Key now offers a programming service using customer supplied Master IC and software disk for Microchips PIC family. The following formats are supported by our programming center: BIN16 — 16-bit binary format (default for PGM16/TASM16), INHXM8 — Merged 8-bit Intel™ Hex (Parallax) format, INHXS8 — Split 8-bit Intel™ Hex format, INHX16 — 16-bit Intel™ Hex format. For further information and price quotes, please call 1-800-344-4539, and request the programming center.

MICROCHIP

8 Bit CMOS EEPROM Microcontrollers

PIC16C84/84A



General Description: PIC16C8X microcontrollers typically achieve a 2:1 code compression and up to a 2:1 speed improvement (at 10 MHz) over other 8-bit microcontrollers in their class.

(Use Programmer PICSTART Plus or PICPGM-ND)

The **PIC16C8X** device has up to 68 bytes of RAM, 64 bytes of Data EEPROM memory, and 13 I/O pins. A timer/counter is also available.

The **PIC16CXX** family has special features to reduce external components, thus reducing cost, enhancing system reliability and reducing power consumption. There are four oscillator options, of which the single pin RC oscillator provides a low-cost solution, the LP oscillator minimizes power consumption, XT is a standard crystal, and the HS is for High Speed crystals. The SLEEP (power-down) mode offers poer saving. The user can wake the chip from sleep through several external and internal interrupts and resets.

A highly reliable Watchdog Timer with its own on-chip RC oscillator provides protection against software lock-up.

High-Performance RISC CPU: • Only 35 single word instructions to learn • All instructions single cycle (400 ns @ 10 MHz) except for program branches which are two-cycle • Operating speed: DC - 10MHz clock input, DC - 400ns instruction cycle • 14-bit wide instructions • 8-bit wide data path • 15 special function hardware registers • Eight level deep hardware stack • Direct, indirect and relative addressing modes • Four interrupt sources: External RB0/INT pin, TMR0 timer overflow, PORTB<7:4> interrupt on change, Data EEPROM write complete • 1,000,000 data memory EEPROM ERASE/WRITE cycles - Typical • EEPROM Data Retention > 40 years

Peripheral Features: • 13 I/O pins with individual direction control • High current sink/source for direct LED drive: 25mA sink max. per pin; 20 mA source max. per pin • TMR0: 8-bit timer/counter with 8-bit programmable prescaler

9211B-ND	Embedded Control PIC Applications Handbook 1994/95	**$9.95**
9229B-ND	Microchip MCU Data Book 1995/96	**$4.00**
9230B-ND	Microchip Memory Data Book 1995/96	**$7.80**

Memory Size		Config-uration	I/O Lines	Supply Voltage	Supply Current @25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	—	Xtal/RC	DC-4MHz	0° - 70°	18-Dip	PIC16C84-04/P-ND•★	6.48	129.25	431.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Soic	PIC16C84-04/SO-ND•★	6.50	130.00	434.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	5.0mA	Xtal/RC	DC-10MHz	0° - 70°	18-Dip	PIC16C84-10/P-ND•★	6.93	138.25	461.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	5.0mA	Xtal/RC	DC-10MHz	0° - 70°	18-Soic	PIC16C84-10/SO-ND•★	6.98	139.25	464.00
1K x 14	36 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Dip	PIC16LC84-04/P-ND•★	6.78	135.75	452.00
1K x 14	36 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Soic	PIC16LC84-04/SO-ND•★	6.83	136.50	455.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Dip	PIC16C84-04I/P-ND★	7.10	142.25	474.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Soic	PIC16C84-04I/SO-ND★	7.15	143.00	477.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	5.0mA	Xtal/RC	DC-10MHz	-40° - 85°	18-Dip	PIC16C84-10I/P-ND★	7.60	152.25	507.00
1K x 14	36 x 8	EEPROM	13	4.0 - 6.0	5.0mA	Xtal/RC	DC-10MHz	-40° - 85°	18-Soic	PIC16C84-10I/SO-ND★	7.65	153.00	510.00
1K x 14	36 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Dip	PIC16LC84-04I/P-ND★	7.43	148.75	496.00
1K x 14	36 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Soic	PIC16LC84-04I/SO-ND★	7.48	149.50	498.00
1K x 14	68 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Dip	PIC16F84A-04/P-ND ***NEW!***	6.48	129.25	431.00
1K x 14	68 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	0° - 70°	18-Soic	PIC16F84A-04/SO-ND ***NEW!***	6.50	130.00	434.00
1K x 14	68 x 8	EEPROM	13	4.5 - 5.5	5mA	Xtal/RC	DC-10MHz	0° - 70°	18-Dip	PIC16F84A-10/P-ND ***NEW!***	6.93	138.25	461.00
1K x 14	68 x 8	EEPROM	13	4.5 - 5.5	5mA	Xtal/RC	DC-10MHz	0° - 70°	18-Soic	PIC16F84A-10/SO-ND ***NEW!***	6.98	139.25	464.00
1K x 14	68 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Dip	PIC16LF84A-04/P-ND ***NEW!***	6.78	135.75	452.00
1K x 14	68 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	0° - 70°	18-Soic	PIC16LF84A-04/SO-ND ***NEW!***	6.83	136.50	455.00
1K x 14	68 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Dip	PIC16F84A-04I/P-ND ***NEW!***	7.10	142.25	474.00
1K x 14	68 x 8	EEPROM	13	4.0 - 6.0	1.8mA	Xtal/RC	DC-4MHz	-40° - 85°	18-Soic	PIC16F84A-04I/SO-ND ***NEW!***	7.15	143.00	477.00
1K x 14	68 x 8	EEPROM	13	4.5 - 5.5	5mA	Xtal/RC	DC-10MHz	-40° - 85°	18-Dip	PIC16F84A-10I/P-ND ***NEW!***	7.60	152.25	507.00
1K x 14	68 x 8	EEPROM	13	4.5 - 5.5	5mA	Xtal/RC	DC-10MHz	-40° - 85°	18-Soic	PIC16F84A-10I/SO-ND ***NEW!***	7.65	153.00	510.00
1K x 14	68 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Dip	PIC16LF84A-04I/P-ND ***NEW!***	7.43	148.75	496.00
1K x 14	68 x 8	EEPROM	13	2.0 - 6.0	15µA‡	Xtal/RC	DC-200KHz	-40° - 85°	18-Soic	PIC16LF84A-04I/SO-ND ***NEW!***	7.48	149.50	498.00

† Contains an independant 128 x 8 Serial Eprom; • EEPROM Memory; ‡ Clock Frequency = 32KHz

★ Digi-Key now offers a programming service using customer supplied Master IC and software disk for Microchips PIC family. The following formats are supported by our programming center: BIN16 — 16-bit binary format (default for PGM16/TASM16), INHXM8 — Merged 8-bit Intel™ Hex (Parallax) format, INHXS8 — Split 8-bit Intel™ Hex format, INHX16 — 16-bit Intel™ Hex format. For further information and price quotes, please call 1-800-344-4539, and request the programming center.

MICROCHIP

NEW! 28-Pin Programmable Mixed Signal Controller

PIC14000

General Description: The **PIC14000** is a low-cost, high-performance, CMOS, fully-static, mixed signal, factory calibrated, 8-bit microcontroller. Its features include medium to high resolution A/D conversion (10 to 16 bits), temperature sensing, closed loop charge control, serial communication, and low power operation.

(Use Programmer PICSTART Plus.)

The **PIC14000** is based on the high-performance PIC16C74 core. It uses a RISC-like Harvard architecture CPU with separate 14-bit instruction and 8-bit data buses. A two-stage instruction pipeline allows all instructions to execute in a single cycle, except for program branches, which require two cycles. A total of 35 instructions are available. Additionally, a large register set is included.

High-Performance RISC CPU: • Based on PIC16C74 microcontroller • Only 35 single word instructions to learn • All single cycle instructions except for program branches which are two-cycle • Operating speed: DC - 20MHz clock input • 4096 x 14 on-chip EPROM program memory • 192 x 8 general purpose registers (SRAM) • 6 internal and 5 external interrupt sources • 38 special function hardware registers • Eight level deep hardware stack

Analog Peripherals Features: • Slope Analog-to-Digital (A/D) converter: Eight external input channels (two channels with selectable input ranges of -0.3V to VDD -2.0V or 0V to VDD -1.5V), Seven internal input channels, Programmable A/D resolution, up to 16 bits, 16 ms maximum conversion time at maximum (16-bit) resolution and 4 MHz clock, 4-bit current DAC, Internal bandgap voltage reference, Factory calibrated with calibration constants stored in EPROM, Provisions for measuring energy in high frequency pulses (e.g., GSM cellular telephone) • On-chip temperature sensor • Voltage regulator control output for 5V operation • Two multi-range DACs for programmable level/window detect or constant current/voltage charge control • On-chip low voltage detector

Special Microcontroller Features: • Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST) • Watchdog Timer (WDT) with its own on-chip RC oscillator for reliable operation • Multi-segment programmable code-protection • Selectable oscillator options: Internal 4 MHz oscillator, External crystal oscillator • Two pin serial in-system EPROM programming

Digital Peripherals Features: • 20 I/O pins with individual direction control • High current sink/source for direct LED drive • ADTMR: A/D counter, 16-bit counter with pre-load and capture • TMR0: 8-bit timer/counter with 8-bit programmable prescaler • I²C™ serial port compatible with: ACCESS.bus™, SMBus (System Management Bus)

9268B-ND	Microchip PIC14000 Family Data Book	**$4.95**

Memory Size		Config-uration	I/O Lines	Supply Voltage	Supply Current @25°C	Oscillator Type External	Frequency Range Min./Max.	Operating Temp. Range	Pkg.	Digi-Key Part No.	Pricing		
EPROM	RAM										1	25	100
4K x 14	192 x 8	EPROM	20	2.7 - 6.0	—	Xtal	DC-4MHz	0° - 70°	28-CDip .3"	PIC14000/JW-ND	19.21	—	—
4K x 14	192 x 8	OTP	20	2.7 - 6.0	—	Xtal	DC-4MHz	0° - 70°	28-SDip .3"	PIC14000-04/SP-ND	14.35	260.75	766.00
4K x 14	192 x 8	OTP	20	2.7 - 6.0	—	Xtal	DC-4MHz	0° - 70°	28-Soic	PIC14000-04/SO-ND	15.78	286.75	843.00
4K x 14	192 x 8	OTP	20	2.7 - 6.0	—	Xtal	DC-4MHz	0° - 70°	28-SSOP	PIC14000-04/SS-ND	17.35	315.50	927.00
4K x 14	192 x 8	OTP	20	2.7 - 6.0	—	Xtal	DC-4MHz	-40° - 85°	28-SDip .3"	PIC14000-04I/SP-ND	15.78	286.75	843.00
4K x 14	192 x 8	OTP	20	2.7 - 6.0	—	Xtal	DC-4MHz	-40° - 85°	28-Soic	PIC14000-04I/SO-ND	17.35	315.50	927.00
4K x 14	192 x 8	OTP	20	2.7 - 6.0	—	Xtal	DC-4MHz	-40° - 85°	28-SSOP	PIC14000-04I/SS-ND	19.10	347.00	1020.00

NEW! PICDEM-1
Low-Cost PIC16/17 Demonstration Board

The PICDEM-1 is a simple board which demonstrates the capabilities of several of Microchip's microcontrollers. The microcontrollers supported are: PIC16C5X (PIC16C54 to PIC16C58), PIC16C62X, PIC16C71, PIC16C84, and PIC17C42.

Kit contents: PICDEM-1 Demonstration Board, PIC16/17 Product Samples, Demo/Tutorial Software, Complete Documentation

DM153001-ND **99.00**

NEW! PICDEM-2
Low-Cost PIC16CXX Demonstration Board

The PICDEM-2 is a simple board that supports the PIC16C64, PIC16C65, PIC16C73, and PIC16C74 microcontrollers. All the necessary hardware and software is included to run the basic demonstration programs.

Kit contents: PICDEM-2 Demonstration Board, Demo/Tutorial Software, Complete Documentation

DM153002-ND **99.00**

NEW! PICSTART Plus Programmer

It's Here! One Tool Does It All!

PICSTART Plus is an entry level development kit that will *SUPPORT ALL* PIC16C and PIC17C MICROCONTROLLERS *including* the PIC14000 and PIC17C4X families.

Kit Includes:

- PICSTART Plus programmer system
- RS232 cable
- Universal IEC power supply and power cable
- PIC16C84 EEPROM microcontroller sample
- MPLAB software diskette: includes MPLAB, MPASM-Windows, MPLAB-SIM simulator
- PICSTART Plus software diskette Windows based user interface software for PICSTART Plus, runs under MPLAB
- User's manual for PICSTART Plus
- User's manual for MPSIM
- User's manual for MPLAB, covers MPLAB, MPLAB-SIM and Editor
- CD-ROM: Includes databook and Embedded Control Handbook

DV003001-ND **199.00**

PARALLAX BASIC Stamp Modules

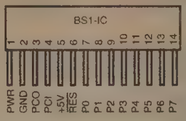
Stamp-Sized Modules Run BASIC

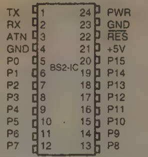
Parallax introduces its newest Stamp computers, the BS1-IC and BS2-IC. These modules are general-purpose I/O computers, which are programmed in BASIC. The BS1-IC has 8 I/O lines, program storage for 80 BASIC instructions, 4-MHz operation, and comes in a 14 PIN SIP package. The BS2-IC has 16 I/O lines, program storage for 600 BASIC instructions, 20-MHz operation, and comes in a 24-pin DIP package.

Both modules are perfect for small control applications. Everything to make a fully functional computer is on-board, including BASIC interpreter, EEPROM program memory, 5-volt regulator, and power-on reset circuit. All you have to add are the components for your particular applications. To power the modules, your circuit should provide a regulated or unregulated voltage from 5-12 VDC.

For easy programming and prototyping, we offer "carrier" boards for each module. These small printed circuit boards provide a socket for the module, as well as prototyping area, 9-volt battery clips, reset button, and programming connector. The carrier boards are approximately 1.5 x 2.5 inches in size.

* To program the Stamp modules, you'll need the Stamp Programming Package. The package runs on an IBM PC, and contains our BASIC editor software, programming cables, manual, application notes, and free technical support. The application notes contain information on many topics, including LCDs, A/D convertors, keypads, servos, stepper motors, infrared communication, etc. To make programming simple, we also recommend that users purchase at least one carrier board for each type of module.

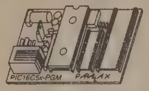




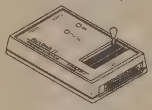
Description	Digi-Key Part No.	Price
BS1-IC Basic Stamp Module	STAMP1-ND	34.00
BS1-IC Carrier Board	STAMP1C-ND	15.00
BS2-ICBasic Stamp Module	STAMP2-ND	49.00
BS2-IC Carrier Board	STAMP2C-ND	20.00
Programming Package †	STAMPPP-ND*	99.00

† Does not include stamp modules

PARALLAX Development tools for PICs (16C5x, 62x, 61, 62, 63, 64, 65, 71, 72, 73, 74, 84 & 17C42)



PIC Programmer



BackDraft 17

ClearView™ Mathias

Parallax offers a complete line of development tools that provide customers with the software and hardware necessary to develop projects for 18-, 28-, and 40-pin PIC's (DIP and surface mount).

PIC Programmer (PICPGM) supports the full line of PIC16Cxx parts; these include all 16C5x, 62x, 61, 71 and 84. With the optional 40-pin ZIF adapter, the programmer also supports all remaining parts, including the 62, 63, 64, 65, 72, 73 and 74. Other optional adapters provide 18-and 28-pin ZIF and SOIC sockets for programming of DIP and surface mount PICs. Comes with assembler and simulator software, programmer board, power supply and cables.

BackDraft 17 (PICBF17) for PIC17C42 includes assembler, programmer unit, power supply, and cables. The programmer supports the PIC17C42 with a built-in 40-pin ZIF socket. An optional PLCC adapter supports PLCC devices. (Assembler accepts only Microchip instructions.)

***NEW!* ClearView Mathias** (PICCVXXM) supports emulation for 16C5X and 16CXX devices using Microsoft Windows™ for a complete integrated design environment. "Family" modules select 5X or XX device family, while "Member" modules select specific device. Optional timing module shows execution time and number of processor cycles. Optional 16K trace buffer module additionally provides execution history and 8 external trace inputs. Provides full emulation of program and register memory and I/O activity with unlimited hardware breakpoints. Built-in oscillator provides 50 frequencies ranging from 32KHz to 20MHz.

System requirements: IBM PC or compatible, VGA monitor, serial port, 3.5" disk drive, and Windows™ 3.1+

Description	Digi-Key Part No.	Price Each
PIC16C5x/62x/61/62/63/64/65/71/72/73/74/84 Programmer	PICPGM-ND	212.27
PIC Programmer Hobbyist Pack	PICCVHBM-ND† ***NEW!***	109.00
Programmer 40-Pin ZIF Adapter (for 16C62/63/64/65/72/73/74)	PGMZIF40-ND*	48.25
Programmer 18/28-pin ZIF Adapter (for 16C5x/62x/61/71/84)	PGMZIF1828-ND*	67 94
Programmer 18/28-pin SOIC Adapter (for 16C5x/62x/61/71/84)	PGMSOIC-ND*	127.02
BackDraft 17 Programmer (17C42)	PICBD17-ND	199.00
PIC16C84 Module	CV84-ND	98.46
ClearView Mathias Emulator	PICCVXXM-ND ***NEW!***	499.00
PIC16C5X Family Module	CV5XF-ND ***NEW!***	150.00
RIC16CXX Family Module	CVXXF-ND ***NEW!***	150.00
PIC16C5X Member Module	CV5M-ND ***NEW!***	50.00
PIC16C6X/7X Member Module	CV20M-ND ***NEW!***	200.00
PIC16C62X Member Module	CV64M-ND ***NEW!***	100.00
PIC16C61 Member Module	CV61M-ND ***NEW!***	100.00
PIC16C71 Member Module	CV71M-ND ***NEW!***	100.00
PIC16C84 Member Module	CV84M-ND ***NEW!***	100.00
Mathias Timing Module	CVTIM-ND ***NEW!***	130.00
Mathias Trace Buffer Module	CVTRC-ND ***NEW!***	270.00
Mathias 44 Pin PLCC Adapter	CV44AD-ND ***NEW!***	109.00

* Optional Adapters † Hobbyist Pack (pgmr. + 3 disks) requires laser/inkjet printer & Windows™ 3.1+.

DEPEW ENGINEERING

Microchip PIC16C5X Prototyper

The Depew Engineering PIC 16C5X Prototyper is a development board designed to aid in both hardware and software development for the Microchip 16C5X family of single chip microcontrollers. The board will support either 18 pin or 28 pin DIP devices. There are a variety of I/O interfaces built into the board, including an RS-232 port with a line-level voltage generation chip. There also includes a parallel 25-pin connector, for communicating with external peripherals. Additionally, the Prototyper has an IDC connector for the purpose of "plug-in" additional hardware. This could include LCD readouts, keyboard, hardware prototyping area, etc. The board also features a solderless breadboarding area for the development of hardware to interface with the microcontroller. There is an additional area, a terminal strip, which is used to bring the microcontroller's signals to the breadboarding area.

Features:

Zif socket for 18/28 pin devices • Jumper selectable between 18 pin and 28 pin families • 26 pin IDC connector for additional hardware expansion • RS-232 port with line-level driver chip • 25 pin parallel expansion connector • Regulated +5 volt supply from wall adapter • On/off switch • Push-button reset switch • Decoded LED output hexadecimal display for A, B & C ports • Binary logic LED lights for A, B & C ports • Socket for EEROM devices • Dual frequency synthesizer circuit, provides 500KHz to 32 MHz frequency synthesis in 32KHz increments, dip switch selectable • Solderless breadboard area for circuit development • Solderless terminal strip, provides solderless connection between the microcontroller chip and breadboarding area • Compatible with Parallex, Inc. P BASIC Interpreter IC chip.

Microchip Blank Prototyping Board:

- Dimensions: 3.5" x 3.5"
- Usable with all Microchip 16C5X, 16C7X, & 16C8X 18 pin and 28 pin devices
- Allows concurrent use of one 18 pin device and/or one 28 pin device.

PROTYP1-ND	Microchip PIC 16C5X Prototyper	**195.00**
PICDEV-2-ND	Microchip Blank Prototyping Board	**14.99**

MICROCHIP

PICSTART - 16B1

(PIC16C5X, 61, 62X, 71 & 84 Programmer)

Microchip's PICSTART-16B1 development system provides design engineers a fast, easy and very low-cost way to begin evaluation and code development of PIC microcontroller products.

The PICSTART-16B1 *comes complete* with assembler and simulator software, programmer board and PIC16CXX product samples, and supports the full range of PIC16C5X, 61, 62X, 71, and 16C84 products, 90-250VAC - 50/60HZ Power Supply, RS 232 Cable, Assembler Manual and Simulator Manual. System documentation includes Microchip's new Embedded Control Application Handbook and the Microchip Product Data Book.

DV163003-ND PICSTART-16B1 Programmer **139.00**

Note: *Adapters are required for programming surface mount devices (Adapters are not sold by Digi-Key. Please call for more information).*

MICROCHIP

NEW! PICSTART-Lite

We now have a lower cost family of entry level development tools. The PICSTART-Lite. The PICSTART-Lite is a stripped down version of the current PICSTART development kit.

It comes in a plain box with no frills and contains the following:

• PICSTART programming board • RS232 cable • One windowed PIC sample (16C55/JW or 16C74/JW) • All documents (MPASM, MPSIM & PICSTART manuals) placed on disk • Executable software

DV162003-ND — Lite version of PICSTART-16B1 (Supports: 16C5X, 16C61, 16C71, 16C84, 16C62X) **69.00**

DV162002-ND — Lite version of PICSTART-16C (Supports: 16C62, 16C63, 16C72, 16C64, 16C73, 16C74)........................ **79.00**

MICROCHIP

PICSTART™ UPGRADE 16B and 16B1

(For PIC16C62X Series Parts)

Microchip has upgraded its PICSTART-16B1 development system to support the new PIC16C620, 621, 622, 8-bit microcontroller products. The PIC16C62X devices are the first Microchip products to offer analog comparators and brown-out protection.

The 18-pin PIC16C62X products also feature 512 to 2K words of program memory, 80 to 128 bytes of data memory, 16 special function hardware registers and 8 level deep hardware stack.

The PICSTART-16B1 upgrade kit comes with the following:

- New firmware (Version 2.0)
- MPSIM Simulator Software and Manual
- MPASM Assembler Software and Manual
- PIC16C62X Device Datasheet
- PIC16C62X Product Sample
- PICSTART User's Manual

UK162005-ND **29.00**

MICROCHIP

SEEPROM Designer's Development Kit

Supports all Microchip 2-wire and 3-wire SERIAL EEPROMs

The Serial EEPROM Designer's Kit includes everything necessary to read, write, erase or program special features of any Microchip Serial EEPROM products including *Smart Serials™* and secure serials.

Description of contents:

• Total Endurance Software Model • SEEVAL™ Evaluation and Programming System • SEEVAL software • Serial EEPROM Handbook • Serial EEPROM Sample Pack • RS-232 Interface Cable • Power Supply

PICSEE™ Introduction Design Kit:

• PICSEE PDIP and SOIC to PIC16C54 or 24LC01B Programming Adapter Sockets • Header Interface for PICStart-16B, PICMASTER-16A and PICPROBE-16A • Serial EEPROM Example Software Disk • MTA81010 Product Samples • 8- and 18-Pin Programming Adapter Plugs • Complete Systems Documentation

True Gauge™ Development Kit

(Supports MTA11200 Battery Monitor/Charger):

• Universal Power Supply • NiMH Battery with TrueGauge Module • Stand Alone TrueGauge Module • Charger/Discharger Interface Board • PC Interface Cable • Design/Verification Software • NiCd Battery with TrueGauge Module • Complete Systems Documentation • MTA11200 and Serial EEPROM Product Samples

Description	Digi-Key Part No.	Price Each
SEEPROM Designer's Development Kit	DV243001-ND	149.00
PICSEE™ Introduction Design Kit	AC812001-ND	330.00
TrueGauge™ Development Kit	DV114001-ND	499.00
IC TrueGauge™ Battery Fuel Gauge (28-DIP .3")	MTA11200B/SP-ND ***NEW!***	7.37
IC TrueGauge™Battery Fuel Gauge (S028)	MTA11200B/SO-ND	8.11

National Semiconductor™

COP8 Microcontrollers
from National Semiconductor

COP8780C/8781C/8782C Single Chip Eprom/OTP Microcontrollers

General Description

The COP8780C, COP8781C and COP8782C are members of the COP8™ 8-bit microcontroller family. They are fully static microcontrollers, fabricated using double-metal, double poly silicon gate microCMOS EPROM technology. These devices are available as UV erasable or One Time Programmable (OTP). These low cost microcontrollers are complete microcomputers containing all system timing, interrupt logic, EPROM, RAM, and I/O necessary to implement dedicated control functions in a variety of applications. Features include an 8-bit memory mapped architecture, MICROWIRE/PLUS™ serial I/O, a 16-bit timer/counter with associated 16-bit autoreload/capture register, and a multi-sourced interrupt. Each I/O pin has software selectable options to adapt the device to the specific application. These devices operate over a voltage range of 4.5V to 6.0V. An efficient, regular instruction set operating at a 1 µs instruction cycle rate provides optimal throughput.

The COP8780C, COP8781C and COP8782C can be configured to EMULATE the COP880C, COP840C and COP820C microcontrollers.

Features:

- Low cost 8-bit microcontroller
- Fully static CMOS
- 4096 x 8 on-chip UV erasable or OTP EPROM
- EPROM security
- 128 or 64 bytes of on-chip RAM, user configurable
- Crystal, RC or External Oscillator, user configurable
- 1 µs instruction time (10 MHz clock)
- Low current drain
- Extra-low current static HALT mode
- Single supply operation: 4.5V to 6.0V
- 8-bit stack pointer (stack in RAM)
- 16-bit read/write timer operates in a variety of modes
  - PWM (Pulse Width Modulation) mode with 16-bit autoreload register
  - External Event Counter mode, with selectable edge
  - Input Capture mode (selectable edge) with 16-bit capture register
- Multi-source interrupt
  - External interrupt with selectable edge
  - Timer interrupt or capture interrupt
  - Software interrupt
- Powerful instruction set, w/ most instructions single byte
- Many single byte, single cycle instructions
- BCD arithmetic instructions
- MICROWIRE/PLUS serial I/O
- Software selectable I/O options (TRI-STATE, push-pull, weak pull-up)
- Temperature ranges: -40°C to +85°C
- Schmitt trigger inputs on G port
- COP8780C EPROM Programming fully supported by different sources

Memory Size EPROM	RAM	Configuration	I/O Lines	Supply Voltage	Supply Current 6V, TC=1 µs	Oscillator Type External	Frequency Range Max	Pkg.	Digi-Key Part No.	Pricing 1	25	100	National Semiconductor Part No.
4K x 8	128 x 8	EPROM	16	4.5 - 6.0V	21mA	Xtal/RC	10MHz	20-CDIP	COP8782CJ-ND	18.50	322.50	950.00	COP8782CJ
4K x 8	128 x 8	OTP	16	4.5 - 6.0V	21mA	Xtal/RC	10MHz	20-DIP	COP8782CN-ND	5.45	95.00	279.00	COP8782CN
4K x 8	128 x 8	OTP	16	4.5 - 6.0V	21mA	Xtal/RC	10MHz	S0-20	COP8782CWM-ND	5.35	93.00	274.00	COP8782CWM
4K x 8	128 x 8	EPROM	24	4.5 - 6.0V	21mA	Xtal/RC	10MHz	28-CDIP	COP8781CJ-ND	24.10	428.78	1240.00	COP8781CJ
4K x 8	128 x 8	OTP	24	4.5 - 6.0V	21mA	Xtal/RC	10MHz	28-DIP	COP8781CN-ND	6.10	105.50	311.00	COP8781CN
4K x 8	128 x 8	OTP	24	4.5 - 6.0V	21mA	Xtal/RC	10MHz	S0-28	COP8781CWM-ND	5.95	103.75	305.00	COP8781CWM
4K x 8	128 x 8	EPROM	36	4.5 - 6.0V	21mA	Xtal/RC	10MHz	40-CDIP	COP8780CJ-ND	24.70	430.00	1270.00	COP8780CJ
4K x 8	128 x 8	OTP	36	4.5 - 6.0V	21mA	Xtal/RC	10MHz	40-DIP	COP8780CN-ND	7.50	131.25	384.00	COP8780CN
4K x 8	128 x 8	OTP	36	4.5 - 6.0V	21mA	Xtal/RC	10MHz	44-PLCC	COP8780CV-ND	7.70	135.00	395.00	COP8780CV

9253B-ND ***NEW!*** 1994 COP8 Data Book $14.00

COP8 C-Code Development System

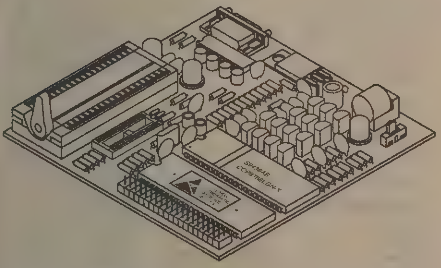
COP8 C-Code Development System is a complete C compiler and integrated development environment for the National COP8 family of microcontrollers. This system provides ease of use and debugging capabilities not found in other compilers.

Efficiency:

- Checks source against target hardware definitions.
- AI system generates efficient, tight object code and fast execution.
- Supports interrupt routines.
- Includes linker and built-in macro assembler.
- Provides symbol table information for source level debugging.
- Has C enhancements specific to COP8 instruction set.

Description	Digi-Key Part No.	Price 1
C Compiler Software	COP8C-ND	849.60

iceMASTER-COP8 Evaluation and Programming Unit
An Evaluation and Programming Unit



The iceMASTER-COP8 Evaluation and Programming Unit (EPU-COP8) is a low-cost, In-Circuit Simulator which can be used to debug code and hardware designs for National Semiconductor's COP880C microcontroller and to program the COP8780 and COP87M80 EPROM/OTP microcontrollers. The host computer for the EPU-COP8 is a standard PC (or compatible) running the DOS Operating System. The interface to the EPU-COP8 is over the RS-232C serial channel at 115,200 baud.

COP8 code can be generated using the COP8 assembler/linker provided, or the very efficient C Compiler, COP8C, available from Byte Craft Limited. Once your code is loaded, you can quickly move through the software and hardware evaluation process, while providing complete control over the microcontroller. The EPU-COP8 is a cost efficient system that offers an easy introduction to the COP8 family of microcontroller. The EPU-COP8 offers the same user interface as the MetaLink iceMASTER-COP8 Debug Module and the MetaLink iceMASTER-COP8/400 emulator, allowing for an easy migration to the low cost Debug Module or to a full featured ICE.

Key Features:

- In-Circuit Simulation (non real-time)
- 4K program code size limit
- 8 software breakpoints
- 100 frame trace buffer
- Examine and modify on-chip RAM and registers
- Source level/symbolic debugger
- Friendly windowed, menu driven user interface
- Supports COFF (COP8 assembler/linker) file format
- Supports COD (Byte Craft C) file format
- 40 pin DIP ZIF socket for programming COP8780 and COP87M80 EPROM/OTP microcontrollers

Description	Digi-Key Part No.	Price 1	National Semiconductor Part No.
COP8780 40 Pin ZIP Programmer Unit*	EPU-COP8780-1-ND*	99.20	EPU-COP8780-1
Universal Adapter for 8781/8782 DIP and SO Packages and 8780 PLCC Package**	COP8-PGMA-DS44P-ND**	149.86	COP8-PGMA-DS44P
Adapter for 8781 and 8782 DIP and SO Packages Only**..................................	COP8-PGMA-DS-ND**	116.82	COP8-PGMA-DS
Users Manual for Assembler/Linker/Librarian (comes with Programming Unit above)......................	9259B-ND	3.95	620896-001

*** Need separate adapters for programming the 8781, 8782 DIP and SO packages and 8780 PLCC package, sold above.**
**** Required for programming the COP8781/8782.**

National Semiconductor™

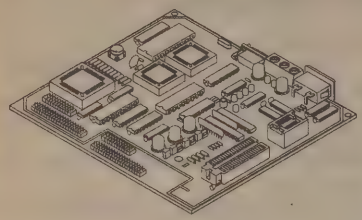
COP8 Development Systems

for National Semiconductor Microcontrollers

From MetaLink® Corporation

iceMASTER-COP8 Debug Module

A Complete Evaluation, Debug and Programming Tool



The COP8 Debug Module is an In-Circuit Emulator which can be used to debug COP8 code and hardware designs and to program this cost effective 8-bit family of microcontrollers. Seven different versions of the COP8 Debug Module support the most popular members of National Semiconductor's COP8 family in all pin configurations. The host computer for the COP8 Debug Module is a standard PC (or compatible) running the DOS Operating System. The interface to the COP8 Debug Module is over the RS-232C serial channel at 9600 baud.

COP8 code can be generated using the COP8 assembler/linker provided, or the very efficient C Compiler, COP8C, available from Byte Craft Limited. Once your code is loaded, you can quickly move through the software debug and hardware integration process, evaluating your target hardware operation, while providing complete control over the microcontroller. The COP8 Debug Module offers the same user interface as the MetaLink iceMASTER-COP8/400 emulator, allowing for an easy migration to a full featured ICE.

Key Features:

- In-Circuit Emulation (real-time)
- Internal/External operating frequency from DC to 10 MHz
- 32K emulation memory
- 8 software breakpoints
- 100 frame trace buffer
- Examine and modify on-chip RAM and registers
- Source level/symbolic debugger
- Friendly windowed, menu driven user interface
- Supports COFF (COP8 assembler/linker) file format
- Supports COD (Byte Craft C) file format
- Sockets for programming COP8 EPROM microcontrollers in DIP and SOIC packages
- On board prototype area provided

Software/Hardware Provided:

The COP8 Debug Module is provided with the following software:

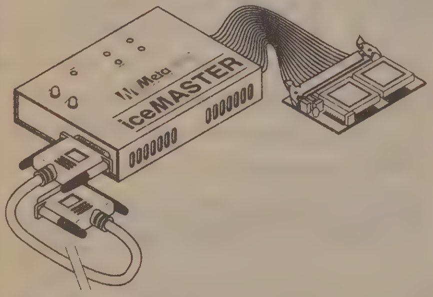
- Friendly, windowed menu driven user interface
- National Semiconductor COP8 assembler/linker with librarian and utilities

Host Computer Specification:

- IBM PC (or compatible) with minimum 640K bytes of memory
- One 3.5", 1.44MB floppy diskette drive
- One hard disk drive
- Standard RS-232C serial channel and DB9 cable
- PC-DOS/MS-DOS version 3.1 or later

Description	Digi-Key Part No.	Pricing 1	National Semiconductor Part No.
COP8 Basic Family Debug Module .... ***(Cables and adapters are not included and must be ordered separately, below.)***	COP8-DM/880C-ND	545.00	COP8-DM/880C
Cable for Debug Module 20 DIP	DM-COP8/20D-ND	18.90	DM-COP8/20D
Cable for Debug Module 28 DIP	DM-COP8/28D-ND	18.90	DM-COP8/28D
Cable for Debug Module 40 DIP	DM-COP8/40D-ND	23.60	DM-COP8/40D
Cable for Debug Module 44 PLCC..................	DM-COP8/44P-ND	47.10	DM-COP8/44P
Adapter for SO-20 Package	MHW-SOIC20-ND	123.00	MHW-SOIC20
Adapter for SO-28 Package	MHW-SOIC28-ND	123.00	MHW-SOIC28

iceMASTER-COP8 Family MetaLink In-Circuit Emulators for Productivity Enhancements



Flexible, Easy-To-Use Interface

iceMASTER has an advanced color windowed user interface that emphasizes ease of use. Each window can be sized, moved, highlighted, color-controlled, added, or removed completely. iceMASTER provides pull-down and pop-up menus, function keys, and context-sensitive help. The contents of any memory space may be perused and altered directly from the appropriate window using the keyboard or a mouse.

You have immediate access to the hypertext/hyperlinked, context-sensitive, on-line help system which clearly explains what your options are (at any detail level you choose), keeping you productive. There is even a HELP-FOR-HELP feature. Whether you are beginning your first emulation project, or are a veteran designer searching for the fastest possible debugging method, you will appreciate the EASE-OF-USE features designed into iceMASTER.

Novices can navigate smoothly through a debugging session by accessing the commands and menus as standard pull-downs. Experienced designers can instantaneously pop-up the menu of choice using redefinable hot keys.

- iceMASTER delivers productivity: easy to learn, easy to use, and fast!
- Flexibility will acquire new meaning when you experience the iceMASTER user interface. You can completely configure the windows for size, position, content, and color.
- iceMASTER is fast! The 115.2K baud serial link keeps typical download times to under 3 seconds using a standard COMM port!
- iceMASTER is convenient! It connects easily to your PC, requires no disassembly, nor does it take up any expansion slots. It works on any PC *(DOS or OS/2), Micro Channel, ISA, or EISA (even Laptops or Notebooks).
- iceMASTER-COP8 supports numerous different family derivatives and package options.
- iceMASTER supports the National Semiconductor COP8 Assembler.
- iceMASTER gives user the complete support of the debug environment through source/symbolic debugger.

Decreased Development Time

Your iceMASTER source window accelerates the debugging process with Dynamically Annotated Code. When single-stepping, instruction execution information is displayed and RETAINED next to each instruction. You can clearly see the data behind your program's flow, including contents of all accessed (read or write) memory locations and registers, as well as flow-of-control direction change markers. A moving color bar indicates the current position in the program as it executes.

High Level Language (HLL) source statements and symbolic disassembly information are also displayed when you disassemble the program or view the trace buffer.

Improving the Quality of your Product: Finding the Hot (or not so Hot) Spots

iceMASTER provides a Performance Analyzer that is the absolute best in the industry for tuning and testing your code. It is very flexible and far more accurate than most other emulators, with a resolution of less than six microseconds. You monitor the time spent executing specific portions of your program to find "hot spots" or "dead code".

You can define and analyze up to 15 memory areas based on code address, module, line number, or label ranges. If you choose, each of these 15 areas can consist of non-contiguous, logically related subranges, (e.g., groupings of related functions which are not necessarily contiguous in memory).

You can view results dynamically during emulation or later for a more detailed analysis. You can toggle the display from bar graph format to actual frequency counts, and, of course, you can filter the level of detail in the displayed results to include raw data, code labels, and/or HLL source statements.

Finding That Bug

You have access to as many as 32K break and 64K trace triggers. These triggers can be enabled, disabled, set, or cleared. They can be simple triggers, based on code addresses or address ranges. They can also be complex triggers, based on code address, direct address, opcode value, opcode class or immediate operand. Complex triggers can be ANDed and ORed together. Finding that elusive bug is now much easier!

Small and Powerful

Some emulators use one or two full size PC expansion board slots. These emulators take it for granted that you have the "right" kind of PC, that you don't need the expansion slots for something else, and that you don't mind taking apart your computer to install their emulator!

iceMASTER is the culmination of over 6 years of focused engineering by MetaLink to bring advanced semiconductor technologies to emulator design. Using state-of-the-art PALS (PEELs), LCAs, VLSI memories and microprocessors, MetaLink designed world-class emulation capability into the smallest emulator footprint in the industry, combining powerful and complex emulation features with all-around ease-of-use.

The high speed serial link connects easily to the back of your computer with a standard RS-232 cable. The emulator, about the size of a VCR tape, fits neatly in crowed work spaces and is easy to move around on the bench or to other computers. PORTABLE PRODUCTIVITY!

Devices Supported

Interchangeable Probe Cards are used with the emulator to support the functional derivatives of the microcontroller family as well as full range of CMOS, EPROM, and OTP technology variations.

iceMASTER-COP8 supports: COP820C, COP820CJ, COP822C, COP822CJ, COP823CJ, COP840C, COP842C, COP880C, COP881C, COP882C, COP884CF, COP888CF, COP884CG, COP888CG, COP884CL, COP888CL, COP884CS, COP888CS, COP884EG, COP888EG, COP8640C, COP8642C, COP8780C, COP8781C, COP8782C.

Product names are used for purposes of identification only and may be trademarks or registered trademarks of their respective companies.

Description	Digi-Key Part No.	Pricing 1	National Semiconductor Part No.
COP8 iceMASTER Base Unit.110V ***(Probe Cards and Adapters are not included and must be ordered separately, below.)***	IM-COP8/400/1-ND	2990.01	IM-COP8/400/1
20 Pin DIP Probe Card for COP8 iceMASTER Base Unit	MHW-880C20DWPC-ND	1130.00	MHW-880C20DWPC
28 Pin DIP Probe Card for COP8 iceMASTER Base Unit	MHW-880C28DWPC-ND	1130.00	MHW-880C28DWPC
40 Pin DIP Probe Card for COP8 iceMASTER Base Unit	MHW-880C40DWPC-ND	1130.00	MHW-880C40DWPC
44 Pin PLCC Probe Card for COP8 iceMASTER Base Unit	MHW-880C44PWPC-ND	1130.00	MHW-880C44PWPC
Adapter for SO-20 Package	MHW-SOIC20-ND	123.00	MHW-SOIC20
Adapter for SO-28 Package	MHW-SOIC28-ND	123.00	MHW-SOIC28

IMP EPAC™ (Electrically Programmable Analog Circuit)

IMP50E10 EPAC™
Programmable Analog Signal-Conditioning Circuit
(Electrically Programmable Analog Circuit)

General Description: The IMP50E10 is a member of IMP's EPAC product line. An EPAC device allows circuit and system-level designers to develop highly integrated analog or analog-digital systems without the time and risk associated with traditional analog ASIC and custom-IC approaches. ***An EPAC device is essentially the analog counterpart to a field-programmable digital circuit (FPLD, FPGA, etc.).*** The IMP50E10 allows permanent storage of configuration data in on-chip EEPROM. Additionally, the configuration can be changed in real time by writing to the chip's configuration registers on-the-fly. With Analog Magic, the Windows™-based EPAC Design-System, the user can configure and program an EPAC device in minutes. Once programmed, an EPAC device configures itself automatically upon power-up or with a user command. Programming is achieved through a simple 3-wire serial interface. The configuration can be modified anytime.

The IMP50E10 consists of several flexible, functional modules, each of which offers a variety of features and characteristics, such as programmable gain, hysteresis, speed, etc. Most importantly, all functions can be realized without any external components and without any transistor-level design.

Modules can be interconnected in various ways without any impact on performance or stability. Interconnect is made possible via optimized analog switches. Routing of signals is semi-automatic and fully supported by Analog Magic. Thus, it is very easy to select modules, set their functions and parameters, and connect them to other blocks. As a result, the user can quickly implement and change a certain analog function and immediately test it in the system.

Applications: • Signal Conditioning • Process Control • Data Logging • DSP Front End • Test Equipment - Microcontroller Interface D/A

Key Features: • User-Programmable Functions Include: Programmable Gain Amplifiers, Comparators, Multiplexer, DACs, Track-and-Hold, Filtering, Power Consumption, and Interconnect • Unconditionally Stable Regardless of Circuit Configuration • Fast Prototypes: Go From Start to Finish in One Hour • Single Supply 5V Operation • Group Switching Allows Programmable Gains and Offsets to Vary Depending on Input Channel Selection • "What-You-See-Is-What-You-Get" (WYSIWYG) Design Environment • Sleep Mode Current < 40µA • Offset Auto-Zero to Within 25µV • 125kHz Throughput (Nyquist rate) • No External Components Required • MagicProbe™ for Easy In-System Debugging

NEW! IMP50E30 EPAC™
Programmable Monitoring & Diagnostic Data Acquisition IC
(Electrically Programmable Analog Circuit)

General Description: The IMP50E30 can be configured into three basic circuit modes; Level Comparison Mode, Window Comparison Mode and Analog-to-Digital Conversion (ADC) Mode. This eases the task of observing and testing analog and mixed-signal systems. By comparing signals to high and low limits or a window, users can remotely monitor up to 16 input signals and be automatically notified which system module, component, or interconnect has failed, or whether an operating condition has drifted out of specification. If the user desires additional information about a specific out-of-limit or out-of-band input, the 8-bit ADC mode outputs a serial data stream over the serial I/O. A system or host microcontroller is alerted only if an out-of-limit or out-of-band condition is detected. By notifying the system CPU only when necessary, processor computing power is conserved rather than wasted.

The 16-channel analog multiplexer can be configured as either individual single-ended inputs or eight differential pairs. The differential option helps cancel noise and accommodates independently referenced inputs. Four inputs feature an extended ±16.5V input range through a user selectable on-chip 8 times attenuator and level shifter. This capability allows the IMP50E30 to operate from a single 5V supply, yet monitor systems with larger voltages without external components.

Applications: • UPS control • Component grading and selection • Automatic test equipment • Data acquisition and control • Wire bundle/connector verification • Test and automatic maintenance • Process control monitoring • System monitoring • Network servers

Key Features: • Analog Assistant to Microcontrollers • Analog Window and Level Comparison • No External Components Needed • Programmable Analog Set-points • 8-bit ADC Mode • Sixteen Channel Input Multiplexer • Extended ± 16.5V Analog Input Range • Connectivity Option (Checks Input Impedance) • +5V Supply Operation

EPAC Device Development Tool Kits

EPAC Device Development Starter Kit for 50E10 (D110-ND)

Basic starter kit consisting of:

— Analog Magic™ Design Software and documentation (S100)
— Standalone 50E10 EPAC Device Programming Board (PB110)
— 2 IMP50E10 devices

NEW! EPAC Device Development Starter Kit for 50E30 (D130-ND)

Basic starter kit consisting of:

— Analog Magic™ Design Software and documentation (S100)
— Standalone 50E30 EPAC Device Programming Board (PB50E30-018AC)
— 2 IMP50E30 devices

EPAC Device Complete Development System for 50E10 (D210-ND)

Complete software and hardware design, programming and debug development environment consisting of:

— Analog Magic™ Design Software and documentation (S100)
— Evaluation System (E210)
— Device Adapter Board with socket for IMP50E10 (44PLCC SOC)
— 2 General Purpose Application Boards (GPAB 210)
— Cable for PC printer port
— 2 IMP50E10 devices

NEW! EPAC Device Complete Development System for 50E10/50E30 (D211-ND)

Complete development environment for software and hardware design, programming and debug consisting of:

— Analog Magic™ Design Software and documentation (S100)
— Evaluation System (E210)
— Device Adapter Board with socket for IMP50E10 (DAB50E10-018AC)
— Device Adapter Board with socket for IMP50E30 (DAB50E30-018AC)
— 2 General Purpose Application Boards (GPAB 210)
— 2 General Purpose Application Boards (GPAB 230)
— Cable for PC printer port
— 2 IMP50E10 devices
— 2 IMP50E30 devices

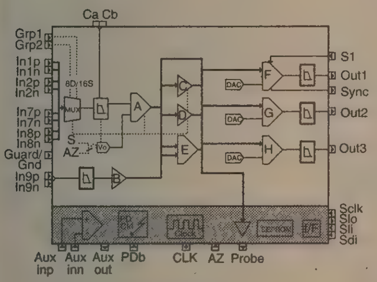
NEW! EPAC Device 50E30 Add-On to D210 Complete Development System for 50E10 (DA30-ND)

Complete software and hardware design, programming and debug development environment consisting of:

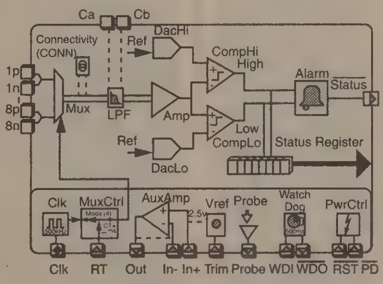
— Analog Magic™ Design Software and documentation (S100) updated to include the 50E30 design tools.
— Device Adapter Board with socket for IMP50E30 (DAB50E30-018AC)
— 2 General Purpose Application Boards (GPAB 230)
— 2 IMP50E30 devices

General Purpose Application Board (optional). Plug-in PC board (daughter board concept) for building application-specific circuitry. Sold in multiples of two.

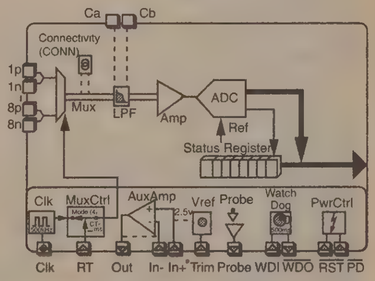
IMP makes functional design at the block level possible through the development of flexible analog "expert cells" which feature a variety of configurable functions and performance characteristics. With IMP's expert cells, Analog Magic ensures a correct-by-construction design methodology that eliminates errors and makes novice analog designers highly productive.



IMP 50E10C
Block Diagram



IMP50E30
Level and Window Limit Detection



IMP50E30
ADC Test Mode with Serial I/O

Description	Digi-Key Part No.	Pricing 1	25	50
EPAC Device Development Starter Kit for 50E10	D110-ND	395.00	—	—
EPAC Device Development Starter Kit for 50E30	D130-ND ***NEW!***	394.99	—	—
EPAC Device Complete Development System for 50E10	D210-ND	1295.00	—	—
EPAC Device Complete Development System for 50E10/50E30	D211-ND ***NEW!***	1494.99	—	—
EPAC Device 50E30 Add-On to D210 Complete Development System for 50E10	DA30-ND ***NEW!***	450.00	—	—
General Purpose Application Board for 50E10 sold in multiples of 2	GPAB210-ND	95.00	—	—
General Purpose Application Board for 50E30 sold in multiples of 2	GPAB230-ND ***NEW!***	95.00	—	—
EPAC Programable Analog Circuit (44 PLCC package)	IMP50E10C-018AC-ND	16.60	351.25	637.50
EPAC Programable Monitoring and Diagnostic IC (44 PLCC package)	IMP50E30C-018AC-ND ***NEW!***	12.00	—	—
EPAC Product Data Sheet for 50E10	EPAC-DS1-ND	1.95	—	—
EPAC Design/Data Handbook (includes info. on 50E10 and 50E30 series)	EPACDB-ND ***NEW!***	4.95	—	—

STATIC PROTECTION

Protection of static sensitive parts is a MUST in today's semiconductor market.

To ensure the quality that Digi-Key customers have come to expect, the Digi-Key static control program includes proper static safety protection in the following areas:

- *Receiving, Incoming Inspection, and QC*
- *Order Picking*
- *Final Inspection*
- *Packaging and Shipping*

Shielded metalized bags are used in order picking, and anti-static, non-CFC, photo degradable packaging peanuts are used in packaging and shipping.

As our program is continuously updated with the latest static control technology, you can be reassured that Digi-Key's static sensitive parts are quality safe, *all the way to your door step!*

Integrated Circuit Data Does Not Accompany Parts.
Available Upon Customer Request.

$1.00 per part number

NOTE: ALL SURFACE MOUNT DEVICES ARE IN BOLD FACE TYPE!

National Semiconductor — 7400 SERIES TTL

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
DM7400N-ND	Quad 2-Input NAND Gate	14-Dip	1.06	12.65	40.38
DM7402N-ND	Quad 2-Input NOR Gate	14-Dip	84	10.00	31.92
DM7403N-ND	Quad 2-Input NAND Gate (O-C)	14-Dip	1.34	16.00	51 07
DM7404N-ND	Hex Inverter	14-Dip	1.06	12.65	40.38
DM7405N-ND	Hex Inverter (O-C)	14-Dip	1.06	12.65	40.38
DM7406M-ND	**Hex Inverter (O-C)**	**SO-14**	**1.05**	**12.50**	**39.90**
DM7406N-ND	Hex Inverter (O-C)	14-Dip	1.05	12.50	39.90
DM7407M-ND	**Hex Buffer (O-C)**	**SO-14**	**1.05**	**12.50**	**39.90**
DM7407N-ND	Hex Buffer (O-C)	14-Dip	1.05	12.50	39.90
DM7408N-ND	Quad 2-Input AND Gate	14-Dip	1 12	13.30	42.45
DM7410N-ND	Triple 3-Input NAND Gate	14-Dip	1.26	15.00	47.88
DM7414N-ND	Hex Schmitt Trigger Inverter	14-Dip	1.12	13.30	42.45
DM7416N-ND	Hex Inverter (O-C)	14-Dip	1.13	13.45	42.93
DM7417N-ND	Hex Buffer (O-C)	14-Dip	1 05	12.50	39.90
DM7432N-ND	Quad 2-Input OR Gate	14-Dip	1 26	15.00	54.00
DM7437N-ND	Quad 2-Input NAND Buffer	14-Dip	1.37	16,25	58.50
DM7438N-ND	Quad 2-Input NAND Buffer (O-C)	14-Dip	1 05	12.50	39.90
DM7442AN-ND	BCD-To-Decimal Decoder	16-Dip	2.52	30.00	95.76
DM7445N-ND	BCD-To-Decimal Decoder/Driver	16-Dip	2.10	25.00	79.80
DM7446AN-ND	BCD-To-7 Seg Decoder/Driver	16-Dip	3.36	40.00	127.68
DM7447AN-ND	BCD-To-7 Seg Decoder/Driver	16-Dip	3.95	47.05	150.18
DM7473N-ND	Dual JK M/S Flip Flop	14-Dip	1.74	20.70	66.07
DM7474N-ND	Dual D Type Flip Flop	14-Dip	1.08	12.80	40.86
DM7476N-ND	Dual JK M/S Flip Flop	16-Dip	1.62	19.30	61.61
DM7486N-ND	Quad 2-Input Exclusive OR Gate	14-Dip	1 62	19.30	61.61
DM7490AN-ND	Decade Counter	14-Dip	4.90	58.33	186 20
DM9374N-ND	7 Segment Decoder Driver	16-Dip	5.23	79.25	254.00
DM74123N-ND	Dual Monostable Multivibrator	16-Dip	2.68	31.90	101.82
DM74125N-ND	Tri-State Quad 2-Input Buffer (8093N)	14-Dip	3 23	38.46	138.45
DM74132N-ND	Quad Schmitt Trigger	14-Dip	2.52	30.00	108.00
DM74145N-ND	BCD-To-Decimal Decoder/Driver	16-Dip	3.15	37.50	119.70
DM74150N-ND	16-To-1 Multiplexer	24-Dip	5.04	60.00	191.52
DM74153N-ND	Dual 4-To-1 Multiplexer	16-Dip	2.31	27.50	87.78
DM74155N-ND	Dual 2-To-4 Decoder/Demultiplexer	16-Dip	1.17	13.96	50.25
DM74157N-ND	Quad 2-To-1 Multiplexer (8322N)	16-Dip	1.76	21.00	67.03
DM74164N-ND	8 Bit SI PO Shift Register (8570N)	14-Dip	2.75	32.70	104.38
DM74174N-ND	Hex D Type Flip Flop	16-Dip	3 72	44.25	141.25
DM74251N-ND	Tri-State 8-To-1 Multiplexer (8121N)	16-Dip	1.65	19.58	70.50
DM9368N-ND	7 Segment Decoder/Driver/Latch	16-Dip	5.23	79.25	254.00
DS75451N-ND	Dual Peripheral Driver	8-Dip	.91	10.83	34.58
DS75452N-ND	Dual Peripheral Driver	8-Dip	91	10.83	34.58
DS75453N-ND	Dual Peripheral Driver	8-Dip	.91	10.83	34.58
DS75454N-ND	Dual Peripheral Driver	8-Dip	.91	10.83	34.58
DS75491N-ND	Quad Segment Driver MOS-to-LED	14-Dip	1.43	20.37	59.90
DS75492N-ND	Hex Digit Driver MOS-to-LED	14-Dip	2.40	34.50	101.00
DS75494N-ND	Hex Digit Driver	16-Dip	2.21	26.25	83.79

★ ***Call for better pricing on larger quantities!***

National Semiconductor — 74LS00 SERIES TTL

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
DM74LS00M-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.60**	**7.08**	**22.61**
DM74LS00N-ND	Quad 2-Input NAND Gate	14-Dip	.53	6.25	19.95
DM74LS02N-ND	Quad 2-Input NOR Gate	14-Dip	.53	6.25	19.95
DM74LS03N-ND	Quad 2-Input NAND Gate (O-C)	14-Dip	1.11	13.20	42.13
DM74LS04M-ND	**Hex Inverter**	**SO-14**	**.60**	**7.08**	**22.61**
DM74LS04N-ND	Hex Inverter	14-Dip	.53	6.25	19.95
DM74LS05N-ND	Hex Inverter (O-C)	14-Dip	.53	6.25	19.95
DM74LS08M-ND	**Quad 2-Input AND Gate**	**SO-14**	**.60**	**7.08**	**22.61**
DM74LS08N-ND	Quad 2-Input AND Gate	14-Dip	.53	6.25	19.95
DM74LS09N-ND	Quad 2-Input AND Gate (O-C)	14-Dip	.84	10.00	31.92
DM74LS10N-ND	Triple 3-Input NAND Gate	14-Dip	.53	6.25	19.95
DM74LS11N-ND	Triple 3-Input AND Gate	14-Dip	.88	10.45	33.36
DM74ALS11AM-ND	**Triple 3-Input AND Gate**	**SO-14**	**.67**	**7.92**	**29.22**
DM74LS14M-ND	**Hex Schmitt Trigger**	**SO-14**	**.70**	**8.33**	**26.60**
DM74LS14N-ND	Hex Schmitt Trigger	14-Dip	.60	7.08	22.61
DM74LS20N-ND	Dual 4-Input NAND Gate	14-Dip	.59	7.00	22.34
DM74LS21N-ND	Dual 4-Input AND Gate	14-Dip	.84	10.00	36.91
DM74LS26N-ND	Quad 2-Input NAND Gate (O-C)	14-Dip	.88	10.50	33.52
DM74LS27N-ND	Triple 3-Input NOR Gate	14-Dip	.78	9.30	29.69
DM74LS30N-ND	8-Input NAND Gate	14-Dip	.93	11.05	35.27
DM74LS32M-ND	**Quad 2-Input OR Gate**	**SO-14**	**.60**	**7.08**	**22.61**
DM74LS32N-ND	Quad 2-Input OR Gate	14-Dip	.53	6.25	19.95
DM74LS38N-ND	Quad 2-Input NAND Buffer (O-C)	14-Dip	.56	6.67	21.28
DM74LS51N-ND	Dual 2-Input AND-OR-INV Gate	14-Dip	1.05	12.50	39.90
DM74LS73AN-ND	Dual JK M/S Flip Flop	14-Dip	.77	9.17	29.26
DM74LS74AM-ND	**Dual D Type Flip Flop w/Set & Reset**	**SO-14**	**.67**	**7.92**	**25.27**
DM74LS74AN-ND	Dual D Type Flip Flop w/Set & Reset	14-Dip	.60	7.08	22.61
DM74LS75N-ND	Quad Latch	16-Dip	.96	11.40	36.39
DM74LS83AN-ND	4-Bit Binary Full Adder	16-Dip	1.02	12.10	38.62
DM74LS85N-ND	4-Bit Magnitude Comparator	16-Dip	.81	9.58	30.59
DM74LS86N-ND	Quad 2-Input Exclusive OR Gate	14-Dip	.70	8.33	26.60
DM74LS90N-ND	Decade Counter	14-Dip	.88	10.42	33.25
DM74LS109AN-ND	Dual JK Flip Flop	16-Dip	1.26	15.00	47.88
DM74LS112AN-ND	Dual JK Flip Flop	16-Dip	.63	7.50	23.94
DM74LS123M-ND	**Dual Monostable Vibrator**	**SO-16**	**1.05**	**12.50**	**39.90**
DM74LS123N-ND	Dual Monostable Vibrator	16-Dip	.88	10.42	33.25
DM74LS125AM-ND	**Tri-State Quad Buffer**	**SO-14**	**.84**	**10.00**	**31.92**
DM74LS125AN-ND	Tri-State Quad Buffer	14-Dip	.74	8.75	27.93
DM74LS126AN-ND	Tri-State Quad Buffer	14-Dip	.67	8.00	25.54
DM74LS132N-ND	Quad 2-Input NAND Schmitt Trigger	14-Dip	1.55	18.40	58.73
DM74LS138M-ND	**Expandable 3/8 Decoder**	**SO-16**	**.88**	**10.42**	**33.25**
DM74LS138N-ND	Expandable 3/8 Decoder	16-Dip	.67	7.92	25.27
DM74LS139N-ND	Expandable 2/4 Decoder	16-Dip	.81	9.58	30.59
DM74LS151N-ND	8-Channel Multiplexer	16-Dip	1.16	13.75	43.89
DM74LS153N-ND	Dual 4-To-1 Multiplexer	16-Dip	1.26	15.00	47.88
DM74LS154N-ND	4-To-16 Decoder/Demultiplexer	24-Dip	4.81	62.75	185.00
DM74LS155N-ND	Dual 2-To-4 Decoder/Demultiplexer	16-Dip	1.05	12.50	39.90
DM74LS156M-ND	**Dual 2-To-4 Decoder/Demultiplexer**	**SO-16**	**.88**	**10.42**	**33.25**
DM74LS156N-ND	Dual 2-To-4 Decoder/Demultiplexer	16-Dip	.67	7.92	25.27
DM74LS157N-ND	Quad 2-To-1 Multiplexer	16-Dip	.67	7.92	25.27
DM74LS158N-ND	Quad 2-To-1 Multiplexer	16-Dip	1.07	12.75	40.70
DM74LS161AM-ND	**Presettable Binary Counter**	**SO-16**	**.91**	**10.83**	**34.58**
DM74LS161AN-ND	Presettable Binary Counter	16-Dip	.74	8.75	27.93
DM74LS163AN-ND	Presettable Binary Counter	16-Dip	.74	8.75	27.93
DM74LS164N-ND	8-Bit Parallel Out Shift Register	14-Dip	.74	8.75	27.93
DM74LS165N-ND	8-Bit Parallel In/Serial Out Shift Reg.	16-Dip	1.40	16.67	53.20
DM74LS169N-ND	Up/Down Binary Counter	16-Dip	2.63	31.25	99.75
DM74LS174M-ND	**Hex D Type Flip Flop**	**SO-16**	**.88**	**10.42**	**33.25**
DM74LS174N-ND	Hex D Type Flip Flop	16-Dip	.74	8.75	27.93
DM74LS175N-ND	Quad D Type Flip Flop	16-Dip	.74	8.75	27.93
DM74LS191N-ND	Up/Down Binary Counter	16-Dip	1.21	14.45	46.12
DM74LS221N-ND	Dual Monostable w/Schmitt Trigger Input	16-Dip	1.26	15.00	47.88
DM74LS240WM-ND	**Tri-State Octal Line Driver**	**SO-20**	**1.12**	**13.33**	**42.56**
DM74LS240N-ND	Tri-State Octal Line Driver	20-Dip	1.05	12.50	39.90
DM74LS241N-ND	Tri-State Octal Line Driver	20-Dip	1.68	20.00	63.84
DM74LS243N-ND	Quadruple Bus Transceiver	14-Dip	1.58	18.75	59.85
DM74LS244N-ND	Tri-State Octal Line Driver	20-Dip	1.05	12.50	39.90
DM74LS244WM-ND	**Quad Buffer/Line Driver**	**SO-20**	**1.12**	**13.33**	**42.56**
DM74LS245N-ND	Bus Transceiver w/ Tri-State Output	20-Dip	1.09	12.92	41.23
DM74LS245WM-ND	**Octal Bi-Directional Transceiver**	**SO-20**	**1.16**	**13.75**	**43.89**
DM74LS251N-ND	Tri-State 8-Input Multiplexer	16-Dip	1.26	15.00	47.88
DM74LS253N-ND	Tri-State Dual 4-Input Multiplexer	16-Dip	1.26	15.00	47.88
DM74LS257BN-ND	Tri-State Quad 2-Input Multiplexer	16-Dip	1.05	12.50	39.90
DM74LS258BN-ND	Tri-State Quad 2-Input Multiplexer (Inv.)	16-Dip	.84	10.00	31.92
DM74LS259N-ND	8-Bit Addressable Latch	16-Dip	1.09	12.92	41.23
DM74LS273N-ND	Octal D Type Flip Flop w/Reset	20-Dip	1.09	12.92	41.23
DM74LS273WM-ND	**Octal D Type Flip Flop w/Reset**	**SO-20**	**1.23**	**14.58**	**46.55**
DM74LS279N-ND	Quad SR Latch	16-Dip	.70	8.33	26.60
DM74LS283N-ND	4-Bit Binary Adder	16-Dip	1.08	12.80	40.86
DM74LS365AN-ND	Tri-State Hex Buffer	16-Dip	1.23	14 65	46.76
DM74LS367AN-ND	Tri-State Hex Buffer	16-Dip	1,47	17.50	55.86
DM74LS373N-ND	Tri-State Octal D Flip Flop	20-Dip	1.05	12.50	39.90
DM74LS373WM-ND	**Tri-State Octal D Flip Flop**	**SO-20**	**1.12**	**13.33**	**42.56**
DM74LS374N-ND	Tri-State Octal D Flip Flop	20-Dip	1.05	12.50	39.90
DM74LS374WM-ND	**Tri-State Octal D Flip Flop**	**SO-20**	**1.12**	**13.33**	**42.56**
DM74LS377N-ND	8-Bit D Type	20-Dip	1.33	15.83	50.54
DM74LS393M-ND	**Dual 4-Bit Binary Counter**	**SO-14**	**1.19**	**14.17**	**45.22**
DM74LS393N-ND	Dual 4-Bit Binary Counter	14-Dip	1.09	12.92	41.23
DM74LS503N-ND	8-Bit Successive Approximation Register	16-Dip	13.93	142.50	419.00
DM74LS534N-ND	Octal D Type Flip Flop w/Tri-State Out.	20-Dip	5.08	60.42	192.85
DM74LS573N-ND	Octal D Type Latch Tri-State	20-Dip	3.99	52.00	153.00
DM74LS574N-ND	Octal D Type Flip Flop Tri-State	20-Dip	3.99	52.00	153.00
DM74LS670N-ND	Tri-State 4 By 4 Register File	16-Dip	2.36	28.15	89.85
DM81LS95AN-ND	Tri-State Octal Buffer	20-Dip	5.25	62.50	200.00
DM81LS96AN-ND	Tri-State Octal Inverter	20-Dip	5.25	62.50	200.00
DM81LS97AN-ND	Tri-State Octal Buffer	20-Dip	5.25	62.50	200.00
DM81LS98AN-ND	Tri-State Octal Inverter	20-Dip	5.25	62.50	200.00
DM96L02N-ND	Dual Retrig Monostable Multivibrator	16-Dip	4.13	62.50	200.00

★ ***Call for better pricing on larger quantities!***

National Semiconductor

74S00 SERIES SCHOTTKY TTL

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
DM74S00N-ND	Quad 2-Input NAND Gate	14-Dip	1.18	14.00	44.69
DM74S02N-ND	Quad 2-Input NOR Gate	14-Dip	1.05	12.50	39.90
DM74S03N-ND	Quad 2-Input NAND Gate (O-C)	14-Dip	1.05	12.50	39.90
DM74S04N-ND	Hex Inverter	14-Dip	1.18	14.00	44.69
DM74S05N-ND	Hex Inverter (O-C)	14-Dip	1.18	14.00	44.69
DM74S08N-ND	Quad 2-Input AND Gate	14-Dip	1.05	12.50	39.90
DM74S09N-ND	Quad 2-Input AND Gate (O-C)	14-Dip	1.64	19.50	62.24
DM74S10N-ND	Triple 3-Input NAND Gate	14-Dip	1.05	12.50	39.90
DM74S11N-ND	Triple 3-Input AND Gate	14-Dip	1.05	12.50	39.90
DM74S20N-ND	Dual 4-Input NAND Gate	14-Dip	1.05	12.50	39.90
DM74S30N-ND	8-Input NAND Gate	14-Dip	1.18	14.00	44.69
DM74S32N-ND	Quad 2-Input OR Gate	14-Dip	1.05	12.50	39.90
DM74S40N-ND	Dual 4-Input NAND Buffer	14-Dip	1.01	12.00	38.30
DM74S51N-ND	2-Wide 2-Input AND-OR-INV Gate	14-Dip	1.05	12.50	39.90
DM74S64N-ND	AND-OR-INV Gate	14-Dip	1.05	12.50	39.90
DM74S65N-ND	AND-OR-INV Gate (O-C)	14-Dip	.77	9.17	33.84
DM74S74N-ND	Dual D Type Flip Flop	14-Dip	1.60	19.05	60.81
DM74S86N-ND	Quad Exclusive OR Gate	14-Dip	1.60	19.05	60.81
DM74S112N-ND	Dual JK Flip Flop	16-Dip	1.70	20.20	64.48
DM74S113N-ND	Dual JK Flip Flop	14-Dip	3.78	45.00	143.64
DM74S133N-ND	13 Input NAND Gate	16-Dip	1.78	21.15	67.51
DM74S138N-ND	Expandable 3/8 Decoder	16-Dip	2.05	24.45	78.04
DM74S139N-ND	Expandable 2/4 Decoder	16-Dip	1.89	22.50	71.82
DM74S140N-ND	Dual 50 Ohm Line Driver	14-Dip	2.05	24.45	78.04
DM74S151N-ND	8-Input Multiplexer	16-Dip	1.89	22.50	71.82
DM74S153N-ND	Dual 4-Input Multiplexer	16-Dip	1.89	22.50	71.82
DM74S157N-ND	Quad 2-Input Multiplexer	16-Dip	1.89	22.50	71.82
DM74S158N-ND	Quad 2-Input Multiplexer (Inverted)	16-Dip	1.89	22.50	71.82
DM74S161N-ND	Presettable Binary Counter	16-Dip	5.25	62.50	199.50
DM74S163N-ND	Presettable Binary Counter Sync Clear	16-Dip	4.79	57.00	181.94
DM74S174N-ND	Hex D Type Flip Flop	16-Dip	1.89	22.50	71.82
DM74S175N-ND	Quad D Type Flip Flop	16-Dip	1.92	22.90	73.10
DM74S182N-ND	Look-Ahead Carry Generators	16-Dip	5.38	64.00	204.29
DM74S240N-ND	Tri-State Octal Line Driver	20-Dip	3.78	45.00	143.64
DM74S241N-ND	Tri-State Octal Line Driver	20-Dip	3.57	42.50	135.66
DM74S244N-ND	Tri-State Octal Line Driver	20-Dip	3.57	42.50	135.66
DM74S253N-ND	Tri-State (74S153N)	16-Dip	2.05	24.45	78.04
DM74S257N-ND	Tri-State (74S157N)	16-Dip	1.89	22.50	71.82
DM74S258N-ND	Tri-State (74S158N)	16-Dip	2.10	25.00	92.28
DM74S280N-ND	9-Bit Parity Generator	14-Dip	3.15	37.50	119.70
DM74S283N-ND	4-Bit Full Adder	16-Dip	7.98	95.00	303.24
DM74S373N-ND	Octal D-Type Latch	20-Dip	3.57	42.50	135.66
DM74S374N-ND	Tri-State Octal D Flip Flop	20-Dip	3.57	42.50	135.66
DM74S572N-ND	4K (1024x4) PROM O-C	18-Dip	5.60	66.62	245.93
DM74S941N-ND	Tri-State Octal Buffer	20-Dip	4.90	58.33	215.32
DM96S02N-ND	Dual Retriggerable Resettable Mono Multivibrator	16-Dip	6.19	80.50	237.00

★ ***Call for better pricing on larger quantities!***

National Semiconductor

74ALS SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
DM74ALS00AM-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.67**	**7.92**	**25.27**
DM74ALS00AN-ND	Quad 2-Input NAND Gate	14-Dip	.67	7.92	25.27
DM74ALS02N-ND	Quad 2 Input Nor Gate	14-Dip	.67	7.92	25.27
DM74ALS04BM-ND	**Hex Inverter**	**SO-14**	**.67**	**7.92**	**25.27**
DM74ALS04BN-ND	Hex Inverter	14-Dip	.67	7.92	25.27
DM74ALS05AN-ND	Hex Inverter w/Open-Collect Outputs	14-Dip	.67	7.92	25.27
DM74ALS08M-ND	**Quad 2-Input AND Gate**	**SO-14**	**.67**	**7.92**	**25.27**
DM74ALS08N-ND	Quad 2-Input AND Gate	14-Dip	.67	7.92	25.27
DM74ALS10AM-ND	**Triple 3-Input NAND Gate**	**SO-14**	**.67**	**7.92**	**25.27**
DM74ALS10AN-ND	Triple 3-Input NAND Gate	14-Dip	.67	7.92	25.27
DM74ALS11AM-ND	**Triple 3-Input AND Gate**	**SO-14**	**.67**	**7.92**	**25.27**
DM74ALS11AN-ND	Triple 3-Input AND Gate	14-Dip	.67	7.92	25.27
DM74ALS14M-ND	**Hex Schmitt Trigger**	**SO-14**	**3.15**	**32.25**	**94.60**
DM74ALS14N-ND	Hex Schmitt Trigger	14-Dip	3.15	37.50	120.00
DM74ALS20AN-ND	Dual 4-Input NAND Gate	14-Dip	.84	10.00	31.92
DM74ALS27N-ND	Triple 3-Input NOR Gate	14-Dip	.67	7.92	25.27
DM74ALS30AN-ND	8-Input NAND Gate	14-Dip	.74	8.75	27.93
DM74ALS32M-ND	**Quad 2-Input OR Gate**	**SO-14**	**.67**	**7.92**	**25.27**
DM74ALS32N-ND	Quad 2-Input OR Gate	14-Dip	.67	7.92	25.27
DM74ALS38AN-ND	Quad 2-Input NAND Buffer O.C.	14-Dip	1.05	12.50	39.90
DM74ALS74AM-ND	**Dual D Positive-Edge-Triggered Flip- Flop w/Preset and Clear**	**SO-14**	**.88**	**10.42**	**33.25**
DM74ALS74AN-ND	Dual D Positive-Edge-Triggered Flip-Flop W/Preset and Clear	14-Dip	.88	10.42	33.25
DM74ALS86N-ND	Quad 2-Input OR Gate	14-Dip	.77	9.17	29.26
DM74ALS109AN-ND	Dual JK Flip Flop	16-Dip	.81	9.58	30.59
DM74ALS125M-ND	**Quad Tri-State Buffer**	**SO-14**	**2.38**	**24.32**	**71.50**
DM74ALS125N-ND	Quad Tri-State Buffer	14-Dip	2.38	24.32	71.50
DM74ALS133M-ND	**13-Input NAND Gate**	**SO-16**	**1.65**	**19.58**	**62.51**
DM74ALS138M-ND	**3-to-8 Line Decoder/Demultiplexer**	**SO-16**	**1.33**	**15.83**	**50.54**
DM74ALS138N-ND	3-to-8 Line Decoder/Demultiplexer	16-Dip	1.26	15.00	47.88
DM74ALS161BN-ND	Synchronous 4-Bit Binary Counter w/Asynchronous Clear	16-Dip	1.23	14.58	46.55
DM74ALS163BN-ND	4 Bit Binary Counter Sync	16-Dip	1.23	14.58	46.55
DM74ALS169BN-ND	Synchronous Up/Down Binary Counter	16-Dip	1.23	14.58	46.55
DM74ALS174N-ND	Hex D-Type Flip Flop	16-Dip	1.23	14.58	46.55
DM74ALS175N-ND	Quad D Type Flip-Flop	16-Dip	1.12	13.33	42.56
DM74ALS240AN-ND	Tri-State Octal Line Driver	20-Dip	1.58	18.75	59.85
DM74ALS240AWM-ND	**Octal Inverter Bus/Line Driver**	**SO-20**	**1.58**	**18.75**	**59.85**
DM74ALS241AN-ND	Octal Inverter Bus/Line Driver	20-Dip	1.58	18.75	59.85
DM74ALS244AN-ND	Tri-State Octal Line Driver	20-Dip	1.58	18.75	59.85
DM74ALS244AWM-ND	**Tri-State Octal Line Driver**	**SO-20**	**1.58**	**18.75**	**59.85**
DM74ALS245AN-ND	Octal Tri-State Bus Transceiver	20-Dip	1.58	18.75	59.85
DM74ALS245AWM-ND	**Octal Tri-State Bus Transceiver**	**SO-20**	**1.58**	**18.75**	**59.85**
DM74ALS253N-ND	Tri-State Dual 1-of-4 Line Data Selector/Multiplexer	16-Dip	1.23	14.58	46.55
DM74ALS273N-ND	Octal D Positive Edge Trigger	20-Dip	1.68	20.00	63.84
DM74ALS257M-ND	**Tri-State Quad 2/1 Multiplexer**	**SO-16**	**1.23**	**14.58**	**46.55**
DM74ALS257N-ND	Tri-State Quad 2/1 Multiplexer	16-Dip	1.23	14.58	46.55
DM74ALS258N-ND	Tri-State Quad 2/1 Multiplexer	16-Dip	1.93	22.92	73.15
DM74ALS373N-ND	Octal D-Type Transparent Latch	20-Dip	1.58	18.75	59.85
DM74ALS373WM-ND	**Octal D-Type Tri-State Transparent Latch**	**SO-20**	**1.58**	**18.75**	**59.85**
DM74ALS374N-ND	Octal D-Type Positive Edge Trigger	20-Dip	1.58	18.75	59.85
DM74ALS520N-ND	8 Bit Identity Comparator	20-Dip	3.15	37.50	119.70
DM74ALS520WM-ND	**8-Bit Identity Comparator**	**SO-20**	**3.15**	**37.50**	**119.70**
DM74ALS521N-ND	8-Bit Identity Comparator	20-Dip	3.15	37.50	119.70
DM74ALS521WM-ND	**8-Bit Identity Comparator**	**SO-20**	**3.15**	**37.50**	**119.70**
DM74ALS533N-ND	Octal D-Type Transparent Latch w/ Tri-State Outputs	20-Dip	3.15	37.50	119 70
DM74ALS534N-ND	Octal D-Type Edge-Triggered Flip-Flop w/Tri-State Outputs	20-Dip	2.63	31.25	99.75
DM74ALS540AN-ND	Octal Inverting Buffer and Line Driver	20-Dip	2.38	28.33	90.44
DM74ALS541N-ND	Octal Buffer/Line Driver w/ Tri-State Outputs	20-Dip	2.38	28.33	90 44
DM74ALS541WM-ND	**Octal Buffer/Line Driver w/ Tri-State Outputs**	**SO-20**	**2.49**	**29.58**	**94.43**
DM74ALS563AWM-ND	**Octal D-Type Latch**	**SO-20**	**4.31**	**51.25**	**163.59**
DM74ALS573BN-ND	Octal D-Type Transparent Latch w/Tri-State Outputs	20-Dip	1.75	20.83	66.50
DM74ALS574AN-ND	Octal D-Type Edge-Triggered Flip-Flop w/Tri-State Outputs	20-Dip	1.75	20.83	66.50
DM74ALS574AWM-ND	**Octal D-Type Edge-Triggered Flip Flop w/Tri-State Outputs**	**SO-20**	**1.75**	**20.83**	**76.90**
DM74ALS576AN-ND	Octal D-Type Edge TR Flip Flop w/Tri-State Output	20-Dip	2.63	31.25	99.75
DM74ALS580AN-ND	Octal D-Type Transparent Latch	20-Dip	2.98	35.42	113.05
DM74ALS640AN-ND	Invert. Octal Bus Transceiver	20-Dip	2.77	32.92	105.07
DM74ALS640AWM-ND	**Invert. Octal Bus Transceiver**	**SO-20**	**2.77**	**32.92**	**105.07**
DM74ALS645AN-ND	Octal Tri-State Bus Transceiver	20-Dip	2.77	32.92	105.07
DM74ALS645AWM-ND	**Octal Tri-State Bus Transceiver**	**SO-20**	**2.77**	**32.92**	**105.07**
DM74ALS646NT-ND	Octal Tri-State Bus Transceiver	24-Dip 3"	7.18	85.42	272.65
DM74ALS646WM-ND	**Octal Bus Transceiver**	**SO-20**	**7.18**	**85.41**	**272.65**
DM74ALS648NT-ND	Octal Bus Transceiver	24-Dip .3"	7.53	89.58	285.95
DM74ALS648WM-ND	**Octal Bus Transceiver**	**SO-24**	**7.53**	**89.58**	**285.95**
DM74ALS652WM-ND	**Octal Bus Transceiver**	**SO-24**	**7.53**	**89.58**	**285.95**
DM74ALS808AN-ND	Hex 2-Input and Line Driver	20-Dip	5.08	60.41	192.85
DM74ALS1000AN-ND	Buffer 00 Gate	14-Dip	2.52	30.00	95.76
DM74ALS5245N-ND	Octal Bus Transceiver w/ Schmitt Trigger	20-Dip	4.03	41.25	121.00
DM74ALS5245WM-ND	**Octal Bus Transceiver w/ Schmitt Trigger**	**SO-20**	**4.03**	**41.25**	**121.00**

★ ***Call for better pricing on larger quantities!***

National Semiconductor

74AS SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
DM74AS00M-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.81**	**9.58**	**30.59**
DM74AS00N-ND	Quad 2-Input NAND Gate	14-Dip	.70	8.33	26.60
DM74AS02M-ND	**Quad 2-Input NOR Gate**	**SO-14**	**.81**	**9.58**	**30.59**
DM74AS02N-ND	Quad 2-Input NOR Gate	14-Dip	.70	8.33	26.60
DM74AS04M-ND	**Hex Inverter**	**SO-14**	**.81**	**9.58**	**30.59**
DM74AS04N-ND	Hex Inverter	14-Dip	.70	8.33	26.60
DM74AS08M-ND	**Quad 2-Input AND Gate**	**SO-14**	**.81**	**9.58**	**30.59**
DM74AS08N-ND	Quad 2-Input AND Gate	14-Dip	.70	8.33	26.60
DM74AS10M-ND	**Triple 3-Input NAND Gate**	**SO-14**	**.81**	**9.58**	**30.59**
DM74AS10N-ND	Triple 3-Input NAND Gate	14-Dip	.70	8.33	26.60
DM74AS20N-ND	Dual 4-Input NAND Gate	14-Dip	.70	8.33	26.60
DM74AS21N-ND	Dual 4-Input AND Gate	14-Dip	.70	8.33	26.60
DM74AS27N-ND	Triple 3-Input NOR Gate	14-Dip	.70	8.33	26.60
DM74AS30N-ND	8-Input NAND Gate	14-Dip	1.05	12.50	39 90
DM74AS32M-ND	**Quad 2-Input OR Gate**	**SO-14**	**.81**	**9.58**	**30.59**
DM74AS32N-ND	Quad 2-Input OR Gate	14-Dip	.70	8.33	26.60
DM74AS74N-ND	Dual D Type Positive-Edge-Triggered Flip-Flop w/Preset and Clear	14-Dip	.88	10.42	33.25
DM74AS157M-ND	**Quad 2/1 Data Selector/Multiplexer**	**SO-16**	**1.75**	**20.83**	**66.50**
DM74AS157N-ND	Quad 1-of-2 Line Data Selector/Multiplexer	16-Dip	1.61	19.17	61.18
DM74AS158N-ND	Quad 2/1 Data Selector/Multiplexer	16-Dip	1.61	19.17	61.18
DM74AS240N-ND	Octal Inverter Bus/Line Driver	20-Dip	2.98	35.42	113.05
DM74AS240WM-ND	**Octal Inverter Bus/Line Driver**	**SO-20**	**2.98**	**35.42**	**113.05**
DM74AS244N-ND	Octal Tri-State Buffer/Line Driver/Line Receiver	20-Dip	2.98	35.42	113.05
DM74AS244WM-ND	**Octal Tri-State Buffer/Line Driver/Line Receiver**	**SO-20**	**2.98**	**35.42**	**113.05**
DM74AS245N-ND	Octal Tri-State Bus Transceiver w/Tri-State Outputs	20-Dip	3.15	37.50	119.70
DM74AS245WM-ND	**Octal Tri-State Bus Transceiver w/Tri-State Outputs**	**SO-20**	**3.15**	**37.50**	**119.70**
DM74AS257N-ND	Quad Tri-State 1-of-2 Line Data Selector/ Multiplexer	16-Dip	1.82	21.67	69.16
DM74AS258M-ND	**Quad Tri-State 1-of-2 Line Inverting Data Selector/ Multiplexer**	**SO-16**	**2.00**	**23.75**	**75.81**
DM74AS258N-ND	9-Bit Parity Generator/Checker	16-Dip	1.82	21.67	69.16
DM74AS280N-ND	9-Bit Parity Generator/Checker	14-Dip	2.10	25.00	79.80
DM74AS286M-ND	**9-Bit Parity Generator/Checker**	**SO-14**	**2.28**	**27.08**	[illegible]
DM74AS286N-ND	9-Bit Parity Generator/Checker	14-Dip	2.10	25.00	79.80
DM74AS373N-ND	Octal D Type Transparent Latch w/Tri-State Outputs	20-Dip	2.98	35.42	113.05
DM74AS373WM-ND	**Tri-State Octal D Type Flip Flop**	**SO-20**	**2.98**	**35.42**	**113.05**
DM74AS374N-ND	Octal D Type Flip Flop w/Tri-State Outputs	20-Dip	2.98	35.42	113.05
DM74AS374WM-ND	**Tri-State Octal D-Type Flip Flop**	**SO-20**	**2.98**	**35.42**	**113.05**
DM74AS573N-ND	Octal D Type Transparent Latch w/Tri-State Outputs	20-Dip	3.15	37.50	119.70
DM74AS573WM-ND	**Octal D Type Transparent Latch w/Tri-State Outputs**	**SO-20**	**3.33**	**39.58**	**126.35**
DM74AS574N-ND	Octal D Type Flip Flop	20-Dip	3.15	37.50	119.70
DM74AS576N-ND	Inverting Octal D Type Flip Flop w/Invert Out.	20-Dip	5.78	68.75	219.45
DM74AS640N-ND	Tri-State Octal Transceiver	20-Dip	3.50	41.67	133.00
DM74AS645N-ND	Tri-State Octal Transceiver	20-Dip	4.20	50.00	159.60
DM74AS646NT-ND	Octal Tri-State Bus Transceiver/Register	24-Dip	8.75	104.17	332.50
DM74AS646WM-ND	**Octal Bus Transceiver**	**SO-24**	**8.93**	**106.25**	**339.15**
DM74AS648NT-ND	Octal Bus Transceiver	24-Dip .3"	9.63	114.58	365.75
DM74AS651NT-ND	Octal Bus Transceiver	24-Dip.3"	8.75	104.16	332.50
DM74AS651WM-ND	**Octal Bus Transceiver**	**SO-24**	**8.93**	**106.25**	**339.15**
DM74AS760N-ND	Octal Buffer/Line Driver	20-Dip	5.25	62.50	199.50

DM74AS804BN-ND	Hex 2-Input NAND Driver	20-Dip	3.33	39.58	126.35
DM74AS804BWM-ND	**Hex 2-Input NAND Driver**	**SO-20**	**3.40**	**40.42**	**129.01**
DM74AS874NT-ND	Octal D-Type Flip Flop	24-Dip .3"	6.65	79.16	252.70
DM74AS1000AM-ND	**Quad 2-Input NAND Drive**	**SO-14**	**1.68**	**20.00**	**63.84**
DM74AS1000AN-ND	Quad 2-Input NAND Driver	14-Dip	1.58	18.75	59.85
DM74AS1004AM-ND	**Hex Inverting Driver**	**SO-14**	**1.68**	**20.00**	**63.84**
DM74AS1004AN-ND	Hex Inverting Driver	14-Dip	1.58	18.75	59.85
DM74AS1032AN-ND	Quad 2-Input OR Driver	14-Dip	1.58	18.75	59.85
DM74AS1034AM-ND	**Hex Non-Inverting Driver**	**SO-14**	**1.68**	**20.00**	**63.84**
DM74AS1034AN-ND	Hex Non-Inverting Driver	14-Dip	1.58	18.75	59.85
DM74AS1804N-ND	Hex 2-Input NAND Line Driver	20-Dip	4.55	54.16	172.90

★ *Call for better pricing on larger quantities!*

74LCX SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
74LCX16240MEA-ND	**16-Bit Inverting Buffer/Line Driver**	**48 SSOP**	**6.30**	**75.00**	**252.00**
74LCX16240MTD-ND	**16-Bit Inverting Buffer/Line Driver**	**48 TSSOP**	**6.30**	**75.00**	**252.00**
74LCX16244MEA-ND	**16-Bit Buffer/Line Driver**	**48 SSOP**	**6.30**	**75.00**	**252.00**
74LCX16244MTD-ND	**16-Bit Buffer/Line Driver**	**48 TSSOP**	**6.30**	**75.00**	**252.00**
74LCX16245MEA-ND	**16-Bit Bidirectional Transceiver**	**48 SSOP**	**6.30**	**75.00**	**252.00**
74LCX16245MTD-ND	**16-Bit Bidirectional Transceiver**	**48 TSSOP**	**6.30**	**75.00**	**252.00**
74LCX16373MEA-ND	**16-Bit Transparent Latch w/ Tri-state Outputs**	**48 SSOP**	**6.30**	**75.00**	**252.00**
74LCX16374MTD-ND	**16-Bit D-Type Flip-Flop**	**48 TSSOP**	**6.30**	**75.00**	**252.00**
74LCX574WM-ND	**Octal D-Type Flip-Flop**	**SO-20**	**2.28**	**27.08**	**91.00**
74LCX646WM-ND	**Octal Transceiver**	**SO-24**	**6.30**	**75.00**	**252.00**
74LCX652WM-ND	**Transceiver/Register**	**SO-24**	**6.30**	**75.00**	**252.00**
9240B-ND	1995 CrossVolt Low Voltage Data Book. Low voltage high speed CMOS Logic Data		9.00	—	—

★ *Call for better pricing on larger quantities!*

74LVQ SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
74LVQ00SC-ND	**Low Voltage Quad 2 Input NAND Gate**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVQ02SC-ND	**Low Voltage Quad 2 Input Nor Gate**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVQ04SC-ND	**Low Voltage Hex Inverter**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVQ08SC-ND	**Low Voltage Quad 2 Input AND Gate**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVQ14SC-ND	**Low Voltage Hex Inverter Schmitt Trigger Input**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVQ32SC-ND	**Low Voltage Quad 2-Input OR Gate**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVQ74SC-ND	**Low Voltage Dual D Type Positive Edge Trigger Flip Flop**	**SO-14**	**1.23**	**14.58**	**49.00**
74LVQ86SC-ND	**Low Voltage Quad 2 Input Exclusive OR Gate**	**SO-14**	**1.40**	**16.67**	**56.00**
74LVQ138SC-ND	**Low Voltage 1 of 8 Decoder/Demultiplexer**	**SO-16**	**1.58**	**18.75**	**63.00**
74LVQ151SC-ND	**Low Voltage 8 Input Multiplexer**	**SO-16**	**1.58**	**18.75**	**63.00**
74LVQ157SC-ND	**Low Voltage Quad 2 Input Multiplexer**	**SO-16**	**1.58**	**18.75**	**63.00**
74LVQ174SC-ND	**Low Voltage Hex D Flip Flop W/ Master Reset**	**SO-16**	**1.58**	**18.75**	**63.00**
74LVQ240QSC-ND	**Octal Buffer/Line Driver w/ Tri-state Outputs**	**20 SSOP**	**4.03**	**47.91**	**177.10**
74LVQ241SC-ND	**Low Voltage Octal Buffer/Line Driver Tri-State**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVQ244SC-ND	**Low Voltage Octal Buffer Line Driver Tri-State Out**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVQ245SC-ND	**Low Voltage Octal Bidirectional Transceiver Tri-State**	**SO-20**	**2.70**	**32.08**	**107.80**
74LVQ273SC-ND	**Low Voltage Octal D Type Flip Flop**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVQ373SC-ND	**Low Voltage Octal Transparent Latch Tri-State Out**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVQ374SC-ND	**Low Voltage Octal D Type Flip Flop Tri-State Out**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVQ573SC-ND	**Low Voltage Octal Latch Tri-State Out**	**SO-20**	**2.28**	**27.08**	**91.00**
9240B-ND	1995 CrossVolt Low Voltage Data Book. Low voltage high speed CMOS Logic Data		9.00	—	—

★ *Call for better pricing on larger quantities!*

74LVX SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
74LVX125M-ND	**Quad Buffer with Tri-state Outputs**	**SO-14**	**1.40**	**16.67**	**56.00**
74LVX174M-ND	**Hex D-Type Flip-Flop w/ Master Reset**	**SO-16**	**1.40**	**16.67**	**56.00**
74LVX240M-ND	**Octal Line Buffer/Line Driver w/ Tri-state Outputs**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVX244M-ND	**3V CMOS Buffer/Driver *NEW!***	**SO-20**	**1.93**	**22.92**	**77.00**
74LVX245M-ND	**3V CMOS Octal D-Type Flip-Flop *NEW!***	**SO-20**	**1.93**	**22.92**	**77.00**
74LVX273M-ND	**Octal D-Type Flip-Flop**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVX373M-ND	**Octal Transparent Latch w/ Tri-state Outputs**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVX573M-ND	**Octal D-Type Flip-Flop with Tri-state Outputs**	**SO-20**	**2.63**	**31.25**	**105.00**
74LVX74M-ND	**Dual D-Type Flip-Flop Positive Edge Trig**	**SO-14**	**1.02**	**12.08**	**40.60**
74LVX86M-ND	**Quad 2-Input Exclusive or Gate**	**SO-14**	**1.02**	**12.08**	**40.60**
9240B-ND	1995 CrossVolt Low Voltage Data Book. Low voltage high speed CMOS Logic Data		9.00	—	—

★ *Call for better pricing on larger quantities!*

74C00 SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
MM74C00N-ND	Quad 2-Input NAND Gate	14-Dip	1.95	27.25	86.70
MM74C02N-ND	Quad 2-Input NOR Gate	14-Dip	1.95	27.25	86.70
MM74C04N-ND	Hex Inverter (4069)	14-Dip	1.95	27.25	86.70
MM74C08N-ND	Quad 2-Input AND Gate	14-Dip	1.95	27.25	86.70
MM74C10N-ND	Triple 3-Input NAND Gate	14-Dip	1.95	27.25	86.70
MM74C14M-ND	**Hex Schmitt Trigger**	**SO-14**	**.75**	**10.43**	**33.30**
MM74C14N-ND	Hex Schmitt Trigger (40106B)	14-Dip	.75	10.43	33.30
MM74C30N-ND	8-Input NAND Gate	14-Dip	1.95	27.25	86.70
MM74C32N-ND	Quad 2-Input OR Gate	14-Dip	1.95	27.25	86.70
MM74C42N-ND	BCD-To-Decimal Decoder	16-Dip	5.10	71.00	227.00
MM74C48N-ND	BCD-To-7 Segment Decoder	16-Dip	3.60	50.00	160.00
MM74C73N-ND	Dual JK Flip Flop w/Clear	14-Dip	2.40	33.50	107.00
MM74C74M-ND	**Dual D-Type Flip-Flop**	**SO-14**	**2.94**	**41.00**	**131.00**
MM74C74N-ND	Dual D-Type Flip Flop	14-Dip	2.79	38.75	124.00
MM74C76N-ND	Dual JK Flip Flop w/Clear & Preset	16-Dip	2.40	33.50	107.00
MM74C85N-ND	4-Bit Magnitude Comparator	16-Dip	5.10	71.00	227.00
MM74C89N-ND	64-Bit (16x4) Ram TS	16-Dip	5.85	81.25	260.00
MM74C90N-ND	Decade Counter	14-Dip	2.94	41.00	131.00
MM74C93N-ND	4-Bit Binary Counter	14-Dip	3.60	50.00	160.00
MM74C107N-ND	Dual JK Flip Flop w/Clear	14-Dip	2.25	31.25	100.00
MM74C150N-ND	16-To-1 Multiplexer	24-Dip	6.75	93.75	300.00
MM74C151N-ND	8-To-1 Multiplexer	16-Dip	4.50	62.50	200.00
MM74C154N-ND	4-To-16 Decoder/Demultiplexer	24-Dip	9.63	135.00	428.00
MM74C157N-ND	Quad 2-To-1 Multiplexer	16-Dip	6.45	89.75	287.00
MM74C164N-ND	8-Bit SI PO Shift Register	14-Dip	3.75	52.25	167.00
MM74C165N-ND	8-Bit Parallel-Load Shift Register	16-Dip	2.94	41.00	131.00
MM74C193N-ND	Up/Down Binary Counter (40193B)	16-Dip	2.40	33.50	107.00
MM74C221N-ND	Dual Monostable w/Schmitt Trigger	16-Dip	6.45	89.75	287.00
MM74C240N-ND	Tri-State Octal Buffer	20-Dip	6.45	89.75	287.00
MM74C244N-ND	Tri-State Octal Buffer	20-Dip	6.45	89.75	287.00
MM74C373N-ND	Octal Flow-Through Latch Tri-State	20-Dip	6.45	89.75	287.00
MM74C374N-ND	Octal D-Type Flip Flop Tri-State	20-Dip	6.45	89.75	287.00
MM74C901N-ND	Hex Inverting TTL Buffer	14-Dip	2.55	35.50	114.00
MM74C902N-ND	Hex TTL Buffer	14-Dip	3.66	51.00	163.00
MM74C905N-ND	12-Bit CMOS Success Approx. Register	24-Dip	21.45	300.00	955.00
MM74C906M-ND	**Hex Open Dran Buffer**	**SO-14**	**3.09**	**43.00**	**138.00**
MM74C906N-ND	Open Drain Buffer (Active Pull Down)	14-Dip	2.94	41.00	131.00
MM74C907N-ND	Open Drain Buffer (Active Pull High)	14-Dip	2.55	35.50	114.00
MM74C908N-ND	Dual CMOS 30 Volt Driver	8-Dip	3.90	54.25	174.00
MM74C909N-ND	Quad Comparator	14-Dip	3.90	46.50	137.00
MM74C910N-ND	256 Bit (64x4) Ram Tri-State	18-Dip	16.65	232.50	740.00
MM74C911N-ND	Display Controller	28-Dip	24.00	335.00	1070.00
MM74C912N-ND	Display Controller	28-Dip	24.00	335.00	1070.00
MM74C914N-ND	Hex Schmitt Trigger w/Ext. Input Volt.	14-Dip	4.20	58.50	187.00
MM74C915N-ND	7 Segment-To-BCD Decoder	18-Dip	4.65	64.75	207.00
MM74C917N-ND	Display Controller	28-Dip	19.50	272.50	870.00
MM74C922N-ND	16 Key Encoder	18-Dip	11.25	157.50	500.00
MM74C923N-ND	20 Key Encoder	20-Dip	11.25	157.50	500.00
MM74C925N-ND	4-Digit Counter w/7-Seg. Output Driver	16-Dip	15.75	220.00	700.00
MM74C926N-ND	4-Digit Counter w/7-Seg. Output Driver	18-Dip	15.75	220.00	700.00
MM74C927N-ND	4-Digit Counter w/7-Seg. Output Driver	18-Dip	12.84	178.75	575.00
MM74C928N-ND	4-Digit Counter w/7-Seg. Output Driver	18-Dip	14.70	205.00	655.00
MM74C932N-ND	Phase Comparator	8-Dip	1.95	27.25	86.70
MM74C941N-ND	Tri-State Octal Buffer	20-Dip	4.50	62.50	200.00
MM80C95N-ND	Tri-State Hex Buffer	16-Dip	1.80	25.00	80.00
MM80C97N-ND	Cmos Tri-State Buffer	16-Dip	2.58	36.00	115.00
MM80C98N-ND	Tri-State Hex Inverter	16-Dip	2.58	36.00	115.00
MM82C19N-ND	Tri-State 1 Of 16 Data Selector	24-Dip	7.50	104.25	334.00
MM88C30N-ND	Cmos Quad Line Driver	14-Dip	7.50	104.25	334.00

★ *Call for better pricing on larger quantities!*

74HC00 SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
MM74HC00M-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.73**	**10.20**	**32.56**
MM74HC00N-ND	Quad 2-Input NAND Gate	14-Dip	.43	6.00	19.15
MM74HC02M-ND	**Quad 2-Input NOR Gate**	**SO-14**	**.43**	**6.00**	**19.15**
MM74HC02N-ND	Quad 2-Input NOR Gate	14-Dip	.43	6.00	19.15
MM74HC04M-ND	**Hex Inverter**	**SO-14**	**.73**	**10.20**	**32.56**
MM74HC04N-ND	Hex Inverter	14-Dip	.55	7.65	24.42
MM74HC08M-ND	**Quad 2-Input AND Gate**	**SO-14**	**.73**	**10.20**	**32.56**
MM74HC08N-ND	Quad 2-Input AND Gate	14-Dip	.60	8.30	26.49
MM74HC14M-ND	**Hex Inverting Schmitt Trigger**	**SO-14**	**.82**	**11.45**	**36.55**
MM74HC14N-ND	Hex Inverting Schmitt Trigger	14-Dip	.82	11.45	36.55
MM74HC32M-ND	**Quad 2-Input OR Gate**	**SO-14**	**.60**	**8.30**	**26.49**
MM74HC32N-ND	Quad 2-Input OR Gate	14-Dip	.54	7.50	23.94
MM74HC74AM-ND	**Dual D Type Flip-Flop with Preset and Clear**	**SO-14**	**.82**	**11.45**	**36.55**
MM74HC74AN-ND	Dual D Type Flip-Flop with Preset and Clear	14-Dip	.82	11.45	36.55
MM74HC86N-ND	Quad 2-Input Exclusive OR Gate	14-Dip	.82	11.45	36.55
MM74HC123AM-ND	**Dual Monostable Multivibrator**	**SO-16**	**.88**	**12.20**	**38.94**
MM74HC123AN-ND	Dual Retriggerable Monostable Multivibrator	16-Dip	.92	12.82	40.94
MM74HC125N-ND	Tri-State Quad Buffer	14-Dip	.94	13.05	41.66
MM74HC126M-ND	**Tri-State Quad Buffer**	**SO-14**	**.94**	**13.05**	**41.66**
MM74HC126N-ND	Tri-State Quad Buffer	14-Dip	.88	12.20	38.94
MM74HC132M-ND	**Quad 2-Input NAND, Schmitt Trigger**	**SO-14**	**1.12**	**15.55**	**49.64**
MM74HC132N-ND	Quad 2-Input NAND	14-Dip	1.20	16.70	53.31
MM74HC138M-ND	**3-to-8 Line Decoder**	**SO-16**	**1.02**	**14.20**	**45.33**
MM74HC138N-ND	3-to-8 Line Decoder	16-Dip	.61	8.50	27.13
MM74HC139M-ND	**Dual 2-to-4 Line Decoder**	**SO-16**	**.94**	**13.05**	**41.66**
MM74HC139N-ND	Dual 2-to-4 Line Decoder	16-Dip	1.08	15.00	47.88
MM74HC151N-ND	8-Channel Multiplexer	16-Dip	.82	11.45	36.55
MM74HC154N-ND	4-to-16 Line Decoder (.3" Lead Spacing)	24-Dip	2.44	33.95	108.37
MM74HC154WM-ND	**4-to-16 Line Decoder**	**SO-24**	**2.04**	**28.30**	**90.33**
MM74HC157N-ND	Quad 2-Input Multiplexer	16-Dip	.61	8.50	27.13
MM74HC161M-ND	**Sync. Binary Counter w/Async. Clear**	**SO-16**	**1.05**	**14.55**	**46.44**
MM74HC161N-ND	Sync. Binary Counter w/Async. Clear	16-Dip	1.26	17.50	55.86
MM74HC163N-ND	Sync. Binary Counter w/Sync. Clear	16-Dip	1.05	14.55	46.44
MM74HC164N-ND	8-Bit Serial-In Parallel-Out Shift Register	14-Dip	1.05	14.55	53.64
MM74HC165M-ND	**8-Bit Parallel-In Serial-Out Shift Register**	**SO-16**	**1.05**	**14.55**	**46.44**
MM74HC165N-ND	8-Bit Parallel-In Serial-Out Shift Register	16-Dip	.68	9.50	30.32
MM74HC174M-ND	**Hex D Type Flip-Flop w/Clear**	**SO-16**	**1.05**	**14.55**	**46.44**
MM74HC174N-ND	Hex D Type Flip-Flop w/Clear	16-Dip	.95	13.15	41.97
MM74HC175N-ND	Quad D Type Flip-Flop with Clear	16-Dip	1.26	17.50	55.86
MM74HC221AM-ND	**Dual Non-Retrig. Monost. Multivibrator**	**SO-16**	**1.34**	**18.65**	**59.53**
MM74HC221AN-ND	Dual Non-Retrig. Monost. Multivibrator	16-Dip	1.34	18.65	59.53
MM74HC240N-ND	Inverting Octal Tri-State Buffer	20-Dip	1.01	14.00	44.69
MM74HC244N-ND	Octal Tri-State Buffer	20-Dip	1.01	14.00	44.69
MM74HC244WM-ND	**Octal Tri-State Buffer**	**SO-20**	**1.26**	**17.45**	**55.70**
MM74HC245AN-ND	Octal Tri-State Transceiver	20-Dip	1.01	14.00	44.69
MM74HC245AWM-ND	**Octal Tri-State Bus Transceiver**	**SO-20**	**1.62**	**22.50**	**71.82**
MM74HC251N-ND	8-Channel Tri-State Multiplexer	16-Dip	.89	12.35	39.42
MM74HC259M-ND	**8-Bit Addressable Latch/3-to-8 Line Decoder**	**SO-16**	**1.62**	**22.50**	**71.82**
MM74HC259N-ND	8-Bit Addressable Latch/3-to-8 Line Decoder	16-Dip	1.12	15.55	49.64
MM74HC373N-ND	Octal D Type Tri-State Latch	20-Dip	1.01	14.00	44.69

MM74HC373WM-ND	**Octal Tri-State D Type Latch**	**SO-20**	**1.23**	**17.05**	**54.42**
MM74HC374N-ND	Octal D Type Tri-State Flip-Flop	20-Dip	1.20	16.70	53.31
MM74HC374WM-ND	**Octal D Type Tri-State Flip-Flop**	**SO-20**	**1.16**	**16.15**	**51.55**
MM74HC393M-ND	**Dual 4-Bit Binary Counter**	**SO-14**	**1.18**	**16.35**	**52.19**
MM74HC393N-ND	Dual 4-Bit Binary Counter	14-Dip	1.23	17.05	54.42
MM74HC423AN-ND	Dual Monostable Multivibrator	16-Dip	1.59	22.05	70.38
MM74HC540N-ND	Octal Buffer Line Driver Tri-State Inverting Out	20-Dip	1.54	21.35	68.15
MM74HC541N-ND	Octal Tri-State Buffer	20-Dip	1.45	20.20	64.48
MM74HC573N-ND	Tri-State Octal D Type Latch	20-Dip	1.01	14.00	44.69
MM74HC573WM-ND	**Tri-State Octal D Type Latch**	**SO-20**	**1.51**	**20.95**	**66.87**
MM74HC574N-ND	Tri-State Octal D Type Flip-Flop	20-Dip	1.98	27 50	87.78
MM74HC574WM-ND	**Tri-State Octal D Type Flip-Flop**	**SO-20**	**1.81**	**25.20**	**80.44**
MM74HC595M-ND	**8-Bit Shift Register with Output Latches**	**SO-16**	**1.98**	**27.45**	**87.62**
MM74HC595N-ND	8-Bit Shift Register with Output Latches	16-Dip	1.98	27.45	87.62
MM74HC597N-ND	8-Bit Shift Register	16-Dip	3.24	45.00	143.64
MM74HC688N-ND	8-Bit Magnitude Comp. (Equality Detec.)	20-Dip	3.06	42.50	135.66
MM74HC4020N-ND	14 Stage Binary Counter	16-Dip	1.62	22.50	71.82
MM74HC4040M-ND	**12 Stage Binary Counter**	**SO-16**	**1.36**	**18.85**	**60.17**
MM74HC4040N-ND	12 Stage Binary Counter	16-Dip	1.47	20.45	65.28
MM74HC4046M-ND	**Micropower Phase Lock Loop**	**SO-16**	**2.45**	**34.05**	**108.69**
MM74HC4046N-ND	CMOS Phase Lock Loop	16-Dip	2.45	34.05	108.69
MM74HC4049N-ND	Hex Inverting Logic Level Down Conv.	16-Dip	1.36	18.85	60.17
MM74HC4050N-ND	Hex Logic Level Down Counter	16-Dip	1.51	21.00	67.03
MM74HC4051M-ND	**Single 8 Channel Multiplexer**	**SO-16**	**1.56**	**21.70**	**69.27**
MM74HC4051N-ND	8 Channel Analog Multiplexer	16-Dip	1.56	21.70	69.27
MM74HC4051WM-ND	**8 Channel Analog Multiplexer**	**SO-16**	**1.98**	**27.50**	**87.78**
MM74HC4052N-ND	Dual 4 Channel Analog Multiplexer	16-Dip	1.98	27.50	87.78
MM74HC4053M-ND	**Triple 2 Channel**	**SO-16**	**1.51**	**21.00**	**67.03**
MM74HC4053N-ND	Triple 2 Channel Analog Multiplexer	16-Dip	1.49	20.70	66.07
MM74HC4053WM-ND	**Triple 2 Channel Analog Multiplexer**	**SO-16**	**1.51**	**21.00**	**67.03**
MM74HC4060N-ND	14 Stage Binary Counter	16-Dip	1.54	21.35	68.15
MM74HC4066N-ND	Quad Analog Switch	14-Dip	1.98	27.50	87.78
MM74HC4316N-ND	Quad Analog Switch	16-Dip	1.43	19.85	63.36
MM74HC4316WM-ND	**Quad Analog Switch**	**SO-16**	**1.47**	**20.45**	**65.28**
MM74HC4514N-ND	4-to-16 Line Decoder w/Latch (.3" Lead Spacing)	24-Dip	5.22	72.50	231.42
MM74HC4538N-ND	Dual Retrig Monostable Multivibrator	16-Dip	1.54	21.35	68.15

★ Call for better pricing on larger quantities!

National Semiconductor

74HCTOO SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
MM74HCT04N-ND	Hex Inverter	14-Dip	.79	10,95	34.95
MM74HCT74N-ND	Dual D Flip-Flop with Preset and Clear	14-Dip	.90	12.50	39.90
MM74HCT244N-ND	Octal Tri-State Buffer	20-Dip	1.26	17.45	55.70
MM74HCT244WM-ND	**Invert Octal Tri-State Buffer**	**SO-20**	**1.26**	**17.45**	**55.70**
MM74HCT245N-ND	Octal Tri-State Transceiver	20-Dip	.83	11.50	36.71
MM74HCT245WM-ND	**Octal Tri-State Bus Transceiver**	**SO-20**	**1.26**	**17.45**	**55.70**
MM74HCT273N-ND	Octal D Type Flip-Flop with Clear	20-Dip	1.45	20.20	64.48
MM74HCT373N-ND	Tri-State Octal D Type Latch	20-Dip	1.44	20.00	63.84
MM74HCT373WM-ND	**Octal Tri-State D Type Latch**	**SO-20**	**1.31**	**18.15**	**57.93**
MM74HCT374N-ND	Tri-State Octal D Type Flip-Flop	20-Dip	1.44	20.00	63.84
MM74HCT541N-ND	Octal Tri-State Buffer	20-Dip	1.45	20.20	64.48

★ Call for better pricing on larger quantities!

National Semiconductor

74VHC SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74VHC00M-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.74**	**8.75**	**28.88**
74VHC02M-ND	**Quad 2-Input NOR Gate**	**SO-14**	**.74**	**8.75**	**28.88**
74VHC04M-ND	**Hex Inverter**	**SO-14**	**.74**	**8.75**	**28.88**
74VHC08M-ND	**Quad 2-Input AND Gate**	**SO-14**	**.74**	**8.75**	**28.88**
74VHC14M-ND	**Hex Schmitt Inverter**	**SO-14**	**.88**	**10.42**	**34.38**
74VHC74M-ND	**Dual D Type Flip Flop**	**SO-14**	**.88**	**10.42**	**34.38**
74VHC86M-ND	**Quad 2-Input Exclusive OR Gate**	**SO-14**	**.88**	**10.42**	**34.38**
74VHC123AM-ND	**Dual Monostable Multivibrator**	**SO-16**	**1.68**	[illegible]	**66.00**
74VHC138M-ND	**3-TO-8 Line Decoder/Demultiplexer**	**SO-16**	**1.33**	**15.83**	**52.25**
74VHC139M-ND	**Dual 2 TO 4 Line Decoder/Demultiplexer**	**SO-16**	**1.33**	**15.83**	**52.25**
74VHC139MTC-ND	**Dual 2-to-4 Decoder/Demultiplexer**	**16 TSSOP**	**2.45**	**29.17**	**96.25**
74VHC157M-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.33**	**15.83**	**52.25**
74VHC157MTC-ND	**Quad 2-Input Multiplexer**	**16 TSSOP**	**2.45**	**29.17**	**96.25**
74VHC240M-ND	**Octal Buffer/Line Driver with Tri-State Inverting**	**SO-20**	**2.00**	**23.75**	**78.38**
74VHC240MTC-ND	**Octal Buffer/Line Driver w/Tri-state Outputs**	**20 TSSOP**	**3.33**	**39.58**	**130.63**
74VHC244M-ND	**Octal Buffer/Line Driver w/Tri-State Non-Inverting**	**SO-20**	**2.00**	**23.75**	**78.38**
74VHC245M-ND	**Octal Bidirectional Transceiver with Tri-State Out**	**SO-20**	**2.17**	**25.83**	**85.25**
74VHC373M-ND	**Octal D Type Latch with Tri-State Output**	**SO-20**	**2.17**	**25.83**	**85.25**
74VHC374M-ND	**Octal D Type Flip-Flop w/Tri-State Output**	**SO-20**	**2.17**	**25.83**	**85.25**
74VHC374MTC-ND	**Octal D-Type Flip-Flop w/Tri-state Outputs**	**20 TSSOP**	**3.33**	**39.58**	**130.63**
74VHC393M-ND	**Dual 4-Bit Binary Counter**	**SO-14**	**2.17**	**25.83**	**85.25**
74VHC393MTC-ND	**Dual 4-Bit Binary Counter**	**14 SSOP**	**3.33**	**39.58**	**130.63**
74VHC573M-ND	**Octal D Type Latch w/Tri-State Output**	**SO-20**	**2.35**	**27.92**	**92.13**
74VHC574M-ND	**Octal D Type Flip-Flop w/Tri-State Output**	**SO-20**	**2.35**	**27.92**	**92.13**
74VHC595M-ND	**8-Bit Shift Register with Output Latches**	**SO-16**	**3.15**	**37.50**	**123.75**
74VHC4046N-ND	Cmos Phase Lock Loop ***NEW!***	16-Dip	2.63	31.25	103.13
9265B-ND	1996 VHC Advanced CMOS Logic Data Book ***NEW!***		9.13	—	—

★ Call for better pricing on larger quantites!

National Semiconductor

74VHCT SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74VHCT74M-ND	**Dual D Type Flip Flop**	**SO-14**	**.81**	**9.58**	**31.63**
74VHCT245M-ND	**Octal Bidirectional Transceiver with Tri-State Out**	**SO-20**	**2.17**	**25.83**	**85.25**
74VHCT373M-ND	**Octal D Type Latch with Tri-State Output**	**SO-20**	**2.17**	**25.83**	**85.25**
74VHCT374M-ND	**Octal D Flip-Flop with Tri-State Output**	**SO-20**	**2.17**	**25.83**	**85.25**
9265B-ND	1996 VHC Advanced CMOS Logic Data Book ***NEW!***		9.13	—	—

★ Call for better pricing on larger quantites!

National Semiconductor

74ABT SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74ABT241CMSA-ND	**Octal Buffer Line Driver**	**20 SSOP**	**2.63**	**31.88**	**105.00**
74ABT244CSC-ND	**Octal Non-Inverting Buffer/ Driver w/ Tri-state**	**SO-20**	**2.28**	**27.63**	**91.00**
74ABT245CSC-ND	**Octal Bidirectional Transceiver w/ Tri-State**	**SO-20**	**2.45**	**29.75**	**98.00**
74ABT273CMSA-ND	**Octal D-Type Flip-Flop**	**20 SSOP**	**2.63**	**31.88**	**105.00**
74ABT273CSC-ND	**Octal D-Type Flip-Flop**	**SO-20**	**2.28**	**27.63**	**91.00**
74ABT377CMSA-ND	**Octal D-Type Flip-Flop with Clock Enable**	**20 SSOP**	**2.63**	**31.88**	**105.00**
74ABT377CSC-ND	**Octal D-Type Flip-Flop with Clock Enable**	**SO-20**	**2.28**	**27.63**	**91.00**
74ABT16373CSSC-ND	**16-Bit D-Latch with Tri-state Outputs**	**48 SSOP**	**8.23**	**99.88**	**329.00**
74ABT16374CSSC-ND	**16-Bit D-Type Flip-Flop w/ Tri-state Outputs**	**48 SSOP**	**8.23**	**99.88**	**329.00**
74ABT16501CSSC-ND	**18-Bit Universal Bus Transceiver w/ Tri-state Outputs**	**56 SSOP**	**16.84**	**204.43**	**673.40**
74ABT2244CMSA-ND	**Octal Buffer Line Driver w/ Series res Included**	**20 SSOP**	**3.85**	**46.75**	**154.00**
74ABT2244CPC-ND	Octal Buffer Line Driver w/ Series res Included	20-Dip	3.57	43.35	142.80
74ABT2244CSC-ND	**Octal Buffer Line Driver w/ Series res Included**	**SO-20**	**3.57**	**43.35**	**142.80**
9262B-ND	1996 Advanced BICMOS Logic Data Book ***NEW!***		10.96	—	—

★ Call for better pricing on larger quantites!

National Semiconductor

FACT™ ADVANCED CMOS TECHNOLOGY 74AC

These are high speed CMOS devices with CMOS input switching levels and buffered CMOS outputs.

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74AC00PC-ND	Quad 2-Input NAND Gate	14-Dip	.77	9.35	30.80
74AC00SC-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74AC02PC-ND	Quad 2-Input NOR Gate	14-Dip	.77	9.35	30.80
74AC02SC-ND	**Quad 2-Input NOR Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74AC04PC-ND	Hex Inverter	14-Dip	.77	9.35	30.80
74AC04SC-ND	**Hex Inverter**	**SO-14**	.77	9.35	30.80
74AC08PC-ND	Quad 2-Input AND Gate	14-Dip	.77	9.35	30.80
74AC08SC-ND	**Quad 2-Input AND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74AC10PC-ND	Triple 3-Input NAND Gate	14-Dip	.77	9.35	30.80
74AC10SC-ND	**Triple 3-Input NAND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74AC11PC-ND	Triple 3-Input AND Gate	14-Dip	.77	9.35	30.80
74AC11SC-ND	**Triple 3-Input AND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74AC14PC-ND	Hex Schmitt Trigger Inverter	14-Dip	.91	11.05	36.40
74AC14SC-ND	**Hex Schmitt Trigger Inverter**	**SO-14**	**.91**	**11.05**	**36.40**
74AC20PC-ND	Dual 4-Input NAND Gate	14-Dip	.77	9.35	30.80
74AC32PC-ND	Quad 2-Input OR Gate	14-Dip	.77	9.35	30.80
74AC32SC-ND	**Quad 2-Input OR Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74AC74PC-ND	Dual D Type Flip Flop w/ Set and Reset	14-Dip	.98	11.90	39.20
74AC74SC-ND	**Dual D Type Flip Flop w/Set and Reset**	**SO-14**	**.98**	**11.90**	**39.20**
74AC86PC-ND	Quad 2-Input Exclusive OR Gate	14-Dip	1.26	15.30	50.40
74AC86SC-ND	**Quad 2-Input Exclusive OR Gate**	**SO-14**	**1.26**	**15.30**	**50.40**
74AC109PC-ND	Dual JK Positive Edge-Triggered Flip Flop	16-Dip	1.16	14.03	46.20
74AC109SC-ND	**Dual JK Positive Edge-Triggered Flip-Flop**	**SO-16**	**1.16**	**14.03**	**46.20**
74AC125PC-ND	Quad Buffer w/ Tristat	14-Dip	2.49	30.18	99.40
74AC125SC-ND	**Quad Buffer w/ Tristat**	**SO-14**	**2.49**	**30.18**	**99.40**
74AC138PC-ND	1-Of-8 Decoder/Demultiplexer	16-Dip	1.40	17.00	56.00
74AC138SC-ND	**1-Of-8 Decoder/Demultiplexer**	**SO-16**	**1.40**	**17.00**	56.00
74AC139PC-ND	Dual 1-Of-4 Decoder/Demultiplexer	16-Dip	1.40	17.00	56.00
74AC139SC-ND	**Dual 1-Of-4 Decoder/Demultiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC153PC-ND	Dual 4-Input Multiplexer	16-Dip	1.40	17.00	56.00
74AC153SC-ND	**Dual 4-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC151PC-ND	8-Input Fact Multiplexer	16-Dip	1.40	17.00	56.00
74AC151SC-ND	**8-Input Fact Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC157PC-ND	Quad 2-Input Multiplexer	16-Dip	1.40	17.00	56.00
74AC157SC-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC161PC-ND	Synchronous Presettable 4-Bit Binary Counter	16-Dip	2.10	25.50	84.00
74AC161SC-ND	**Synchronous Presettable 4-Bit Binary Counter**	**SO-16**	**2.10**	**25.50**	**84.00**
74AC163PC-ND	4-Bit Binary Counter Synchronous Receiver	16-Dip	2.10	25.50	84.00
74AC163SC-ND	**4-Bit Binary Counter Synchronous Receiver**	**SO-16**	**2.10**	**25.50**	**84.00**
74AC169PC-ND	4-Bit Binary Counter	16-Dip	2.42	29.33	96.60
74AC169SC-ND	**4-Bit Binary Counter**	**SO-16**	**2.42**	**29.33**	**96.60**
74AC174PC-ND	Hex D Type Flip Flop	16-Dip	1.40	17.00	56.00
74AC174SC-ND	**Hex D Type Flip Flop**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC175SC-ND	**Quad D Type Flip Flop**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC191PC-ND	4-Bit Up/Down Counter	16-Dip	3.30	46.75	154.00
74AC191SC-ND	**4-Bit Up/Down Counter**	**SO-16**	**3.85**	**46.75**	**154.00**
74AC240PC-ND	Octal Buffer/Line Driver	20-Dip	2.10	25.50	84.00
74AC240SC-ND	**Octal Buffer/Line Driver**	**SO-20**	**2.10**	**25.50**	**84.00**
74AC244PC-ND	Octal Buffer/Line Driver	20-Dip	2.10	25.50	84.00
74AC244SC-ND	**Octal Buffer/Line Driver**	**SO-20**	**2.10**	**25.50**	**84.00**
74AC245PC-ND	Octal Bi-Directional Transceiver	20-Dip	2.45	29.75	98.00
74AC245SC-ND	**Octal Bidirectional Transceiver**	**SO-20**	**2.45**	**29.75**	**98.00**
74AC257PC-ND	Quad 2-Input Multiplexer	16-Dip	1.40	17.00	56.00
74AC257SC-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74AC541SC-ND	**Octal Buffer/Line Driver**	**SO-20**	**2.28**	**27.63**	**91.00**
74AC273PC-ND	Octal D Type Flip FLop w/Reset	20-Dip	2.10	25.50	84.00
74AC273SC-ND	**Octal D Type Flip Flop w/Reset**	**SO-20**	**2.10**	**25.50**	**84.00**
74AC299PC-ND	Octal Shift/Storage	20-Dip	6.97	84.58	278.60
74AC299SC-ND	**Octal Shift/Storage**	**SO-20**	**6.97**	**84.58**	**278.60**
74AC373PC-ND	Octal D Type Latch	20-Dip	2.10	25.50	84.00
74AC373SC-ND	**Octal D Type Latch**	**SO-20**	**2.10**	**25.50**	**84.00**
74AC374PC-ND	Octal D Type Flip FLop Tri-State	20-Dip	2.10	25.50	84.00
74AC374SC-ND	**Octal D Type Flip-Flop Tri-State**	**SO-20**	**2.10**	**25.50**	**84.00**
74AC377PC-ND	Octal D Type Flip-Flop Tri-State	20-Dip	2.80	34.00	112.00
74AC377SC-ND	**Octal D Type Flip-Flop Tri-State**	**SO-20**	**2.80**	**34.00**	**112.00**
74AC521PC-ND	8-Bit Comparator	20-Dip	4.38	53.13	175.00
74AC521SC-ND	**8-Bit Comparator**	**SO-20**	**4.38**	**53.13**	**175.00**
74AC540SC-ND	**Octal Buffer/Line Driver Tri-State**	**SO-20**	**2.28**	**27.63**	**91.00**
74AC541PC-ND	Octal Buffer Line Driver Tri-State	20-Dip	2.28	27.63	91.00
74AC574PC-ND	Octal D Type Flip Flop Tri-State	20-Dip	2.28	27.63	91.00
74AC574SC-ND	**Octal D Type Flip Flop Tri-State**	**SO-20**	**2.28**	**27.63**	**91.00**
74AC646SC-ND	**Octal Transceiver/Register**	**SO-24**	**11.20**	**136.00**	**448.00**
74AC646SPC-ND	Octal Transceiver/Register	24-Dip	11.20	136.00	448.00
74AC821SC-ND	**10-Bit D Type Flip-Flop**	**SO-24**	**5.78**	**70.13**	**231.00**
74AC821SPC-ND	10-Bit D Type Flip-Flop	24-Dip	5.78	70.13	231.00

★ Call for better pricing on larger quantites!

National Semiconductor

74ACQ SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74ACQ240PC-ND	Octal Inverting Buffer/Line Driver	20-Dip	3.15	38.25	126.00
74ACQ240SC-ND	**Octal Inverting Buffer/Line Driver**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ241PC-ND	Octal Buffer/Line Driver w/Tri-State	20-Dip	3.15	38.25	126.00
74ACQ241SC-ND	**Octal Buffer/Line Driver w/Tri-State**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ244PC-ND	Octal Buffer/Line Driver	20-Dip	3.15	38.25	126.00
74ACQ244SC-ND	**Octal Buffer/Line Driver**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ245PC-ND	Octal Transceiver	20-Dip	3.15	38.25	126.00
74ACQ245SC-ND	**Octal Transceiver**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ373PC-ND	Octal D Type Latch	20-Dip	3.15	38.25	126.00
74ACQ373SC-ND	**Octal D Type Latch**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ374PC-ND	Octal D Type Flip-Flop	20-Dip	3.15	38.25	126.00
74ACQ374SC-ND	**Octal D Type Flip-Flop**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ377PC-ND	Octal D Type Flip-Flop w/Clock Enable	20-Dip	3.60	43.00	126.13
74ACQ533PC-ND	Octal Invert. Latch w/Tri-State	20-Dip	3.60	43.00	126.13
74ACQ533SC-ND	**Octal Invert. Latch w/Tri-State**	**SO-20**	**4.20**	**51.00**	**168.00**
74ACQ534SC-ND	**Octal Invert. D Type Flip-Flop w/Tri-State**	**SO-20**	**3.60**	**43.00**	**126.13**
74ACQ543SC-ND	**Octal Registered Transceiver w/Tri-State**	**SO-24**	**10.15**	**123.25**	**406.00**
74ACQ544SC-ND	**Octal Inverting Registered Transceiver w/Tri-State**	**SO-20**	**10.85**	**131.75**	**434.00**
74ACQ563PC-ND	Octal Inverting Latch w/Tri-State	20-Dip	3.60	40.45	126.19
74ACQ564PC-ND	Octal Invert. D Type Flip-Flop w/Tri-State	20-Dip	3.60	40.45	126.19
74ACQ573PC-ND	Octal Latch w/Tri-State	20-Dip	2.70	32.25	94.60
74ACQ573SC-ND	**Octal Latch w/Tri-State**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ574PC-ND	Octal D Type Flip-Flop w/Tri-State	20-Dip	3.15	38.25	126.00
74ACQ574SC-ND	**Octal D Type Flip-Flop w/Tri-State**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACQ646SC-ND	**Octal Transceiver Register w/Tri-State**	**SO-24**	**10.85**	**131.75**	**434.00**

★ Call for better pricing on larger quantities!

National Semiconductor

74ACT SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74ACT00SC-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74ACT00PC-ND	Quad 2-Input NAND Gate	14-Dip	.77	9.35	30.80
74ACT02PC-ND	Quad 2-Input NOR Gate	14-Dip	.77	9.35	30.80
74ACT02SC-ND	**Quad 2-Input NOR Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74ACT04PC-ND	Hex Inverter	14-Dip	.77	9.35	30.80
74ACT04SC-ND	**Hex Inverter**	**SO-14**	**.77**	**9.35**	**30.80**
74ACT08PC-ND	Quad 2-Input AND Gate	14-Dip	.77	9.35	30.80
74ACT08SC-ND	**Quad 2-Input AND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74ACT10PC-ND	Triple 3-Input NAND Gate	14-Dip	.77	9.35	30.80
74ACT10SC-ND	**Triple 3-Input NAND Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74ACT32PC-ND	Quad 2-Input OR Gate	14-Dip	.77	9.35	30.80
74ACT32SC-ND	**Quad 2-Input OR Gate**	**SO-14**	**.77**	**9.35**	**30.80**
74ACT74PC-ND	Dual D Type Positive-Edge-Trigger Flip-Flop	14-Dip	.98	11.90	39.20
74ACT74SC-ND	**Dual D Type Positive-Edge-Trigger Flip-Flop**	**SO-14**	**.98**	**11.90**	**39.20**
74ACT109SC-ND	**Dual JK Flip Flop**	**SO-16**	**1.16**	**14.03**	**46.20**
74ACT125PC-ND	Quad Buffer w/ Tristate	14-Dip	2.49	30.18	99.40
74ACT125SC-ND	**Quad Buffer w/ Tristate**	**SO-14**	**2.49**	**30.18**	**99.40**
74ACT138PC-ND	1-of-8 Decoder/Demultiplexer	16-Dip	1.40	17.00	56.00
74ACT138SC-ND	**1-of-8 Decoder/Demultiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT139PC-ND	Dual 1-OF-4 Decoder	16-Dip	1.40	17.00	56.00
74ACT139SC-ND	**Dual 1-Of-4 Decoder**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT151PC-ND	8-Input Multiplexer	16-Dip	1.40	17.00	56.00
74ACT157PC-ND	Quad 2-In-1 Multiplexer	16-Dip	1.40	17.00	56.00
74ACT157SC-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT158PC-ND	Quad 2-Input Multiplexer	16-Dip	1.40	17.00	56.00
74ACT158SC-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT161SC-ND	**Synchronous Presettable Binary Counter**	**SO-16**	**3.15**	**38.25**	**126.00**
74ACT163PC-ND	4-Bit Binary Counter Synchronous Receiver	16-Dip	2.10	25.50	84.00
74ACT174PC-ND	Hex D Type Flip-Flop **w/Master Reset**	16-Dip	1.40	17.00	56.00
74ACT174SC-ND	**Hex D Type Flip-Flop w/Master Reset**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT175SC-ND	Quad D Type Flip-Flop	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT240PC-ND	Tri-State Line Driver	20-Dip	2.10	25.50	84.00
74ACT240SC-ND	**Octal Buffer/Line Driver w/Tri-State Outputs**	**SO-20**	**2:10**	**25.50**	**84.00**
74ACT244PC-ND	Octal Buffer/Line Driver	20-Dip	2.10	25.50	84.00
74ACT244SC-ND	**Octal Buffer/Line Driver**	**SO-20**	**2.10**	**25.50**	**84.00**
74ACT245PC-ND	Octal Bi-Directional Transceiver	20-Dip	2.45	29.75	98.00
74ACT245SC-ND	**Octal Bi-Directional Transceiver**	**SO-20**	**2.45**	**29.75**	**98.00**
74ACT251PC-ND	8-Bit Multiplexer	16-Dip	1.40	17.00	56.00
74ACT251SC-ND	**8-Bit Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT253PC-ND	Dual 4-Input Multiplexer	16-Dip	1.40	17.00	56 00
74ACT253SC-ND	**Dual 4-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT257PC-ND	Quad 2-Input Multiplexer	16-Dip	1.40	17.00	56.00
74ACT257SC-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT258PC-ND	Quad 2-Input Multiplexer	16-Dip	1.40	17.00	56.00
74ACT258SC-ND	**Quad 2-Input Multiplexer**	**SO-16**	**1.40**	**17.00**	**56.00**
74ACT299PC-ND	8-Bit Universal Shift Register Tri-State	20-Dip	4.20	51.00	168.00
74ACT299SC-ND	**Octal Shift/Storage**	**SO-20**	**4.20**	**51.00**	**168.00**
74ACT373PC-ND	Octal Transparent Latch	20-Dip	2.10	25.50	84.00
74ACT373SC-ND	**Octal Transparent Latch**	**SO-20**	**2.10**	**25.50**	**84.00**
74ACT374PC-ND	Octal D Type Flip-Flop	20-Dip	2.10	25.50	84.00
74ACT374SC-ND	**Octal D Type Flip-Flop**	**SO-20**	**2.10**	**25.50**	**84.00**
74ACT377PC-ND	Octal D Type Flip-Flop w/Clk	20-Dip	3.15	38.25	126.00
74ACT399PC-ND	Quad 2 Port Register	16-Dip	2.94	35.25	104.00
74ACT399SC-ND	**Quad 2 Port Register**	**SO-16**	**2.94**	**35.25**	**104.00**
74ACT520PC-ND	Comparator w/ Resistor	20-Dip	4.03	48.88	161.00
74ACT520SC-ND	**Comparator w/ Resistor**	**SO-20**	**4.03**	**48.88**	**161.00**
74ACT521PC-ND	8-Bit Comparator	20-Dip	4.03	48.88	161.00
74ACT521SC-ND	**8-Bit Comparator**	**SO-20**	**4.03**	**48.88**	**161.00**
74ACT534PC-ND	Octal D Flip Flop	20-Dip	2.28	27.63	91.00
74ACT573PC-ND	Octal Latch w/Tri-State Outputs	20-Dip	2.28	27.63	91.00
74ACT573SC-ND	**Octal D Type Latch**	**SO-20**	**2.28**	**27.63**	**91.00**
74ACT574PC-ND	Octal D Type Flip-Flop w/Tri-State Outputs	20-Dip	2.28	27.63	91.00
74ACT574SC-ND	**Octal D Type Flip-Flop w/Tri-State Outputs**	**SO-20**	**2.28**	**27.63**	**91.00**
74ACT715PC-ND	Video Synchronous Generator	20-Dip	17.50	180.00	530.00
74ACT715SC-ND	**Video Synchronous Generator**	**SO-20**	**17.50**	**180.00**	**530.00**
74ACT818SPC-ND	Diagnostic/Pipline Register	24-Dip	8.75	89.50	263.00
74ACT821SPC-ND	10-Bit D Type Flip Flop w/Tri-State	24-Dip	5.78	70.13	231.00
74ACT823SC-ND	**9-Bit D Type Flip Flop**	**SO-24**	**5.78**	**70.13**	**231.00**
74ACT823SPC-ND	9-Bit D Type Flip Flop	24-Dip	5.78	70.13	231.00
74ACT825SC-ND	**8-Bit D Type Flip Flop**	**SO-24**	**5.78**	**70.13**	**231.00**
74ACT825SPC-ND	8-Bit D Type Flip Flop	24-Dip	5.78	70.13	231.00
74ACT841SPC-ND	10-Bit Transparent Latch	24-Dip	5.78	70.13	231.00
74ACT841SC-ND	**10-Bit Transparent Latch**	**SO-24**	**5.78**	**70.13**	**231.00**
74ACT843SC-ND	**9-Bit Transparent Latch**	**SO-24**	**5.78**	**70.13**	**231.00**
74ACT843SPC-ND	9-Bit Transparent Latch	24-Dip	5.78	70.13	231.00
74ACT899QC-ND	**9-Bit Bidirectional latch**	**28-PLCC**	**16.63**	**170.00**	**500.00**
74ACT1284MSA-ND	**IEEE 1284 Transceiver**	**20 SSOP**	**3.68**	**44.63**	**147.00**
74ACT2708PC-ND	64x9 First-In First-Out Memory	28-Dip	34.13	350.00	1030.00

★ Call for better pricing on larger quantites!

National Semiconductor

NM95HS HIGH SECURITY SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
NM95HS01EM-ND	**Rolling Code Generator Hi Temp(RC OSC)**	**SO-14**	**5.78**	**68.75**	**219.45**
NM95HS01EM8-ND	**Rolling Code Generator Hi Temp(RC OSC)**	**SO-8**	**4.13**	**68.75**	**220.00**
NM95HS01EN-ND	Rolling Code Generator Hi Temp(RC OSC)	14-Dip	4.13	68.75	220.00
NM95HS01EN14-ND	Rolling Code Generator Hi Temp(RC OSC)	14-Dip	4.13	68.75	220.00
NM95HS01M8-ND	**Rolling Code Generator (RC OSC)**	**SO-8**	**3.75**	**62.50**	**200.00**
NM95HS01N-ND	Rolling Code Generator (RC OSC)	8-Dip	3.75	62.50	200.00
NM95HS01N14-ND	Rolling Code Generator (RC OSC)	14-Dip	3.75	62.50	200.00
NM95HS02EM-ND	**Rolling Code Generator Hi Temp (XTAL OSC)**	**SO-14**	**4.13**	**68.75**	**220.00**
NM95HS02EM8-ND	**Rolling Code Generator Hi Temp (XTAL OSC)**	**SO-8**	**4.13**	**68.75**	**220.00**
NM95HS02EN-ND	Rolling Code Generator Hi Temp (XTAL OSC)	8-Dip	4.13	68.75	220.00
NM95HS02EN14-ND	Rolling Code Generator Hi Temp (XTAL OSC)	14-Dip	4.13	68.75	220.00
NM95HS02M8-ND	**Rolling Code Generator Hi Temp (XTAL OSC)**	**SO-8**	**3.75**	**62.50**	**200.00**
NM95HS02N-ND	Rolling Code Generator (XTAL OSC)	8-Dip	3.75	62.50	200.00
NM95HS02N14-ND	Rolling Code Generator (XTAL OSC)	14-Dip	3.75	62.50	200.00

★ Call for better pricing on larger quantites!

National Semiconductor

74ACTQ SERIES

Digi-Key Part No.	Description	*Pkg.	Pricing★ 1	25	100
74ACTQ00PC-ND	Quad 2-Input NAND Gate, Quiet Series	14-Dip	1.33	16.15	53.20
74ACTQ00SC-ND	**Quad 2-Input NAND Gate, Quiet Series**	**SO-14**	**1.33**	**16.15**	**53.20**
74ACTQ04PC-ND	Hex Inverter, Quiet Series	14-Dip	1.33	16.15	53.20
74ACTQ04SC-ND	**Hex Inverter, Quiet Series**	**SO-14**	**1.33**	**16.15**	**53.20**
74ACTQ08SC-ND	**Quad 2-Input AND Gate, Quiet Series**	**SO-14**	**1.33**	**16.15**	**53.20**
74ACTQ10PC-ND	Triple 3-Input NAND Gate, Quiet Series	14-Dip	1.33	16.15	53.20
74ACTQ10SC-ND	**Triple 3-Input NAND Gate, Quiet Series**	**SO-14**	**1.33**	**16.15**	**53.20**
74ACTQ14PC-ND	Hex Schmitt Trigger, Quiet Series	14-Dip	1.33	16.15	53.20
74ACTQ14SC-ND	**Hex Schmitt Trigger, Quiet Series**	**SO-14**	**1.33**	**16.15**	**53.20**
74ACTQ74SC-ND	**Dual D-Type Positive Edge Triggered Flip-Flop**	**SO-14**	**1.37**	**16.58**	**54.60**
74ACTQ240PC-ND	Octal Buffer/Line, Quiet Series	20-Dip	3.15	38.25	126.00
74ACTQ240SC-ND	**Octal Buffer/Line, Quiet Series**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACTQ244PC-ND	Octal Buffer/Line Driver, Quiet Series	20-Dip	3.15	38.25	126.00
74ACTQ244SC-ND	**Octal Buffer/Line Driver, Quiet Series**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACTQ245PC-ND	Trans Octal Bi-Directional, Quiet Series	20-Dip	3.15	38.25	126.00
74ACTQ245SC-ND	**Trans Octal Bi-Directional**, Quiet Series	**SO-20**	**3.15**	**38.25**	**126.00**
74ACTQ273PC-ND	Octal D Flip-Flop	20-Dip	3.15	38.25	126.00
74ACTQ273SC-ND	**Octal D Flip-Flop**	**SO-20**	**3.15**	**38.25**	**126.00**
74ACTQ373PC-ND	Octal Transparent Latch w/ Tri-State	20-Dip	3.15	38.25	126.00
74ACTQ541SC-ND	**Octal Buffer / Line Driver**	**SO-20**	**3.33**	**40.38**	**133.00**
74ACTQ16244SSC-ND	**16 Bit Buffer/ Line Driver**	**48-SSOP**	**10.22**	**124.10**	**408.80**
74ACTQ16374SSC-ND	**16 Bit D Flip Flop**	**48-SSOP**	**10.22**	**124.10**	**408.80**

★ Call for better pricing on larger quantites!

National Semiconductor

FAST™ ADVANCED SCHOTTKY TTL LOGIC

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74F00PC-ND	Quad 2-Input NAND Gate	14-Dip	.53	6.25	21.00
74F00SC-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.60**	**7.08**	**23.80**
74F02PC-ND	Quad 2-Input NOR Gate	14-Dip	.53	6.25	21.00
74F04PC-ND	Hex Inverter	14-Dip	.53	6.25	21.00
74F04SC-ND	**Hex Inverter**	**SO-14**	**.60**	**7.08**	**23.80**
74F08PC-ND	Quad 2-Input AND Gate	14-Dip	.53	6.25	21.00
74F08SC-ND	**Quad 2 Input and Gate**	**SO-14**	**.60**	**7.08**	**23.80**
74F10PC-ND	Triple 3-Input NAND Gate	14-Dip	.53	6.25	21.00
74F11PC-ND	Triple 3-Input AND Gate	14-Dip	.53	6.25	21.00
74F11SC-ND	**Triple 3-Input AND Gate**	**SO-14**	**.60**	**7.08**	**23.80**
74F14PC-ND	Hex Inverter Schmitt Trigger	14-Dip	.98	11.67	39.20
74F20PC-ND	Dual 4-Input NAND Gate	14-Dip	.53	6.25	21.00
74F30PC-ND	8 Input NAND Gate	8-Dip	.67	7.92	26.60
74F32PC-ND	Quad 2-Input OR Gate	14-Dip	.53	6.25	21.00
74F32SC-ND	**Quad 2 Input or Gate**	**SO-14**	**.60**	**7.08**	**23.80**
74F37PC-ND	Quad 2-Input Positive NAND Buffer	14-Dip	.70	8.33	28.00
74F38PC-ND	Quad 2-In NAND Buffer (Open Collector)	14-Dip	1.40	16.67	56.00
74F40PC-ND	Dual 4-Input Positive NAND Buffer	14-Dip	.69	8.21	30.34
74F64PC-ND	4-2-3-2-Input AND/OR Invert Gate	14-Dip	.53	6.25	21.00
74F74PC-ND	Dual D Type Pos Edge-Triggered Flip-Flop	14-Dip	.67	7.92	26.60
74F74SC-ND	**Dual D Type Pos Edge-Triggered Flip Flop**	**SO-14**	**.67**	**7.92**	**26.60**
74F86PC-ND	Quad 2-Input Exclusive-OR Gate	14-Dip	1.05	12.50	42.00
74F86SC-ND	**Quad 2-Input Exclusive-OR Gate**	**SO-14**	**1.05**	**12.50**	**42.00**
74F109PC-ND	Dual JK Positive Edge-Triggered Flip-Flop	16-Dip	.88	10.42	35.00
74F112PC-ND	Dual JK Negative Edge-Triggered Flip-Flop	16-Dip	.92	10.90	36.62
74F113PC-ND	Dual JK Edge Triggered Flip-Flop	14-Dip	1.23	14.58	49.00
74F114PC-ND	Dual JK Negative Edge Triggered Flip-Flop	14-Dip	1.02	12.08	40.60
74F125PC-ND	Tri-State Quad Buffer	14-Dip	1.05	12.50	42.00
74F125SC-ND	**Quad Buffer Tri-State**	**SO-14**	**1.05**	**12.50**	**42.00**
74F125SCX-ND	**Quad Buffer Tri-State**	**SO-14**	**1032.50/2,500**		

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74F138PC-ND	1-Of-8 Decoder/Demultiplexer	16-Dip	.88	10.42	35.00
74F138SC-ND	**1-Of-8 Decoder/Demultiplexer**	**SO-16**	**.88**	**10.42**	**35.00**
74F139PC-ND	Dual 1-Of-4 Decoder/Demultiplexer	16-Dip	1.05	12.50	42.00
74F139SC-ND	**Dual 1-Of-4 Decoder/Demultiplexer**	**SO-16**	**1.05**	**12.50**	**42.00**
74F148PC-ND	8-Line To 3-Line Priority Encoder	16-Dip	1.58	18.75	63.00
74F151APC-ND	8-Input Multiplexer	16-Dip	1.05	12.50	42.00
74F153PC-ND	Dual 4-Input Multiplexer	16-Dip	.88	10.42	35.00
74F157ASC-ND	**Quad 2 Input Multiplexer**	**SO-16**	**.95**	**11.25**	**37.80**
74F158PC-ND	Quad 2-Input Multiplexer	16-Dip	1.05	12.50	42.00
74F160APC-ND	Synchronous Presettable BCD Decade Counter	16-Dip	1.41	16.75	56.28
74F161APC-ND	Synchronous Presettable 4-Bit Binary Counter	16-Dip	1.23	14.58	49.00
74F162APC-ND	Synchronous Presettable BCD Decade Counter	16-Dip	1.48	17.57	59.02
74F163APC-ND	Synchronous Presettable 4-Bit Binary Counter	16-Dip	1.23	14.58	49.00
74F169PC-ND	4-Stage Synchronous Bidirectional Counter	16-Dip	4.10	48.75	163.80
74F169SC-ND	**Up/Down Binary Counter**	**SO-16**	**4.10**	**48.75**	**163.80**
74F174PC-ND	Hex D Type Flip Flop	16-Dip	1.26	15.00	50.40
74F174SC-ND	**Hex D Type Flip Flop w/Reset**	**SO-16**	**1.26**	**15.00**	**50.40**
74F175PC-ND	Quad D Type Flip-Flop	16-Dip	.98	11.67	39.20
74F175SC-ND	**Quad D Type Flip-Flop**	**SO-16**	**.98**	**11.67**	**39.20**
74F181PC-ND	4-Bit Arithmetic Logic Unit	24-Dip	4.90	58.33	196.00
74F181SPC-ND	4-Bit Arithmetic Logic Unit	24-Dip	4.90	58.33	196.00
74F182PC-ND	Carry Lookahead Generator	16-Dip	2.80	33.33	112.00
74F189PC-ND	64-Bit Random Access Memory	16-Dip	9.63	114.58	385.00
74F189SC-ND	**64-Bit Random** Access Memory	**SO-16**	**9.63**	**114.58**	**385.00**
74F190PC-ND	Up/Down Decade Counter	16-Dip	12.25	145.83	490.00
74F191PC-ND	Up/Down Binary Counter	16-Dip	4.03	47.92	161.00
74F191SC-ND	**Up/Down Binary Counter**	**SO-16**	**4.03**	**47.92**	**161.00**
74F193PC-ND	Up/Down Binary Counter	16-Dip	7.00	83.33	280.00
74F194PC-ND	4-Bit Bidirectional Universal Shift Register	16-Dip	2.98	35.42	119.00
74F219PC-ND	64-Bit Random Access Memory	16-Dip	9.63	114.58	385.00
74F240PC-ND	Octal Buffer/Line Driver	20-Dip	1.19	14.17	47.60
74F240SC-ND	**Octal Inverter Bus Driver**	**SO-20**	**1.26**	**15.00**	**50.40**
74F241PC-ND	Octal Buffer/Line Driver	20-Dip	1.40	16.67	56.00
74F244PC-ND	Octal Buffer/Line Driver	20-Dip	1.19	14.17	47.60
74F244SC-ND	**Octal Buffer/Line Driver**	**SO-20**	**1.26**	**15.00**	**50.40**
74F245PC-ND	Octal Bi-Directional Transceiver	20-Dip	1.23	14.58	49.00
74F245SC-ND	**Octal Bi-Directional Transceiver**	**SO-20**	**1.30**	**15.42**	**51.80**
74F245SCX-ND	**Octal Bidirectional Transceiver w/ Tri-state Out**	**SO-20**		**507.00/1,000**	
74F251APC-ND	8-Input Multiplexer	16-Dip	1.05	12.50	42.00
74F253PC-ND	Dual 4-Input Multiplexer	16-Dip	.95	11.25	37.80
74F257ASC-ND	**Quad 2 Input Multiplexer w/ Tri-State Out**	**SO-16**	**.95**	**11.25**	**37.80**
74F257APC-ND	Quad 2 Input Multiplexer	16-Dip	.95	11.25	37.80
74F258APC-ND	Quad 2-Input Multiplexer	16-Dip	.95	11.25	37.80
74F269SC-ND	**8-Bit Up/Down Counter**	**SO-24**	**10.15**	**120.83**	**406.00**
74F269SPC-ND	8-Bit Up/Down Counter	24-Dip	10.15	120.83	406.00
74F273PC-ND	Octal D Type Flip-Flop	20-Dip	1.05	12.50	42.00
74F280PC-ND	9-Bit Parity Generator/Checker	14-Dip	.88	10.42	35.00
74F283PC-ND	4-Bit Binary Full Adder	16-Dip	1.75	20.83	70.00
74F299PC-ND	8-Input Universal Shift/Store Register	20-Dip	7.88	93.75	315.00
74F299SC-ND	**8-Input Universal Shift/Store Register**	**SO-20**	**7.88**	**93.75**	**315.00**
74F322PC-ND	8-Bit Serial/Parallel Register	20-Dip	12.60	150.00	504 00
74F323PC-ND	8-Bit Universal Shift/Storage Register	20-Dip	11.90	141.67	476.00
74F350PC-ND	4-Bit Shifter	16-Dip	2.52	30.00	100.80
74F352PC-ND	Dual 4-Input Multiplexer	16-Dip	1.02	12.08	40.60
74F353PC-ND	Dual 4-Input Multiplexer	16-Dip	.97	11.54	42.66
74F365PC-ND	Hex Buffer With Common Enable	16-Dip	2.10	25.00	84.00
74F366PC-ND	Hex Inverter With Common Enable	16-Dip	1.93	22.92	77.00
74F368PC-ND	Hex Inverter, 4-Bit + 2-Bit	16-Dip	1.93	22.92	77.00
74F373PC-ND	Octal Transparent Latch	20-Dip	1.19	14.17	47.60
74F373SC-ND	**Octal Transparent Latch**	**SO-20**	**1.26**	**15.00**	**50.40**
74F374PC-ND	Octal D Type Flip-Flop	20-Dip	1.19	14.17	47.60
74F374SC-ND	**Octal D Type Flip Flop**	**SO-20**	**1.26**	**15.00**	**50.40**
74F378PC-ND	Parallel D Register With Enable	16-Dip	2.98	35.42	119.00
74F379PC-ND	Parallel Register With Enable	16-Dip	2.10	25.00	84.00
74F381PC-ND	4-Bit Arithmetic Logic Unit	16-Dip	6.13	72.92	245.00
74F382PC-ND	4-Bit Arithmetic Logic Unit	20-Dip	9.10	108.33	364.00
74F385PC-ND	Quad Serial Adders/Subtracter	20-Dip	19.00	226.17	835.91
74F398PC-ND	Quad 2-Port Register	20-Dip	1.65	19.58	65.80
74F399PC-ND	Quad 2-Port Register	16-Dip	2.45	29.17	98.00
74F399SC-ND	**Quad 2-Port Register**	**SO-16**	**2.45**	**29.17**	**98.00**
74F401PC-ND	Cyclic Redundancy Generator/Checker	14-Dip	7.65	121.75	358.00
74F402PC-ND	Serial Data Polynomial Generator/Checker	16-Dip	7.65	121.75	358.00
74F407SPC-ND	Data Access Register	24-Dip	18.00	286.47	842.35
74F410SC-ND	**Register Stalk**	**SO-20**	**12.64**	**150.42**	**555.94**
74F413PC-ND	64x4 First-In First-Out Buffer Memory	16-Dip	43.75	447.50	1316.18
74F433SPC-ND	64x4 First-In First-Out w/ser p	24-Dip	64.75	662.50	1949.99
74F521PC-ND	8-Bit Identity Comparator	20-Dip	1.75	20.83	70.00
74F521SC-ND	**8-Bit Identity Comparator**	**SO-20**	**1.75**	**20.83**	**70.00**
74F524PC-ND	8-Bit Registered Comparator	20-Dip	20.13	239 58	805.00
74F524SC-ND	**8-Bit Registered Comparator**	**SO-20**	**20.13**	**239.58**	**805.00**
74F533PC-ND	Octal Transparent Latch	20-Dip	2.80	33.33	112.00
74F534PC-ND	Octal D Type Flip-Flop	20-Dip	2.38	28.33	95.20
74F537PC-ND	1-Of-10 Decoder	20-Dip	6.30	75.00	252.00
74F538PC-ND	1 of 8 Decoder with Tri-State Output	20-Dip	6.13	72.92	245.00
74F540PC-ND	Octal Buffer/Line Driver	20-Dip	8.05	95.83	322.00
74F540SC-ND	**Octal Buffer / Line Driver w/ Tri-State out**	**SO-20**	**8.05**	**95.83**	**322.00**
74F541PC-ND	Octal Buffer/Line Driver	20-Dip	5.25	62.50	210.00
74F541SC-ND	**Octal Buffer Line Driver**	**SO-20**	**5.25**	**62.50**	**210.00**
74F543PC-ND	Octal Registered Transceiver	24-Dip	4.38	52.08	175.00
74F543SC-ND	**Octal Registered Transceiver**	**SO-24**	**4.31**	**51.25**	**172.20**
74F543SPC-ND	Octal Registered Transceiver	24-Dip	4.03	47.92	161.00
74F544SC-ND	**Octal Registered Transceiver**	**SO-24**	**6.13**	**72.91**	**245.00**
74F544SPC-ND	Octal Registered Transceiver	24-Dip	6.13	72.92	245.00
74F545PC-ND	Octal Bidirectional Transceiver	20-Dip	10.85	129.17	434.00
74F548PC-ND	Octal Decoder/Demultiplexer	20-Dip	10.85	129.17	434.00
74F551PC-ND	Octal Registered Transceiver	28-Dip	13.69	162.92	602.14
74F552QC-ND	**Octal Bidirectional Transceiver**	**28-PLCC**	**16.63**	**197.91**	**665.00**
74F563PC-ND	Octal D Type Latch	20-Dip	5.46	65.00	218.40
74F564PC-ND	Octal D Type Flip-Flop	20-Dip	6.13	72.92	245.00
74F569PC-ND	4-Bit Binary Counter	20-Dip	6.62	78.75	264.60
74F569SC-ND	**4-Bit Binary Counter**	**SO-20**	**6.62**	**78.75**	**264.60**
74F573PC-ND	Octal D Type Latch	20-Dip	2.10	25.00	84.00
74F573SC-ND	**Octal D Type Latch**	**SO-20**	**2.10**	**25.00**	**84.00**
74F574PC-ND	Octal D Type Flip-Flop	20-Dip	2.10	25.00	84.00
74F574SC-ND	**Octal D Type Flip-Flop**	**SO-20**	**2.10**	**25.00**	**84.00**

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
74F579PC-ND	8-Bit Bi-Directional Counter	20-Dip	11.38	135.42	455.00
74F583PC-ND	4-Bit BCD Adder	16-Dip	13.48	160.42	539.00
74F588PC-ND	GPIB Compatible Octal Transceiver	20-Dip	11.52	137.08	506.66
74F620PC-ND	Invert Octal Transceiver	20-Dip	3.50	41.67	140.00
74F623PC-ND	Invert Octal Transceiver	20-Dip	6.48	77.08	259.00
74F632VC-ND	**32-Bit Detector w/ Correction**	**68-PLCC**	**105.00**	**1075.00**	**3159.99**
74F640PC-ND	Invert Octal Transceiver	20-Dip	5.25	62.50	210.00
74F646BSC-ND	**Octal Bus Transceiver**	**SO-24**	**8.75**	**104.16**	**350.00**
74F646BSPC-ND	Octal Bus Transceiver	24-Dip	8.75	104.16	350.00
74F646SC-ND	**Octal Bus Transceiver**	**SO-24**	**7.88**	**93.75**	**315.00**
74F646SPC-ND	Octal Bus Transceiver	24-Dip	7.88	93.75	315.00
74F652SC-ND	**Octal Bus Transceiver/Register**	**SO-24**	**11.38**	**135.41**	**455.00**
74F652SPC-ND	Octal Bus Transceiver/Register	24-Dip	11.38	135.42	455.00
74F657SC-ND	**Octal Transceiver With Parity**	**SO-24**	**8.93**	**106.25**	**357.00**
74F657SPC-ND	Octal Transceiver With Parity	24-Dip	8.93	106.25	357.00
74F673APC-ND	16-Bit Serial In, Serial/Parallel-Out Shift Reg	24-Dip	23.10	236.25	695.00
74F673ASC-ND	**16-Bit Shift Register-2**	**SO-24**	**23.10**	**236.25**	**695.00**
74F673ASPC-ND	16-Bit Shift Register-2	24-Dip	23.10	236.25	695.00
74F675APC-ND	16-Bit Serial In, Serial/Parallel-Out Shift Reg	24-Dip	21.00	215.00	635.00
74F675ASPC-ND	16-Bit Serial In, Serial/Parallel-Out Shift Reg	24-Dip	18.30	215.00	635.00
74F676PC-ND	16-Bit Serial/Parallel-In, Serial-Out Shift Reg	24-Dip	19.25	229.17	770.00
74F676SPC-ND	16-Bit Shift Register	24-Dip	19.25	229.17	770.00
74F779PC-ND	8-Bit Bi-Directional Counter	16-Dip	10.85	129.17	434.00
74F779SC-ND	**8-Bit Bi-Directional Counter**	**SO-16**	**10.85**	**129.17**	**434.00**
74F794PC-ND	Read Back Register	20-Dip	9.77	116.25	390.60
74F821SC-ND	**10-Bit D Type Flip-Flop**	**SO-20**	**6.65**	**79.17**	**266.00**
74F821SPC-ND	10-Bit D Type Flip-Flop	24-Dip	6.65	79.17	266.00
74F823SC-ND	**9-Bit D Type Flip-Flop**	**SO-24**	**6.65**	**79.17**	**266.00**
74F823SPC-ND	9-Bit D Type Flip-Flop	24-Dip	6.65	79.17	266.00
74F825SC-ND	**8-Bit Dual Flip-Flop**	**SO-24**	**6.65**	**79.17**	**266.00**
74F825SPC-ND	8-Bit D Type Flip-Flop	24-Dip	6.65	79.17	266.00
74F827SC-ND	**10-Bit Buffer/Line Driver**	**SO-24**	**6.65**	**79.17**	**266.00**
74F827SPC-ND	10-Bit Buffer/Line Driver	24-Dip	6.65	79.17	266.00
74F828SPC-ND	10-Bit Buffer/Line Driver	24-Dip	6.65	79.17	266.00
74F841SPC-ND	10-Bit Transparent Latch	24-Dip	6.65	79.17	266.00
74F843SPC-ND	9-Bit Transparent Latch	24-Dip	6.65	79.17	266.00
74F899QC-ND	**9-Bit Latch Transceiver w/ Parity Gen/Chk.**	**28-PLCC**	**24.68**	**293.74**	**987.00**
74F2244PC-ND	Octal Buffer w/25 Ω Series Res Outputs	20-Dip	2.28	27.08	91.00
74F2244SC-ND	**Octal Buffer w/25 Ω Series Res Outputs**	**SO-20**	**2.28**	**27.08**	**91.00**

★ Call for better pricing on larger quantities!

HARRIS

74HCT00

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
CD74HCT00E-ND	Quad 2-Input NAND Gate	14-Dip	.39	7.88	23.10
CD74HCT02E-ND	Quad 2-Input NOR Gate	14-Dip	.39	7.88	23.10
CD74HCT03E-ND	Quad 2-Input NAND Gate With Open Drain	14-Dip	.44	9.00	26.40
CD74HCT04E-ND	Hex Inverter/Buffer	14-Dip	.39	7.88	23.10
CD74HCT08E-ND	Quad 2-Input AND Gate	14-Dip	.39	7.88	23.10
CD74HCT10E-ND	Triple 3-Input NAND Gate	14-Dip	.39	7.88	23.10
CD74HCT11E-ND	Triple 3-Input AND Gate	14-Dip	.44	9.00	26.40
CD74HCT14E-ND	Hex Inverting Schmitt Trigger	14-Dip	.47	9.56	28.05
CD74HCT20E-ND	Dual 4-Input NAND Gate	14-Dip	.47	9.56	28.05
CD74HCT21E-ND	Dual 4-Input AND Gate	14-Dip	.47	9.56	28.05
CD74HCT30E-ND	8-Input NAND Gate	14-Dip	.39	7.88	23.10
CD74HCT32E-ND	Quad 2-Input OR Gate	14-Dip	.41	8.44	24.75
CD74HCT42E-ND	BCD-to-Decimal Decoder (1-to-10)	16-Dip	.72	14.63	42.90
CD74HCT73E-ND	Dual J-K Flip-Flop w/RESET	14-Dip	.44	9.00	26.40
CD74HCT74E-ND	Dual D Type Flip-Flop w/SET and RESET	14-Dip	.47	9.56	28.05
CD74HCT75E-ND	Dual 2-Bit Bistable Transparent Latch	16-Dip	.44	9.00	26.40
CD74HCT85E-ND	4-Bit Magnitude Comparator	16-Dip	.74	15.19	44.55
CD74HCT86E-ND	Quad 2-Input EXCLUSIVE-OR Gate	14-Dip	.52	10.69	31.35
CD74HCT93E-ND	4-Bit Binary Ripple Counter	14-Dip	.74	15.19	44.55
CD74HCT107E-ND	Dual J-K Flip-Flop w/RESET	14-Dip	.69	14.06	41.25
CD74HCT109E-ND	Dual J-Kz Flip-Flop w/SET and RESET	16-Dip	.52	10.69	31.35
CD74HCT112E-ND	Dual J-K Flip-Flop w/SET and RESET	16-Dip	.52	10.69	31.35
CD74HCT123E-ND	Dual Retrigg Monostable Multivibrator w/RESET	16-Dip	.80	16.31	47.85
CD74HCT125E-ND	Quad 3-State Buffer	14-Dip	.69	14.06	41.25
CD74HCT132E-ND	Quad 2-Input NAND Schmitt Trigger	14-Dip	.77	15.75	46.20
CD74HCT137E-ND	3-to-8 Line Decoder w/Latch, Inverting	16-Dip	.77	15.75	46.20
CD74HCT138E-ND	3-to-8 Line Decoder/Demultiplexer, Inverting	16-Dip	.55	11.25	33.00
CD74HCT139E-ND	Dual 2-of-4 Line Decoder/Demultiplexer	16-Dip	.69	14.06	41.25
CD74HCT147E-ND	10-to-4 Line-Priority Encoder	16-Dip	.83	16.88	49.50
CD74HCT151E-ND	8-Input Multiplexer	16-Dip	.63	12.94	37.95
CD74HCT153E-ND	Dual 4-Input Multiplexer	16-Dip	.63	12.94	37.95
CD74HCT154E-ND	4-to-16 Line Decoder/Demultiplexer	24-Dip	2.20	45.00	132.00
CD74HCT157E-ND	Quad 2-Input Multiplexer	16-Dip	.61	12.38	36.30
CD74HCT158E-ND	Quad 2-Input Multiplexer, Inverting	16-Dip	.61	12.38	36.30
CD74HCT160E-ND	Sync BCD Decade Counter, Async Reset	16-Dip	.74	15.19	44.55
CD74HCT161E-ND	Sync 4-Bit Binary Counter, Async Reset	16-Dip	.66	13.50	39.60
CD74HCT162E-ND	Sync BCD Decade Counter, Sync Reset	16-Dip	.74	15.19	44.55
CD74HCT164E-ND	8-Bit Serial-In Parallel-Out Shift Register	14-Dip	.69	14.06	41.25
CD74HCT165E-ND	8-Bit Parallel-In Serial-Out Shift Register	16-Dip	.69	14.06	41.25
CD74HCT166E-ND	8-Bit Parallel-In Serial-Out Shift Register	16-Dip	.83	16.88	49.50
CD74HCT173E-ND	Quad D Type Flip-Flop, 3-State	16-Dip	.77	15.75	46.20
CD74HCT174E-ND	Hex D Type Flip-Flop w/RESET	16-Dip	.61	12.38	36.30
CD74HCT175E-ND	Quad D Type Flip-Flop w/RESET	16-Dip	.55	11.25	33.00
CD74HCT181E-ND	4-Bit Arithmetic Logic Unit	24-Dip	2.04	41.63	122.10
CD74HCT182E-ND	Look-Ahead Carry Generator	16-Dip	.69	14.06	41.25
CD74HCT190E-ND	Presettable Sync BCD Decade Up/Down Counter	16-Dip	.77	15.75	46.20
CD74HCT191E-ND	Synchronous 4-Bit Binary Up/Down Counter	16-Dip	.88	18.00	52.80
CD74HCT192E-ND	Synchronous BCD Decade Up/Down Counter	16-Dip	.77	15.75	46.20
CD74HCT193E-ND	Synchronous 4-Bit Binary Up/Down Counter	16-Dip	.85	17.44	51.15
CD74HCT194E-ND	4-Bit Bidirectional Universal Shift Register	16-Dip	.80	16.31	47.85
CD74HCT195E-ND	4-Bit Parallel Access Shift Register	16-Dip	.80	16.31	47.85
CD74HCT221E-ND	Dual Monostable Multivibrator w/RESET	16-Dip	.83	16.88	49.50
CD74HCT238E-ND	3-to-8 Line Decoder/ Demultiplexer	16-Dip	.96	19.69	57.75
CD74HCT240E-ND	Octal Buffer Line Driver, 3-State Inverting	20-Dip	.83	16.88	49.50
CD74HCT241E-ND	Octal Buffer Line Driver, 3-State	20-Dip	.80	16.31	47.85
CD74HCT242E-ND	Quad-Bus Transceiver, 3-State Inverting	14-Dip	.85	17.44	51.15
CD74HCT243E-ND	Quad-Bus Transceiver, 3-State	14-Dip	.80	16.31	47.85
CD74HCT244E-ND	Octal-Buffer Line Driver, 3-State	20-Dip	.85	17.44	51.15
CD74HCT245E-ND	Octal-Bus Transceiver, 3-State	20-Dip	.85	17.44	51.15
CD74HCT251E-ND	8-Input Multiplexer, 3-State	16-Dip	.72	14.63	42.90

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
CD74HCT253E-ND	Dual 4-Input Multiplexer, 3-State	16-Dip	.72	14.63	42.90
CD74HCT257E-ND	Quad 2-Input Multiplex, 3-St, Non-Invert Out	16-Dip	72	14.63	42.90
CD74HCT258E-ND	Quad 2-Input Multiplex, 3-St, Invert Out	16-Dip	.72	14.63	42.90
CD74HCT259E-ND	8-Bit Addressable Latch	16-Dip	.85	17.44	51.15
CD74HCT273E-ND	Octal D Type Flip-Flop w/RESET	20-Dip	.83	16.88	49.50
CD74HCT280E-ND	9-Bit Odd/Even Parity Generator/Checker	14-Dip	.83	16.88	49.50
CD74HCT283E-ND	4-Bit Full Address w/Fast Carry	16-Dip	.83	16.88	49.50
CD74HCT299E-ND	8-Bit Universal Shift Regular, 3-State	20-Dip	1.32	27.00	79.20
CD74HCT354E-ND	8-Input Multiplexer/Register, 3-State	20-Dip	.99	20.25	59.40
CD74HCT356E-ND	8-Input Multiplexer/Register, 3-State	20-Dip	.99	20.25	59.40
CD74HCT365E-ND	Hex Buffer/Line Driver, 3-State	16-Dip	88	18.00	52.80
CD74HCT366E-ND	Hex Buffer/Line Driver, 3-State, Inverting	16-Dip	.83	16.88	49.50
CD74HCT367E-ND	Hex Buffer/Line Driver, 3-State	16-Dip	.83	16.88	49.50
CD74HCT368E-ND	Hex Buffer/Line Driver, 3-State, Inverting	16-Dip	.83	16.88	49.50
CD74HCT373E-ND	Octal Transparent Latch, 3-State	20-Dip	.83	16.88	49.50
CD74HCT374E-ND	Octal D Type Flip-Flop, 3-State	20-Dip	.83	16.88	49.50
CD74HCT377E-ND	Octal D Type Flip-Flop w/Data Enable	20-Dip	.99	20.25	59.40
CD74HCT390E-ND	Dual Decade Ripple Counter	16-Dip	.83	16.88	49.50
CD74HCT393E-ND	Dual 4-Bit Binary Ripple Counter	14-Dip	.83	16.88	49.50
CD74HCT423E-ND	Dual Retrigg Monostable Multivibrator w/Reset	16-Dip	.80	16.31	47.85
CD74HCT533E-ND	Octal Transparent Latch, 3-State, Inverting	20-Dip	1.05	21.38	62.70
CD74HCT534E-ND	Octal D Type Flip-Flop, 2-State, Inverting	20-Dip	1.05	21.38	62.70
CD74HCT540E-ND	Octal Buffer Line Driver, 3-State, Inverting	20-Dip	1.02	20.81	61.05
CD74HCT541E-ND	Octal Buffer Line Driver,3-State	20-Dip	1.05	21.38	62.70
CD74HCT563E-ND	Octal Transparent Latch, 3-State, Inverting	20-Dip	1.05	21.38	62.70
CD74HCT564E-ND	Octal D Type Flip-Flop, 3-State, Inverting	20-Dip	1.13	23.06	67.65
CD74HCT573E-ND	Octal Transparent Latch, 3-State	20-Dip	1.10	22.50	66.00
CD74HCT574E-ND	Octal D Type Flip-Flop, 3-State	20-Dip	1.05	21.38	62.70
CD74HCT583E-ND	4-Bit BCD Full Adder w/Fast Carry	16-Dip	.91	18.56	54.45
CD74HCT597E-ND	8-Bit Shift Register w/Input Storage	16-Dip	.96	19.69	57.75
CD74HCT640E-ND	Octal Bus Transceiver, 3-State, Inverting	20-Dip	1.27	25.88	75.90
CD74HCT643E-ND	Octal Bus Transceiver, 3-State, True/Inverting	20-Dip	1.27	25.88	75.90
CD74HCT646E-ND	Octal Bus Transceiver/Register, 3-State	24-Dip	4.07	83.25	244.20
CD74HCT648E-ND	Octal Bus Transceiver/Reg, 3-St, Inv	24-Dip	3.03	61.88	181.50
CD74HCT670E-ND	4x4 Register File, 3-State	16-Dip	1.07	21.94	64.35
CD74HCT688E-ND	8-Bit Magnitude Comparator	20-Dip	1.07	21.94	64.35
CD74HCT4002E-ND	Dual 4-Input NOR Gate	14-Dip	.44	9.00	26.40
CD74HCT4015E-ND	Dual 4-Stage Statis Shift Regulator	16-Dip	.91	18.56	54.45
CD74HCT4017E-ND	Decade Counter/Divider w/10 Decoded Outputs	16-Dip	.85	17.44	51.15
CD74HCT4020E-ND	14-Stage Binary Ripple Counter	16-Dip	.94	19.13	56.10
CD74HCT4040E-ND	12-Bit Binary Counter	16-Dip	.88	18.00	52.80
CD74HCT4051E-ND	8-Channel Analog Multiplexer/Demultiplexer	16-Dip	.99	20.25	59.40
CD74HCT4052E-ND	Dual 4-Channel Analog Multi/Demultiplexer	16-Dip	.96	19.69	57.75
CD74HCT4053E-ND	Triple 2-Ch Analog Multiplex/Demultiplexer	16-Dip	.99	20.25	59.40
CD74HCT4059E-ND	Programmable Divide by "N" Counter	24-Dip	2.45	50.06	146.85
CD74HCT4060E-ND	14-Stage Binary Counter w/Oscillator	16-Dip	.94	19.13	56.10
CD74HCT4066E-ND	Quad Bilateral Switch	14-Dip	.77	15.75	46.20
CD74HCT4075E-ND	Triple 3-Input OR Gate	14-Dip	.50	10.13	29.70
CD74HCT4094E-ND	8-Stage Shift-and-Store Bus Register	16-Dip	.80	16.31	47.85
CD74HCT4316E-ND	Quad Analog Switch	16-Dip	83	16.88	49.50
CD74HCT4351E-ND	Analog MUX w/Latch	20-Dip	1.05	21.38	62.70
CD74HCT4352E-ND	Analog MUX w/Latch	20-Dip	1.05	21.38	62.70
CD74HCT4353E-ND	Analog MUX w/Latch	20-Dip	.96	19.69	57.75
CD74HCT4510E-ND	Up/Down Counter,BCD	16-Dip	1.07	21.94	64.35
CD74HCT4511E-ND	BCD-to-7 Segment Latch/Decoder/Driver	16-Dip	.80	16.31	47.85
CD74HCT4514E-ND	4-to-16-Line Decoder/Demultiplexer w/In Latch	24-Dip	2.23	45.56	133.65
CD74HCT4515E-ND	4-to-16-Line Decoder w/Input Latches	24-Dip	2.23	45.56	133.65
CD74HCT4518E-ND	Dual Synchronous BCD Counter	16-Dip	.91	18.56	54.45
CD74HCT4520E-ND	Dual 4-Bit Synchronous Binary Counter	16-Dip	.96	19.69	57.75
CD74HCT4538E-ND	Dual Precision Monostable Multivibrator	16-Dip	1.05	21.38	62.70
CD74HCT4543E-ND	BCD-to-7-Seg Latch/Decoder/Driver for LCDs	16-Dip	.77	15.75	46.20
CD74HCT22106E-ND	8x8x1 Crosspoint Switch	28-Dip	6.16	126.00	369.60
CD74HCT40102E-ND	8-Bit Synchronous BCD Down Counter	16-Dip	1.07	21.94	64.35
CD74HCT40103E-ND	8-Bit Binary Down Counter	16-Dip	1.13	23.06	67.65
CD74HCT40105E-ND	4 Bits x 16 Words FIFO Register	16-Dip	1.18	24.19	70.95

★ *Call for better pricing on larger quantities!*

National Semiconductor — 4000 SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
CD4001BCM-ND	**Buffer Quad 2-Input NOR Gate**	**SO-14**	**.53**	**6.25**	**19.95**
CD4001BCN-ND	Quad 2-Input NOR Gate	14-Dip	53	6.25	19 95
CD4002BCN-ND	Dual 4-Input NOR Gate	14-Dip	.84	10.00	31.92
CD4006BCN-ND	18 Stage Shift Register	14-Dip	2.23	26.54	95.55
CD4007CM-ND	**Dual Complementary Pair Plus Invert.**	**SO-14**	**.70**	**8.33**	**26.60**
CD4007CN-ND	Dual Complementary Pair Plus Invert.	14-Dip	.70	8.33	26.60
CD4010CN-ND	Hex Buffer	16-Dip	1.58	18.75	59.85
CD4011BCM-ND	**Quad 2-Input NAND Gate**	**SO-14**	**.53**	**6.25**	**19.95**
CD4011BCN-ND	Quad 2-Input NAND Gate	14-Dip	53	6 25	19.95
CD4013BCM-ND	**Dual D Type Flip Flop**	**SO-14**	**.63**	**7.50**	**23.94**
CD4013BCN-ND	Dual D Type Flip Flop	14-Dip	.63	7.50	23.94
CD4014BCN-ND	8-Stage Shift Register	16-Dip	1.33	15 83	50 54
CD4015BCN-ND	Dual 4-Stage Shift Register	16-Dip	1.16	13.75	43.89
CD4016BCM-ND	**Quad Bilateral Switch**	**SO-14**	**.70**	**8.33**	**26.60**
CD4016BCN-ND	Quad Bilateral Switch	14-Dip	.70	8.33	26 60
CD4017BCM-ND	**Decade Counter/Divider**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4017BCN-ND	Decade Counter/Divider	16-Dip	1.16	13.75	43.89
CD4019BCN-ND	Quad AND/OR Select Gate	16-Dip	1.67	19.85	63.36
CD4020BCM-ND	**14 Stage Binary Counter**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4020BCN-ND	14 Stage Binary Counter	16-Dip	1.16	13.75	43.89
CD4021BCM-ND	**8 Stage Shift Register**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4021BCN-ND	8 Stage Shift Register	16-Dip	1.16	13.75	43.89
CD4022BCN-ND	Divide By 8 Counter/Decoder	16-Dip	1.16	13.75	43.89
CD4023BCN-ND	Triple 3-Input NAND Gate	14-Dip	.53	6.25	19.95
CD4024BCM-ND	**7-Bit Binary Counter**	**SO-14**	**.84**	**10.00**	**31.92**
CD4024BCN-ND	7 Stage Binary Counter	14-Dip	.84	10.00	31.92
CD4025BCN-ND	Triple 3-Input NOR Gate	14-Dip	.84	10.00	31.92
CD4027BCN-ND	Dual JK M/S Flip Flop	16-Dip	.70	8.33	26.60
CD4028BCN-ND	BCD-to-Decimal Decoder	16-Dip	2.10	25.00	79.80
CD4029BCN-ND	Preset. Up/Down BCD Binary Counter	16-Dip	1.16	13.75	43.89
CD4030CN-ND	Quad Exclusive OR Gate	14-Dip	1.31	15.60	49.80
CD4040BCM-ND	**12-Bit Bin Ripple Counter**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4040BCN-ND	12 Stage Binary Counter	16-Dip	1.16	13.75	43.89
CD4042BCN-ND	Quad D Type Latch	16-Dip	1.68	20 00	72.00
CD4043BCN-ND	Quad NOR R/S Latch	16-Dip	1.16	13.75	43.89
CD4044BCN-ND	Quad NAND R/S Latch	16-Dip	1.33	15.83	50.54
CD4046BCM-ND	**Micropower Phase Locked Loop**	**SO-16**	**1.40**	**16.67**	**53.20**
CD4046BCN-ND	Micropower Phase Locked Loop	16-Dip	1.40	16.67	53.20
CD4047BCM-ND	**Monostable Multivibrator**	**SO-14**	**1.58**	**18.75**	**59.85**
CD4047BCN-ND	Monostable Multivibrator	14-Dip	1.40	16.67	53.20
CD4048BCN-ND	Expandable 8-Input Gate	16-Dip	2.41	28.71	103.35
CD4049UBCM-ND	**Hex Inverting Buffer**	**SO-16**	**.70**	**8.33**	**26.60**
CD4050BCN-ND	Hex Buffer	16-Dip	.70	8.33	26.60
CD4051BCM-ND	**8 Channel Analog Mux/Demux**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4051BCN-ND	8 Channel Analog Mux/Demux	16-Dip	1.16	13.75	43.89
CD4052BCM-ND	**4 Channel Analog Mux/Demux**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4052BCN-ND	Differ. 4 Chan. Analog Mix/Demux	16-Dip	1.16	13.75	43.89
CD4053BCM-ND	**Triple 2 Channel Analog Mux/Demux**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4053BCN-ND	Triple 2 Channel Analog Mux/Demux	16-Dip	1.23	14.58	46.55
CD4060BCM-ND	**14-Bit Binary Counter/Oscillator**	**SO-16**	**1.16**	**13.75**	**43.89**
CD4060BCN-ND	14 Stage Binary Counter/Oscillator	16-Dip	1.16	13.75	43.89
CD4066BCM-ND	**Quad Bilateral Switch**	**SO-14**	**.77**	**9.17**	**29.26**
CD4066BCN-ND	Quad Bilateral Switch	14-Dip	.77	9.17	29.26
CD4069UBCM-ND	**Inverter Circuits**	**SO-14**	**.53**	**6.25**	**19.95**
CD4070BCM-ND	**Quad Exclusive OR Gate**	**SO-14**	**.63**	**7.50**	**23.94**
CD4070BCN-ND	Quad 2-Input Excl. OR Gate (4070B)	14-Dip	.84	10.00	31.92
CD4071BCN-ND	Quad 2-Input OR Gate	14-Dip	.53	6.25	19.95
CD4075BCN-ND	Triple 3-Input OR Gate	14-Dip	.70	8.33	26.60
CD4081BCN-ND	Quad 2-Input AND Gate	14-Dip	.53	6.25	19.95
CD4093BCM-ND	**Quad 2-Input NAND Schmitt Trigger**	**SO-14**	**.70**	**8.33**	**26.60**
CD4093BCN-ND	Quad 2-Input NAND Schmitt Trigger	14-Dip	.70	8.33	26.60
CD4094BCN-ND	8-Bit Shift Register w/Latch	16-Dip	.83	16.88	42.00
CD4099BCN-ND	8-Bit Addressable Latch	16-Dip	1.40	16.67	53.20
CD4503BCN-ND	Tri-State Hex Buffer	16-Dip	2.10	25.00	79.80
CD4510BCN-ND	BCD Up/Down Counter	16-Dip	2.41	28.71	103.35
CD4511BCN-ND	BCD-to- 7 Seg Latch/Decoder/Driver	16-Dip	1.33	15.83	50.54
CD4514BCN-ND	4-Bit Latch/4-to-16 Line Decoder	24-Dip	2.73	32.50	103.74
CD4515BCN-ND	4-Bit Latch/4-to-16 Line Decoder	24-Dip	2.73	32.50	103.74
CD4516BCN-ND	Binary Up/Down Counter	16-Dip	1.68	20.00	63.84
CD4518BCN-ND	Dual BCD Up Counter	16-Dip	2.02	24.00	86.40
CD4519BCN-ND	4-Bit AND-OR Selector	16-Dip	1.87	22.21	79.95
CD4520BCN-ND	Dual Binary Up Counter	16-Dip	1.16	13.75	43.89
CD4526BCN-ND	Binary Divide By N Counter	16-Dip	2.10	25.00	79.80
CD4528BCN-ND	Dual Monostable Multivibrator	16-Dip	1.47	17.50	55.86
CD4529BCN-ND	Dual 4/Single 8 Channel Data Selector	16-Dip	2.10	25.00	79.80
CD4538BCN-ND	Monostable Multivibrator	16-Dip	1.58	18.75	59.85
CD4541BCN-ND	Programmable Timer	14-Dip	1.23	14.58	46.55
CD4723BCN-ND	Dual 4-Bit Addressable Latch	16-Dip	2.28	27.08	97.50
CD4724BCN-ND	8-Bit Addressable Latch	16-Dip	1.75	20.83	66.50
CD40106BCN-ND	Hex Schmitt Trigger ***NEW!***	14-Dip	.88	10.42	33.25
CD40174BCN-ND	Hex D Type Flip Flop	16-Dip	1.16	13.75	43.89
CD40175BCN-ND	Quad D Type Flip Flop	16-Dip	1.16	13.75	43.89
CD40192BCN-ND	Up/Down Decade Counter ***NEW!***	16-Dip	1.58	18.75	59.85
CD40193BCN-ND	Binary Up/Down Counter	16-Dip	1.72	20.42	65.17

★ *Call for better pricing on larger quantities!*

HARRIS — 4000 SERIES CMOS

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
CD4001BE-ND	Quad 2-Input NOR Gate	14-Dip	.42	8.75	23.10
CD4002BE-ND	Dual 4-Input NOR Gate	14-Dip	.45	9.38	24.75
CD4006BE-ND	18 Stage Shift Register	14-Dip	1.05	21.88	57.75
CD4008BE-ND	4-Bit Full Adder	16-Dip	1.05	21.88	57.75
CD4009UBE-ND	Hex Inverter Buffer	16-Dip	.83	17 19	45.38
CD4010BE-ND	Hex Buffer	16-Dip	.78	16.25	42.90
CD4011BE-ND	Quad 2-Input NAND Gate	14-Dip	.45	9.38	24.75
CD4012BE-ND	Dual 4-Input NAND Gate	14-Dip	.42	8.75	23.10
CD4013BE-ND	Dual D Type Flip-Flop	14-Dip	.48	10.00	26.40
CD4014BE-ND	8-Stage Shift Register	16-Dip	1.14	23.75	62.70
CD4015BE-ND	Dual 4-Stg Shift Register	16-Dip	1.02	21.25	56.10
CD4016BE-ND	Quad Bilateral Switch	14-Dip	.54	11.25	29.70
CD4017BE-ND	Decade Counter/Divider	16-Dip	1.02	21.25	56 10
CD4018BE-ND	Preset Divide by N Counter	16-Dip	1.14	23.75	62.70
CD4019BE-ND	Quad And/Or Select Gate	16-Dip	.45	9.38	24.75
CD4020BE-ND	14-Stage Binary Counter	16-Dip	.99	20.63	54.45
CD4021BE-ND	8-Stage Shift Register	16-Dip	.99	20.63	54.45
CD4022BE-ND	Divide By 8 Count/Decoder	16-Dip	.99	20.63	54.45
CD4023BE-ND	Triple 3-Input NAND Gate	14-Dip	.45	9.38	24.75
CD4024BE-ND	7 Stage Binary Counter	14-Dip	.72	15.00	39.60
CD4025BE-ND	Triple 3-Input NOR Gate	14-Dip	.44	9.06	23.93
CD4027BE-ND	Dual JK M/S Flip Flop	16-Dip	.54	11.25	29.70
CD4028BE-ND	BCD-to-Decimal Decoder	16-Dip	.99	20.63	54.45
CD4029BE-ND	Preset Up/Down Binary Count	16-Dip	.99	20.63	54.45
CD4030BE-ND	Quad Exclusive OR Gate	14-Dip	.60	12.50	33.00
CD4031BE-ND	64 Bit Static Shift Register	16-Dip	1.83	38.13	100.65
CD4034BE-ND	8 Stage Bidirectional Register	24-Dip	4.65	96.88	255.75
CD4035BE-ND	4 Stage Shift Register	16-Dip	1.08	22.50	59.40
CD4040BE-ND	12 Stage Binary Counter	16-Dip	.99	20.63	54.45
CD4041UBE-ND	Quad Buffer	14-Dip	1.71	35.63	94.05
CD4042BE-ND	Quad D Latch	16-Dip	.75	15.63	41.25
CD4043BE-ND	Quad NOR R/S Latch	16-Dip	.99	20.63	54.45
CD4044BE-ND	Quad NAND R/S Latch	16-Dip	.99	20.63	54.45
CD4046BE-ND	Micropower Phase Lock Loop	16-Dip	1.14	23.75	62.70
CD4047BE-ND	Monostable Multivibrator	14-Dip	1.02	21.25	56.10
CD4048BE-ND	Expandable 8-Input Gate	16-Dip	.77	15.94	42.08
CD4049UBE-ND	Hex Inverting Buffer	16-Dip	.54	11.25	29.70
CD4050BE-ND	Hex Buffer	16-Dip	.60	12.50	33.00
CD4051BE-ND	8 Ch. Analog Mux/Demux	16-Dip	.84	17.50	46.20
CD4052BE-ND	4 Ch. Analog Mux/Demux	16-Dip	.84	17.50	46.20
CD4053BE-ND	Triple 2 Ch. Analog	16-Dip	.84	17.50	46.20
CD4060BE-ND	14 Stage Binary Counter	16-Dip	.96	20.00	52.80
CD4066BE-ND	Quad Bilateral Switch	14-Dip	.60	12.50	33.00
CD4071BE-ND	Quad 2-Input OR Gate	14-Dip	.45	9.38	24.75
CD4072BE-ND	Dual 4-Input Buffed Gate	14-Dip	.45	9.38	24.75
CD4073BE-ND	Triple 3-Input And Gate	14-Dip	.42	8.75	23.10
CD4075BE-ND	Triple 3-Input OR Gate	14-Dip	.42	8.75	23.10
CD4081BE-ND	Quad 2-Input And Gate	14-Dip	.45	9.38	24.75
CD4082BE-ND	Dual 4-Input And Gate	14-Dip	.45	9.38	24.75
CD4089BE-ND	Binary Rate Multiplier	16-Dip	1.56	32.50	85.80

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
CD4093BE-ND	Quad 2-Input NAND Trigger	14-Dip	.57	11.88	31.35
CD4094BE-ND	8-Bit Shift Reg. w/Latch	16-Dip	.90	18.75	49.50
CD4099BE-ND	8-Bit Addressable Latch	16-Dip	1.14	23.75	62.70
CD4502BE-ND	Strobed Hex Inverter/Buffer	16-Dip	1.05	21.88	57.75
CD4503BE-ND	Tri-State Hex Buffer	16-Dip	.87	18.13	47.85
CD4510BE-ND	BCD Up/Down Counter	16-Dip	1.17	24.38	64.35
CD4511BE-ND	BCD T Sig Latch/Decod/Driver	16-Dip	1.14	23.75	62.70
CD4512BE-ND	8 Ch. Data Selector	16-Dip	1.05	21.88	57.75
CD4514BE-ND	4-Bit Latch/Line Decoder	24-Dip	2.55	53.13	140.25
CD4515BE-ND	4-Bit Latch/Line Decoder	24-Dip	2.70	56.25	148.50
CD4516BE-ND	Binary Up/Down Counter	16-Dip	1.11	23.13	61.05
CD4518BE-ND	Dual BCD Up Counter	16-Dip	1.14	23.75	62.70
CD4520BE-ND	Dual Binary Up Counter	16-Dip	1.05	21.88	57.75
CD4522BE-ND	Divide by N Counter BCD	16-Dip	1.44	30.00	79.20
CD4527BE-ND	BCD Rate Multiplier	16-Dip	1.22	25.31	66.83
CD4529BE-ND	Dual 4 Sig 8 Ch. Data Select	16-Dip	1.65	34.38	90.75
CD4541BE-ND	Programmable Timer	14-Dip	1.02	21.25	56.10
CD4543BE-ND	BCD to 7 Segment Decoder Driver	16-Dip	1.02	21.25	56.10
CD4556BE-ND	Dual Binary to 1 of 4 Decoder/Demux	16-Dip	1.02	21.25	56.10
CD4585BE-ND	4-Bit Magnitude Comparator	16-Dip	1.14	23.75	62.70
CD4724BE-ND	8-Bit Addressable Latch	16-Dip	1.47	30.63	80.85
CD40160BE-ND	Sync Programmable 4-Bit Decode Counter	16-Dip	1.13	23.44	61.88
CD40161BE-ND	Sync Programmable 4-Bit Binary Counter	16-Dip	1.02	21.25	56.10

★ *Call for better pricing on larger quantities!*

PERICOM

NEW! FCT LOGIC STANDARD 5 VOLT

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
PI29FCT52ATQ-ND	Octal Registered Transceiver ***NEW!***	24-QSOP	2.66	60.75	221.00
PI29FCT52ATS-ND	Octal Registered Transceiver ***NEW!***	20-SOIC	2.66	60.75	221.00
PI74FCT132ATW-ND	Quad 2 Input NAND Schmitt ***NEW!***	14-SOIC	2.02	46.00	167.00
PI74FCT240ATQ-ND	Inverting Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.27	29.00	105.00
PI74FCT240ATS-ND	Inverting Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.27	29.00	105.00
PI74FCT241ATQ-ND	Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.21	27.50	100.00
PI74FCT241ATS-ND	Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.21	27.50	100.00
PI74FCT244ATQ-ND	Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.18	26.75	98.00
PI74FCT244ATS-ND	Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.18	26.75	98.00
PI74FCT245ATQ-ND	Octal Bidirectional Transceiver ***NEW!***	20-QSOP	1.18	26.75	98.00
PI74FCT245ATS-ND	Octal Bidirectional Transceiver ***NEW!***	20-SOIC	1.18	26.75	98.00
PI74FCT253ATQ-ND	Dual 4-Input Multiplexer ***NEW!***	16-QSOP	1.53	34.75	129.00
PI74FCT253ATS-ND	Dual 4-Input Multiplexer ***NEW!***	16-SOIC	1.53	34.75	126.00
PI74FCT257ATQ-ND	Quad 2-Input Multiplexer ***NEW!***	16-QSOP	1.53	34.75	126.00
PI74FCT257ATS-ND	Quad 2-Input Multiplexer ***NEW!***	16-SOIC	1.53	34.75	127.00
PI74FCT273ATQ-ND	Octal D Flip-Flop w/ Reset ***NEW!***	20-QSOP	1.34	30.50	111.00
PI74FCT273ATS-ND	Octal D Flip-Flop w/ Reset ***NEW!***	20-SOIC	1.34	30.50	111.00
PI74FCT373ATQ-ND	Octal Transparent Latch ***NEW!***	20-QSOP	1.26	28.75	104.00
PI74FCT373ATS-ND	Octal Transparent Latch ***NEW!***	20-SOIC	1.26	28.75	104.00
PI74FCT374ATQ-ND	Octal D Register (Tri-State) ***NEW!***	20-QSOP	1.26	28.75	104.00
PI74FCT374ATS-ND	Octal D Register (Tri-State) ***NEW!***	20-SOIC	1.26	28.75	104.00
PI74FCT377ATQ-ND	Octal D Flip-Flop w/Clock Enable ***NEW!***	20-QSOP	1.69	38.50	140.00
PI74FCT377ATS-ND	Octal D Flip-Flop w/Clock Enable ***NEW!***	20-SOIC	1.69	38.50	140.00
PI74FCT541ATQ-ND	Non-Inv. Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.69	38.50	140.00
PI74FCT541ATS-ND	Non-Inv. Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.69	38.50	140.00
PI74FCT543ATQ-ND	Non-Inv. Octal Latched Transceiver ***NEW!***	24-QSOP	1.95	44.25	161.00
PI74FCT543ATS-ND	Non-Inv. Octal Latched Transceiver ***NEW!***	24-SOIC	1.95	44.25	161.00
PI74FCT573ATQ-ND	Octal Transparent Latch w/Tri-State ***NEW!***	20-QSOP	1.21	27.50	100.00
PI74FCT573ATS-ND	Octal Transparent Latch w/Tri-State ***NEW!***	20-SOIC	1.21	27.50	100.00
PI74FCT574ATQ-ND	Octal D Register (Tri-State) ***NEW!***	20-QSOP	1.21	27.50	100.00
PI74FCT574ATS-ND	Octal D Register (Tri-State) ***NEW!***	20-SOIC	1.21	27.50	100.00
PI74FCT646ATQ-ND	Octal Registered Transceiver ***NEW!***	24-QSOP	2.46	56.00	204.00
PI74FCT646ATS-ND	Octal Registered Transceiver ***NEW!***	24-SOIC	2.46	56.00	204.00
PI74FCT652ATQ-ND	Inverting Octal Registered Transceiver ***NEW!***	24-QSOP	2.58	58.75	213.00
PI74FCT652ATS-ND	Inverting Octal Registered Transceiver ***NEW!***	24-SOIC	2.58	58.75	213.00
PI74FCT821ATQ-ND	10-Bit Register (Tri-State) ***NEW!***	24-QSOP	1.86	42.25	154.00
PI74FCT821ATS-ND	10-Bit Register (Tri-State) ***NEW!***	24-SOIC	1.86	42.25	154.00
PI74FCT823ATQ-ND	9-Bit Register w/Clear and Tri-State ***NEW!***	24-QSOP	1.86	42.25	154.00
PI74FCT823ATS-ND	9-Bit Register w/Clear and Tri-State ***NEW!***	24-SOIC	1.86	42.25	154.00
PI74FCT827ATQ-ND	10-Bit Buffer ***NEW!***	24-QSOP	1.86	42.25	154.00
PI74FCT827ATS-ND	10-Bit Buffer ***NEW!***	24-SOIC	1.86	42.25	154.00
PI74FCT828ATQ-ND	10-Bit Inverting Buffer ***NEW!***	24-QSOP	1.86	42.25	154.00
PI74FCT828ATS-ND	10-Bit Inverting Buffer ***NEW!***	24-SOIC	1.86	42.25	154.00
PI74FCT861ATQ-ND	10-Bit Transceiver ***NEW!***	24-QSOP	2.02	46.00	167.00
PI74FCT863ATQ-ND	9-Bit Transceiver ***NEW!***	24-QSOP	2.02	46.00	167.00

★ *Call for better pricing on larger quantities!*

PERICOM

NEW! STANDARD 5 VOLT FCT WITH 25 OHM SERIES OUTPUT RESISTOR

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
PI74FCT2153ATQ-ND	Dual 4-Input Multiplexer ***NEW!***	16-QSOP	1.45	33.00	120.00
PI74FCT2157ATQ-ND	Quad 2-Input Multiplexer ***NEW!***	16-QSOP	1.53	34.75	126.00
PI74FCT2240ATQ-ND	Inverting Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.27	29.00	105.00
PI74FCT2241ATQ-ND	Inverting Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.21	27.50	100.00
PI74FCT2241ATS-ND	Inverting Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.21	27.50	100.00
PI74FCT2244ATQ-ND	Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.18	26.75	98.00
PI74FCT2244ATS-ND	Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.18	26.75	98.00
PI74FCT2245ATQ-ND	Octal Bidirectional Transceiver ***NEW!***	20-QSOP	1.18	26.75	98.00
PI74FCT2245ATS-ND	Octal Bidirectional Transceiver ***NEW!***	20-SOIC	1.18	26.75	98.00
PI74FCT2253ATQ-ND	Dual 4-Input Multiplexer ***NEW!***	16-QSOP	1.53	34.75	126.00
PI74FCT2257ATQ-ND	Quad 2-Input Multiplexer ***NEW!***	16-QSOP	1.53	34.75	126.00
PI74FCT2273ATQ-ND	Octal D Flip-Flop ***NEW!***	20-QSOP	1.34	30.50	111.00
PI74FCT2373ATQ-ND	Octal Transparent Latch ***NEW!***	20-QSOP	1.26	28.75	104.00
PI74FCT2374ATQ-ND	Octal D Register ***NEW!***	20-QSOP	1.26	28.75	104.00
PI74FCT2541ATQ-ND	Non-Inv. Octal Latched Transceiver ***NEW!***	20-QSOP	1.69	38.50	140.00
PI74FCT2543ATQ-ND	Non-Inv. Octal Latched Transceiver ***NEW!***	24-QSOP	1.95	44.25	161.00
PI74FCT2573ATQ-ND	Octal Transparent Latch ***NEW!***	20-QSOP	1.21	27.50	100.00
PI74FCT2646ATQ-ND	Octal Registered Transceiver ***NEW!***	24-QSOP	2.46	56.00	204.00
PI74FCT2652ATQ-ND	Octal Registered Transceiver ***NEW!***	24-QSOP	2.58	58.75	213.00
PI74FCT2821ATQ-ND	Bus Interface Register ***NEW!***	24-QSOP	1.86	42.25	154.00
PI74FCT2827ATQ-ND	10-Bit Buffer ***NEW!***	24-QSOP	1.86	42.25	154.00

★ *Call for better pricing on larger quantities!*

PERICOM

NEW! DOUBLE DENSITY STANDARD 5 VOLT FCT LOGIC

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
PI74FCT16240ATA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	2.75	62.75	228.00
PI74FCT16240ATV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.50	57.00	207.00
PI74FCT16245ATA-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-TSSOP	2.75	62.75	228.00
PI74FCT16245ATV-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-SSOP	2.50	57.00	207.00
PI74FCT16373ATA-ND	16-Bit Transparent Latch ***NEW!***	48-TSSOP	2.84	64.75	235.00
PI74FCT16373ATV-ND	16-Bit Transparent Latch ***NEW!***	48-SSOP	2.58	58.75	214.00
PI74FCT16374ATA-ND	16-Bit Register ***NEW!***	48-TSSOP	2.84	64.75	235.00
PI74FCT16374ATV-ND	16-Bit Register ***NEW!***	48-SSOP	2.58	58.75	214.00
PI74FCT16500ATA-ND	18-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.35	99.00	360.00
PI74FCT16501ATA-ND	18-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT16501ATV-ND	18-Bit Registered Transceiver ***NEW!***	56-SSOP	3.71	84.50	308.00
PI74FCT16541ATA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	3.11	70.75	257.00
PI74FCT16541ATV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.82	64.25	234.00
PI74FCT16543ATA-ND	16-Bit Latched Transceiver ***NEW!***	56-TSSOP	4.51	102.75	374.00
PI74FCT16543ATV-ND	16-Bit Latched Transceiver ***NEW!***	56-SSOP	4.10	93.50	340.00
PI74FCT16646ATA-ND	16-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.51	102.75	374.00
PI74FCT16646ATV-ND	16-Bit Registered Transceiver ***NEW!***	56-SSOP	3.39	77.25	281.00
PI74FCT16652ATA-ND	16-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.83	110.00	400.00
PI74FCT16652ATV-ND	16-Bit Registered Transceiver ***NEW!***	56-SSOP	4.39	100.00	364.00
PI74FCT16823ATA-ND	18-Bit Register ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT16823ATV-ND	18-Bit Register ***NEW!***	56-SSOP	3.71	84.50	308.00
PI74FCT16827ATA-ND	20-Bit Buffer ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT16827ATV-ND	20-Bit Buffer ***NEW!***	56-SSOP	3.71	84.50	308.00
PI74FCT16841ATA-ND	20-Bit Transparent Latch ***NEW!***	56-TSSOP	4.26	97.00	353.00
PI74FCT16841ATV-ND	20-Bit Transparent Latch ***NEW!***	56-SSOP	3.87	88.25	321.00
PI74FCT16952ATA-ND	16-Bit Non-Inv. Registered Transceiver ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT16952ATV-ND	16-Bit Non-Inv. Registered Transceiver ***NEW!***	56-SSOP	3.71	84.50	308.00

★ *Call for better pricing on larger quantities!*

PERICOM

NEW! DOUBLE DENSITY 3.3 VOLT FCT LOGIC

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
PI74FCT163244AA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	2.95	69.00	235.00
PI74FCT163244AV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.59	60.50	206.00
PI74FCT163245AA-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-TSSOP	2.95	69.00	235.00
PI74FCT163245AV-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-SSOP	2.59	60.50	206.00
PI74FCT163374AA-ND	16-Bit Octal Register ***NEW!***	48-TSSOP	2.95	69.00	235.00
PI74FCT163374AV-ND	16-Bit Octal Register ***NEW!***	48-SSOP	2.59	60.50	206.00

★ *Call for better pricing on larger quantities!*

PERICOM

NEW! DOUBLE DENSITY STANDARD 5V LOGIC WITH BALANCED OUTPUT DRIVE

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
PI74FCT162240ATA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	2.75	62.75	228.00
PI74FCT162240ATV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.50	57.00	207.00
PI74FCT162244ATA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	2.75	62.75	228.00
PI74FCT162244ATV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.50	57.00	207.00
PI74FCT162245ATA-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-TSSOP	2.75	62.75	228.00
PI74FCT162245ATV-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-SSOP	2.50	57.00	207.00
PI74FCT162373ATA-ND	16-Bit Transparent Latch ***NEW!***	48-TSSOP	2.84	64.75	235.00
PI74FCT162373ATV-ND	16-Bit Transparent Latch ***NEW!***	48-SSOP	2.58	58.75	214.00
PI74FCT162374ATA-ND	16-Bit Register ***NEW!***	48-TSSOP	2.84	64.75	235.00
PI74FCT162374ATV-ND	16-Bit Register ***NEW!***	48-SSOP	2.58	58.75	214.00
PI74FCT162500ATA-ND	18-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.35	99.00	360.00
PI74FCT162500ATV-ND	18-Bit Registered Transceiver ***NEW!***	56-SSOP	3.95	90.00	328.00
PI74FCT162501ATA-ND	18-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT162501ATV-ND	18-Bit Registered Transceiver ***NEW!***	56-SSOP	3.71	84.50	308.00
PI74FCT162540ATA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	3.20	72.75	265.00
PI74FCT162540ATV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.91	66.25	241.00
PI74FCT162541ATA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	3.20	72.75	265.00
PI74FCT162541ATV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.91	66.25	241.00
PI74FCT162543ATA-ND	16-Bit Latched Transceiver ***NEW!***	56-TSSOP	4.51	102.75	374.00
PI74FCT162543ATV-ND	16-Bit Latched Transceiver ***NEW!***	56-SSOP	4.10	93.50	340.00
PI74FCT162646ATA-ND	16-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.51	102.75	374.00
PI74FCT162646ATV-ND	16-Bit Registered Transceiver ***NEW!***	56-SSOP	4.10	93.50	340.00
PI74FCT162652ATA-ND	16-Bit Registered Transceiver ***NEW!***	56-TSSOP	4.83	110.00	400.00
PI74FCT162652ATV-ND	16-Bit Registered Transceiver ***NEW!***	56-SSOP	4.39	100.00	364.00
PI74FCT162823ATA-ND	18-Bit Register ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT162823ATV-ND	18-Bit Register ***NEW!***	56-SSOP	3.71	84.50	308.00
PI74FCT162827ATA-ND	20-Bit Buffer ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT162827ATV-ND	20-Bit Buffer ***NEW!***	56-SSOP	3.71	84.50	308.00
PI74FCT162841ATA-ND	20-Bit Transparent Latch ***NEW!***	56-TSSOP	4.26	97.00	353.00
PI74FCT162841ATV-ND	20-Bit Transparent Latch ***NEW!***	56-SSOP	3.87	88.25	321.00
PI74FCT162952ATA-ND	16-Bit Non-Inv. Registered Transceiver ***NEW!***	56-TSSOP	4.08	93.00	338.00
PI74FCT162952ATV-ND	16-Bit Non-Inv. Registered Transceiver ***NEW!***	56-SSOP	3.71	84.50	308.00

★ *Call for better pricing on larger quantities!*

PERICOM

NEW! STANDARD 3.3 VOLT LOGIC WITH 5 VOLT TOLERANT I/O

Digi-Key				Pricing★	
Part No.	Description	Pkg.	1	25	100
PI74LPT244AQ-ND	Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.53	35.50	121.00
PI74LPT244AS-ND	Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.53	35.50	121.00
PI74LPT245AQ-ND	Octal Bidirectional Transceiver ***NEW!***	20-QSOP	1.53	35.50	121.00
PI74LPT245AS-ND	Octal Bidirectional Transceiver ***NEW!***	20-SOIC	1.53	35.50	121.00
PI74LPT373AQ-ND	Octal Transparent Latch ***NEW!***	20-QSOP	1.53	35.50	121.00
PI74LPT373AS-ND	Octal Transparent Latch ***NEW!***	20-SOIC	1.53	35.50	121.00
PI74LPT541AQ-ND	Non-Inverting Octal Buffer/Line Driver ***NEW!***	20-QSOP	1.53	35.50	121.00
PI74LPT541AS-ND	Non-Inverting Octal Buffer/Line Driver ***NEW!***	20-SOIC	1.53	35.50	121.00
PI74LPT573AQ-ND	Octal Transparent Latch w/Tri-State ***NEW!***	20-QSOP	1.53	35.50	121.00
PI74LPT573AS-ND	Octal Transparent Latch w/Tri-State ***NEW!***	20-SOIC	1.53	35.50	121.00

★ *Call for better pricing on larger quantities!*

PERICOM — NEW! DOUBLE DENSITY 3.3 VOLT LOGIC WITH 5 VOLT TOLERANT I/O

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
PI74LPT16240AA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	2.56	60.00	205.00
PI74LPT16240AV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.25	52.75	179.00
PI74LPT16244AA-ND	16-Bit Buffer/Line Driver ***NEW!***	48-TSSOP	2.56	60.00	205.00
PI74LPT16244AV-ND	16-Bit Buffer/Line Driver ***NEW!***	48-SSOP	2.25	52.75	179.00
PI74LPT16245AA-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-TSSOP	2.56	60.00	205.00
PI74LPT16245AV-ND	16-Bit Bidirectional Transceiver ***NEW!***	48-SSOP	2.25	52.75	179.00
PI74LPT16373AA-ND	16-Bit Transparent Latch ***NEW!***	48-TSSOP	2.56	60.00	205.00
PI74LPT16373AV-ND	16-Bit Transparent Latch ***NEW!***	48-SSOP	2.25	52.75	179.00
PI74LPT16374AA-ND	16-Bit Octal Register ***NEW!***	48-TSSOP	2.56	60.00	205.00
PI74LPT16374AV-ND	16-Bit Octal Register ***NEW!***	48-SSOP	2.25	52.75	179.00
PI74LPT16501AA-ND	18-Bit Registered Transceiver ***NEW!***	56-TSSOP	3.67	86.00	293.00
PI74LPT16501AV-ND	18-Bit Registered Transceiver ***NEW!***	56-SSOP	3.34	78.25	266.00
PI74LPT16543AA-ND	16-Bit Latched Transceiver ***NEW!***	56-TSSOP	3.67	86.00	293.00
PI74LPT16543AV-ND	16-Bit Latched Transceiver ***NEW!***	56-SSOP	3.34	78.25	266.00
PI74LPT16646AA-ND	16-Bit Registered Transceiver ***NEW!***	56-TSSOP	3.67	86.00	293.00
PI74LPT16646AV-ND	16-Bit Registered Transceiver ***NEW!***	56-SSOP	3.34	78.25	266.00
PI74LPT16827AA-ND	20-Bit Buffer ***NEW!***	56-TSSOP	3.34	78.25	266.00
PI74LPT16827AV-ND	20-Bit Buffer ***NEW!***	56-SSOP	3.03	71.00	242.00
PI74LPT16952AA-ND	16-Bit Non-Inv. Registered Transceiver ***NEW!***	56-TSSOP	3.34	78.25	266.00
PI74LPT16952AV-ND	16-Bit Non-Inv. Registered Transceiver ***NEW!***	56-SSOP	3.03	71.00	242.00

★ Call for better pricing on larger quantities!

PERICOM — NEW! BUS SWITCH PRODUCTS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
PI5C3125Q-ND	Quad Bus Switch with Individual Enable ***NEW!***	16-QSOP	2.13	41.75	136.00
PI5C32384Q-ND	10 Bit, 2 Port Bus Switch w/Internal Res ***NEW!***	24-QSOP	2.05	40.00	131.00
PI5C32384S-ND	10 Bit, 2 Port Bus Switch w/Internal Res ***NEW!***	24-SOIC	2.05	40.00	131.00
PI5C3244Q-ND	8 Bit, 2 Port Bus Switch (FCT244 Pinout) ***NEW!***	20-QSOP	2.01	39.25	128.00
PI5C3244S-ND	8 Bit, 2 Port Bus Switch (FCT244 Pinout) ***NEW!***	20-SOIC	2.01	39.25	128.00
PI5C3245Q-ND	8 Bit, 2 Port Bus Switch (FCT245 Pinout) ***NEW!***	20-QSOP	2.01	39.25	128.00
PI5C3245S-ND	8 Bit, 2 Port Bus Switch (FCT245 Pinout) ***NEW!***	20-SOIC	2.01	39.25	128.00
PI5C3251Q-ND	8:1 Mux/Demux Bus Switch ***NEW!***	16-QSOP	2.21	43.25	141.00
PI5C3253Q-ND	Dual 4:1 Mux/Demux Bus Switch ***NEW!***	16-QSOP	2.21	43.25	141.00
PI5C3257Q-ND	Quad 2:1 Mux/Demux Bus Switch ***NEW!***	16-QSOP	2.21	43.25	141.00
PI5C3257S-ND	Quad 2:1 Mux/Demux Bus Switch ***NEW!***	16-SOIC	2.21	43.25	141.00
PI5C3384Q-ND	10 Bit, 2 Port Bus Switch ***NEW!***	24-QSOP	2.05	40.00	131.00
PI5C3384S-ND	10 Bit, 2 Port Bus Switch ***NEW!***	24-SOIC	2.05	40.00	131.00
PI5C3400Q-ND	4 Bit, 4 Port Bus Switch ***NEW!***	24-QSOP	2.61	51.00	166.00
PI5C3400S-ND	4 Bit, 4 Port Bus Switch ***NEW!***	24-SOIC	2.61	51.00	166.00
PI5C3861Q-ND	10Bit, 2 Port Bus Switch ***NEW!***	24-QSOP	2.61	51.00	166.00
PI5C3861S-ND	10Bit, 2 Port Bus Switch ***NEW!***	24-SOIC	2.61	51.00	166.00

★ Call for better pricing on larger quantities!

PERICOM — NEW! CLOCK DISTRIBUTION PRODUCTS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
PI49FCT3805AQ-ND	Non-Inverting Clock Driver ***NEW!***	20-QSOP	4.96	112.75	395.00
PI49FCT3805AS-ND	Non-Inverting Clock Driver ***NEW!***	20-SOIC	4.96	112.75	395.00
PI49FCT3806AQ-ND	Inverting Clock Driver ***NEW!***	20-QSOP	4.96	112.75	395.00
PI49FCT3806AS-ND	Inverting Clock Driver ***NEW!***	20-SOIC	4.96	112.75	395.00
PI49FCT3807AQ-ND	10-Output Non-Inverting Clock Driver ***NEW!***	20-QSOP	5.24	119.25	417.00
PI49FCT3807AS-ND	10-Output Non-Inverting Clock Driver ***NEW!***	20-SOIC	5.24	119.25	417.00
PI49FCT804ATQ-ND	Non-Inverting Clock Driver ***NEW!***	16-QSOP	4.96	112.75	395.00
PI49FCT804ATS-ND	Non-Inverting Clock Driver ***NEW!***	16-SOIC	4.96	112.75	395.00
PI49FCT805ATQ-ND	Non-Inverting Clock Driver ***NEW!***	20-QSOP	4.96	112.75	395.00
PI49FCT805ATS-ND	Non-Inverting Clock Driver ***NEW!***	20-SOIC	4.96	112.75	395.00
PI49FCT806ATQ-ND	Inverting Clock Driver ***NEW!***	20-QSOP	4.96	112.75	395.00
PI49FCT806ATS-ND	Inverting Clock Driver ***NEW!***	20-SOIC	4.96	112.75	395.00
PI49FCT807ATQ-ND	10-Output Non-Inverting Clock Driver ***NEW!***	20-QSOP	5.24	119.25	417.00
PI49FCT807ATS-ND	10-Output Non-Inverting Clock Driver ***NEW!***	20-SOIC	5.24	119.25	417.00
9270B-ND	Data Book ***NEW!***		9.90	—	—
9269B-ND	Data Book on CD-Rom ***NEW!***		9.90	—	—

★ Call for better pricing on larger quantities!

National Semiconductor — LINEAR SERIES

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
AH0014CD-ND	9242B-ND	Dual DPST-TTL/DTL Compatible Mos Analog	14-Dip	38.00	680.00	2000.00
AH0014D-ND	—	DPDT TTL/MOS Analog Switch	14-HDip	54.40	975.00	2870.01
AH0019CD-ND	9242B-ND	Dual DPST-TTL/DTL Compatible Mos Analog Switch	14-Dip	24.00	499.98	1800.00
AH5010CN-ND	9242B-ND	Monolith Analog Current Switch	14-Dip	12.00	270.00	660.00
AH5012CM-ND	**9242B-ND**	**Monolith Analog Current Switch**	**SO-16**	**5.63**	**126.56**	**299.25**
AH5012CN-ND	9242B-ND	Quad SPST Analog Current Switch	16-Dip	5.63	126.56	299.25
AH5020CJ-ND	9242B-ND	Mono Amp Current Switch	8-CDip	3.85	45.83	143.00
DH0034CD-ND	9243B-ND	Dual High Speed Level Translater	14-HDip	48.30	574.98	1835.40
DH0035CG-ND	9243B-ND	Pin Diode Driver	G12B	35.40	635.00	1870.01
DS8615N-4-ND	—	130 MHz Low Power Dual Modulus Prescaler	8-Dip	10.01	119.17	439.87
LF147J-ND	9243B-ND	Wide Band Quad JFet Op Amp	14-CDip	15.00	250.00	798.00
LF156H-ND	9243B-ND	Mono JFet In Op Amp	TO-99	6.50	108.33	345.80
LF256H-ND	—	Wide band JFet Op Amp	TO-99	4.45	74.17	236.74
LF298M-ND	**9242B-ND**	**Monolithic Sample and Hold Circuit**	**SO-14**	**6.55**	**109.17**	**348.46**
LF311H-ND	9243B-ND	Voltage Comparator	TO-5	5.00	83.33	266.00
LF347BN-ND	9243B-ND	Wide Band Quad JFet Op Amp	14-Dip	2.15	35.83	114.38
LF347M-ND	**9243B-ND**	**Quad Bi-Fet Op Amp**	**SO-14**	**1.60**	**26.67**	**85.12**
LF347N-ND	9243B-ND	Quad Bi-Fet Op Amp	14-Dip	1.60	26.67	85.12
LF351M-ND	**9243B-ND**	**Bi-Fet Gerenal Purpose Op Amp**	**SO-8**	**.75**	**12.50**	**39.90**
LF351N-ND	9243B-ND	Bi-Fet General Purpose Op Amp	8-Dip	.75	12.50	39.90
LF353H-ND	9243B-ND	Wide Band Width Dual JFet Input Op Amp	H08A	1.78	29.58	94.43
LF353M-ND	**9243B-ND**	**Dual Bi-Fet Op Amp**	**SO-8**	**.75**	**12.50**	**39.90**
LF353N-ND	9243B-ND	Dual Bi-Fet Op Amp	8-Dip	.75	12.50	39.90
LF355BN-ND	9243B-ND	Series Wide Band Width JFet Input Op Amp	8-Dip	1.90	31.67	101.08
LF355N-ND	9243B-ND	JFet Input Op Amp Low-Power	8-Dip	1.35	22.50	71.82
LF355M-ND	**9243B-ND**	**JFet Input Op Amp Low-Power**	**SO-8**	**1.35**	**22.50**	**71.82**
LF356AH-ND	9243B-ND	Monolithic Wide Band JFet Op Amp	TO-99	16.25	270.83	864.50
LF356BN-ND	9243B-ND	Monolithic Wide Band JFet Op Amp	8-Dip	1.90	31.67	101.08
LF356H-ND	9243B-ND	Monolithic Wide Band JFet Op Amp	TO-99	2.00	33.33	106.40
LF356BM-ND	**9243B-ND**	**Series Wide Band Width JFet Input Op Amp**	**SO-8**	**1.90**	**31.67**	**101.08**
LF356M-ND	**9243B-ND**	**Wide Band Width Jfet Input Op Amp**	**SO-8**	**1.35**	**22.50**	**71.82**
LF356N-ND	9243B-ND	Bi-Fet Wide Band Op Amp	8-Dip	1.35	22.50	71.82
LF357BN-ND	9243B-ND	Bi-Fet High Speed Wide Band Op Amp	8-Dip	1.88	31.25	99.75
LF357M-ND	**9243B-ND**	**Bi-Fet Wide Band Decomp Op Amp**	**SO-8**	**1.50**	**25.00**	**79.80**
LF357N-ND	9243B-ND	Bi-Fet Wide Band Decomp Op Amp	8-Dip	1.50	25.00	79.80
LF398AN-ND	9242B-ND	Sample and Hold Amp	8-Dip	6.13	102.08	325.85
LF398H-ND	9242B-ND	Sample and Hold Amp	TO-99	5.20	86.67	276.64
LF398M-ND	**9242B-ND**	**Monolithic Sample and Hold Circuit**	**SO-14**	**3.28**	**54.58**	**174.23**
LF398N-ND	9242B-ND	Sample and Hold Amplifier	8-Dip	2.38	39.58	126.35
LF411ACH-ND	9243B-ND	Low Offset, Low Drift JFet Input Op Amp	H08B	9.13	131.25	384.00
LF411ACN-ND	9243B-ND	Low Offset JFet Op Amp	8-Dip	4.38	72.92	232.75
LF411CN-ND	9243B-ND	Low Offset Low-Drift JFet In Op Amp	8-Dip	1.20	20.00	63.84
LF412ACN-ND	9243B-ND	Low Offset Low Op Amp	8-Dip	6.63	110.42	352.45
LF412CN-ND	9243B-ND	Low Offset Low Drift JFet Dual Op Amp	8-Dip	1.50	25.00	79.80
LF412MH-ND	9243B-ND	Low Offset Low Drift JFet Dual Op Amp	MOD TO-99	8.13	135.42	432.25
LF441ACN-ND	9243B-ND	Low Power JFet Op Amp	8-Dip	4.38	72.92	232.75
LF441CN-ND	9243B-ND	Low Power JFet Op Amp	8-Dip	1.08	17.92	57.19
LF441CM-ND	**9243B-ND**	**Low Power JFet Input Op Amp**	**SO-8**	**1.08**	**17.92**	**57.19**
LF442ACN-ND	9243B-ND	Dual Low Power JFet Op Amp	8-Dip	6.63	110.42	352.45
LF442AMH-ND	9243B-ND	Dual Low Power JFet Op-Amp	8PIN MC	23.13	385.40	1230.25
LF442CN-ND	9243B-ND	Dual Low Power JFet Op Amp	8-Dip	1.08	17.92	57.19
LF444ACN-ND	9243B-ND	Quad Low Power JFet Op Amp	14-Dip	4.38	72.92	232.75
LF444CM-ND	**9243B-ND**	**Quad Low Power JFet Op Amp**	**SO-14**	**2.50**	**41.67**	**133.00**
LF444CN-ND	9243B-ND	Low Power JFet Quad Op Amp	14-Dip	2.20	36.67	117.04
LF451CM-ND	**9243B-ND**	**Wide Band Width JFet Input Op Amp**	**SO-8**	**1.00**	**16.67**	**53.20**
LF453CM-ND	**9243B-ND**	**Wide Band Width Dual JFet Input Op Amp**	**SO-8**	**1.25**	**20.83**	**66.50**
LF13006N-ND	9242B-ND	Digital Gain Set	16-Dip	11.59	118.50	349.00
LF13007N-ND	9242B-ND	Digital Gain Set	16-Dip	11.59	118.50	349.00
LF13201M-ND	**9242B-ND**	**Quad SPST JFet Analog Switch**	**SO-16**	**5.35**	**89.17**	**284.62**
LF13201N-ND	9242B-ND	Quad SPST JFET Analog Switch (Closed)	16-Dip	4.88	81.25	259.35
LF13202M-ND	**9242B-ND**	**Quad SPST JFet Analog Switch**	**SO-16**	**5.35**	**89.17**	**284.62**
LF13202N-ND	9242B-ND	Quad SPST JFet Analog Switch	16-Dip	5.35	89.17	284.62
LF13331M-ND	**9242B-ND**	**Quad SPST JFet Analog Switch**	**SO-16**	**5.35**	**89.17**	**284.62**
LF13331N-ND	9242B-ND	Quad SPST JFet Analog Switch	16-Dip	5.35	89.17	284.62
LF13332M-ND	**9242B-ND**	**Quad SPST JFet Analog Switch**	**SO-16**	**5.35**	**89.17**	**284.62**
LF13332N-ND	9242B-ND	Quad SPST JFet Analog Switch	16-Dip	5.00	83.33	266.00
LF13333M-ND	**9242B-ND**	**Quad SPST JFet Analog Switch**	**SO-16**	**7.80**	**111.75**	**329.00**
LF13333N-ND	9242B-ND	Quad SPST JFet Analog Switch	16-Dip	6.00	100.00	319.20
LF13508D-ND	9242B-ND	JFet Analog Multiplexer 8-Channel	16-Dip	12.00	199.99	638.40
LF13508N-ND	9242B-ND	JFet Analog Multiplexer 8-Channel	16-Dip	8.00	133.33	425.60
LF13509N-ND	9242B-ND	4-Channel Analog Multiplexer	16-Dip	7.13	118.75	379.05
LH0002CH-ND	9243B-ND	Current Amp	H08D	9.45	157.49	502.74
LH0002CN-ND	9243B-ND	Current Amp	10-Dip	9.75	162.49	518.70
LH0002H-ND	9243B-ND	Current Amp	H08D	18.00	374.99	1197.00
LH0004CH-ND	9243B-ND	High Voltage Op Amp	H10G	20.00	416.65	1330.00
LH0021CK-ND	—	1 Amp Power Op Amp	K08A	26.00	541.65	1729.00
LH0024CH-ND	9243B-ND	High Slew Rate Op Amp	H08B	22.00	458.32	1463.00
LH0024H-ND	9243B-ND	High Slew Rate Op Amp	H08B	38.00	791.64	2527.00
LH0032CG-ND	9243B-ND	Fast Fet In Op Amp	TO-8	23.00	479.15	1529.50
LH0032G-ND	9243B-ND	Ultra Fast Fet-Input Op Amp	TO-8	42.00	874.97	2793.00
LH0033ACG-ND	—	Fast Fet Input Buffe	TO-8	32.40	674.97	2154.60
LH0033CG-ND	9243B-ND	Fast Fet Input Buffer	TO-8	23.00	479.15	1529.50
LH0033G-ND	9243B-ND	Fast Fet Input Buffer	TO-8	40.00	833.30	2660.00
LH0041CG-ND	9243B-ND	200mA Power Op Amp	TO-8	17.80	370.82	1183.70
LH0042CH-ND	9243B-ND	Fet Op Amp	H08D	8.25	137.49	438.90
LH0042H-ND	9243B-ND	Fet Op Amp	H08D	20.00	416.65	1330.00
LH0063CK-ND	9243B-ND	Ultra Fast Buffer	8 PIN TO-8	36.00	749.97	2394.00
LH0070-0H-ND	9242B-ND	Precision BCD Buffer Reference 10V .2%	T05	7.50	125.00	399.00
LH0070-1H-ND	9242B-ND	Precision BCD Buffer Reference 10V .1%	T05	12.50	208.33	665.00
LH0070-2H-ND	9242B-ND	Precision BCD Buffer Reference 10V .04%	T05	23.00	479.15	1529.50
LH0071-0H-ND	—	Precision Binary Buffer Ref 10.24V .2%	T05	19.00	340.00	1000.00
LH0071-1H-ND	9242B-ND	Precision Binary Buffer Ref 10.24V .1%	T05	22.80	410.00	1200.00
LH0094CD-ND	9241B-ND	Multifunction Converter	D16D	116.00	2074.99	6099.98
LH0101AK-ND	9243B-ND	2 Amp Low Distortion Op Amp	T03-8	40.00	833.30	2660.00
LH0101CK-ND	9243B-ND	2 Amp Low Distortion Op Amp	T03-8	24.00	499.98	1596.00
LH0101K-ND	9243B-ND	2 Amp Low Distortion Op Amp	T03-8	32.00	666.64	2128.00
LH1605CK-ND	9244B-ND	5 Amp High Eff. SW-Reg.	K08A	32.40	580.00	1710.01
LH2111D-ND	9243B-ND	Dual Voltage Comparator	16-Dip	22.00	458.32	1463.00
LH2311D-ND	9243B-ND	Dual Voltage Comparator	16-Dip	18.00	374.99	1197.00
LH4001CN-ND	9243B-ND	Widebend Current Buffer	10-Dip	6.00	125.00	399.00
LM10CH-ND	9243B-ND	Op Amp and Voltage Reference	H08A	10.50	125.00	399.00
LM10CLN-ND	9243B-ND	Low Voltage Op Amp and Reference	8-Dip	5.25	62.50	199.50
LM10CN-ND	9243B-ND	Op Amp and Voltage Reference	8-Dip	8.75	104.16	332.50
LM10CWM-ND	**9243B-ND**	**Op Amp and Volt Reference**	**SO-14**	**8.75**	**104.16**	**332.50**
LM12CLK-ND	9244B-ND	80W Power OP Amp 4-Pin	TO-3	32.20	577.50	1700.00
LM34AH-ND	9242B-ND	Precision F. Temp Sensor -50° to +300°F	TO-46	27.30	327.50	960.00
LM34CAH-ND	9242B-ND	Prec. F. Temp Sensor -40° to +230°F	TO-46	18.75	223.75	660.00
LM34CAZ-ND	9242B-ND	Precision F. Temp Sensor -40° to +230°F	TO-92	12.00	143.75	421.00
LM34CH-ND	9242B-ND	Precision F. Temp Sensor -40° to +230°F	TO-46	15.30	182.50	540.00
LM34CZ-ND	9242B-ND	Precision F. Temp Sensor -40° to +230°F	TO-92	9.15	109.25	321.00
LM34DM-ND	**9242B-ND**	**Prec. F. Temp Sensor +32° to +212°F**	**SO-8**	**2.76**	**33.00**	**96.70**
LM34DZ-ND	9242B-ND	Precision F. Temp Sensor +32° to +212°F	TO-92	2.85	34.00	99.90
LM35AH-ND	9242B-ND	Prec. Celsius Temp Sensor -55° to +150°C	TO-46	32.70	391.45	1150.56
LM35CAH-ND	9242B-ND	Prec. Celsius Temp Sensor -40° to +110°C	TO-46	18.90	226.25	665.00
LM35CAZ-ND	9242B-ND	Prec. Celsius Temp Sensor -40° to +110°C	TO-92	12.00	143.75	421.00
LM35CH-ND	9242B-ND	Prec. Celsius Temp Sensor -40° to +110°C	TO-46	15.30	182.50	540.00
LM35CZ-ND	9242B-ND	Prec. Celsius Temp Sensor -40° to +110°C	TO-92	9.15	109.25	321.00
LM35DH-ND	9242B-ND	Prec. Celsius Temp Sensor 0° to +100°C	TO-46	4.95	59.25	174.00
LM35DM-ND	**9242B-ND**	**Prec. Celsius Temp Sensor 0° to +100°C**	**SO-8**	**2.76**	**33.00**	**96.70**
LM35DP-ND	9242B-ND	Prec. Celsius Temp Sensor 0° to +100°C	TO-202	3.90	46.50	137.00
LM35DZ-ND	9242B-ND	Prec. Celsius Temp Sensor 0° to +100°C	TO-92	2.49	29.75	87.30
LM50BIM3-ND	**9242B-ND**	**Single Supply Cent. Temp. Sensor**	**SOT-23**	**2.50**	**36.00**	**106.00**
LM50CIM3-ND	**9242B-ND**	**Single Supply Cent. Temp. Sensor**	**SOT-23**	**1.35**	**19.30**	**56.80**
LM78L05ACH-ND	9244B-ND	+5 Volt 100mA Volt Regulator	TO-39	1.93	22.92	73.15

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★		
				1	25	100
LM78L05ACM-ND	**9244B-ND**	**5V 100mA Positive Regulator**	**SO-8**	**.77**	**9.17**	**29.26**
LM78L05ACMX-ND	**9244B-ND**	**5V 100ma Positive Regulator**	**SO-8**	**832.50/2,500**		
LM78L05ACZ-ND	9244B-ND	5 Volt 100mA Positive Regulator	TO-92	.70	8.33	26.60
LM78L09ACZ-ND	9244B-ND	9V 100mA Positive Regulator	TO-92	.70	8.33	26.60
LM78L12ACM-ND	**9244B-ND**	**12V 100mA Positive Regulator**	**SO-8**	**.77**	**9.17**	**29.26**
LM78L12ACZ-ND	9244B-ND	12 Volt 0.1 Amp Volt. Regulator	TO-92	.70	8.33	26.60
LM78L15ACM-ND	**9244B-ND**	**15V 100mA Positive Regulator**	**SO-8**	**.77**	**9.17**	**29.26**
LM78L15ACZ-ND	9244B-ND	15 Volt 0.1 Amp Positive Regulator	TO-92	.70	8.33	26.60
LM78L62ACZ-ND	9244B-ND	6.2V 100mA Positive Regulator	TO-92	.70	8.33	26.60
LM78M12CH-ND	9244B-ND	12V 500mA Positive Regulator	TO-39	2.80	33.33	106.40
LM78M12CT-ND	9244B-ND	12V Positive Regulator	TO-220	1.23	14.58	46.55
LM78M15CT-ND	9244B-ND	15V Positive Regulator	TO-220	1.23	14.58	46.55
LM78M15CH-ND	9244B-ND	15V 500mA Positive Regulator	TO-39	2.80	33.33	106.40
LM78S40CN-ND	9244B-ND	Universal Switching Regulator Subsys	16-Dip	3.08	36.67	117.04
LM78S40N-ND	9244B-ND	Universal Switching Reg Subsys Ind Temp	16-Dip	4.59	54.58	174.23
LM79L05ACM-ND	**9244B-ND**	**5V 100mA Neg Regulator**	**SO-8**	**.77**	**9.17**	**29.26**
LM79L12ACM-ND	**9244B-ND**	**12V 100mA Neg Regulator**	**SO-8**	**.77**	**9.17**	**29.26**
LM79L15ACM-ND	**9244B-ND**	**15V 100mA Neg Regulator**	**SO-8**	**.77**	**9.17**	**29.26**
LM79M05CT-ND	9244B-ND	5V 500mA Neg. Volt Regulator	TO-220	1.23	14.58	46.55
LM79M12CP-ND	9244B-ND	12V 500mA Neg. Regulator	TO-202	2.10	25.00	90.00
LM79M12CT-ND	9244B-ND	12V 500mA Neg. Volt Regulator	TO-220	1.23	14.58	46.55
LM79M15CT-ND	9244B-ND	15V 500mA Neg. Volt Regulator	TO-220	1.23	14.58	46.55
LM101AJ-ND	9243B-ND	General Purpose Op Amp	8-CDip	4.20	50.00	159.60
LM108AH-ND	9243B-ND	Precision Op Amp	TO-99	8.75	104.16	332.50
LM111H-ND	9243B-ND	Voltage Comparator	TO-99	5.08	60.41	192.85
LM111J-8-ND	9243B-ND	Voltage Comparator	8-CDip	6.13	72.91	232.75
LM113-1H-ND	9242B-ND	Reference Diode	H02A	39.55	470.81	1502.90
LM113H-ND	9242B-ND	Reference Diode	TO-46	19.78	235.41	751.45
LM117H-ND	9244B-ND	Positive Adjustable V Reg 500mA	TO-39	16.10	191.66	611.80
LM117K STEEL-ND	9244B-ND	Positive Adjustable V Reg	TO-3	14.18	168.74	538.65
LM120H-5.0-ND	9244B-ND	3 Term Negative V. Reg. 1.5Amp	TO-39	15.40	183.33	585.20
LM124AJ-ND	9243B-ND	Low Power Quad Op Amp	14-CDip	15.05	179.16	571.90
LM124J-ND	9243B-ND	Low Power Quad Op Amp	14-CDip	4.73	56.25	179.55
LM135AH-ND	9242B-ND	Precision Temperature Sensor	TO-46	23.80	283.32	904.40
LM135H-ND	9242B-ND	Precision Temperature Sensor	TO-46	13.41	159.58	509.39
LM136AH-2.5-ND	9242B-ND	2.5V Ref Diode	TO-46	22.75	270.82	864.50
LM136H-2.5-ND	9242B-ND	2.5V Ref Diode	TO-46	15.75	187.49	598.50
LM136H-5.0-ND	9242B-ND	5V Ref Diode	TO-46	16.80	199.99	638.40
LM137H-ND	9244B-ND	3 Term. Neg. Volt Reg .5A	TO-39	24.50	291.66	931.00
LM139AJ-ND	9243B-ND	High Performance Quad Comparator	14-CDip	4.73	56.25	179.55
LM139J-ND	9243B-ND	Low Power Low Offset Quad Comp	14-CDip	3.15	37.50	119.70
LM140K-5.0-ND	9244B-ND	Ser. 3 Term. Pos. Reg .5V	TO-3	11.03	131.24	418.95
LM140K-12-ND	9244B-ND	12 Volt 1.5 Amp Positive Volt Regulator	TO-3	11.03	131.24	418.95
LM140LAH-5.0-ND	9244B-ND	Ser. 3 Term. Pos. Reg. 5V	TO-39	5.39	64.16	204.82
LM140LAH-12-ND	9244B-ND	12 Volt 100ma Positive Volt Regulator	TO-39	5.39	64.16	204.82
LM148J-ND	9243B-ND	Quad 741 Op Amp	14-CDip	3.50	41.67	133.00
LM150K STEEL-ND	9244B-ND	3 Term. P. Adj. V Reg. 3A	TO-3	26.25	312.49	997.50
LM158AH-ND	9243B-ND	Low Power Dual Op Amp	TO-99	11.20	133.33	425.60
LM158H-ND	9243B-ND	Low Power Dual Op Amp Met Can	TO-99	5.50	65.41	208.81
LM158J-ND	9243B-ND	Low Power Dual Op Amp	8-CDip	5.25	62.50	199.50
LM185BH-ND	9242B-ND	Adjustable Micropower Volt Ref	TO-46	19.00	340.00	1000.00
LM185H-2.5-ND	9242B-ND	Micropower Volt Ref Diode	TO-46	25.38	302.07	964.25
LM193H-ND	9243B-ND	Low Power Offset Voltage Dual Comparator	TO-99	8.05	95.83	305.90
LM201AH-ND	9243B-ND	Gen Purpose Op Amp Indust. Temp (-25 to +85)	TO-99	3.50	41.67	133.00
LM201AN-ND	9243B-ND	Operational Amplifier	8-Dip	1.44	17.08	54.53
LM207J-ND	9243B-ND	Operational Amplifier	8-CDip	4.31	51.25	163.59
LM211H-ND	9243B-ND	High Performance Voltage Comparator	TO-99	4.90	58.33	186.20
LM211J-8-ND	9243B-ND	High Performance Voltage Comparator	8-CDip	5.25	62.50	199.50
LM218H-ND	9243B-ND	High Slew Rate Op Amp	TO-99	9.63	114.58	365.75
LM219J-ND	9243B-ND	High Speed Dual Comparator	14-CDip	10.15	120.83	385.70
LM224AJ-ND	9243B-ND	Low Pwr Quad Op Amp	14-CDip	14.70	174.99	558.60
LM224J-ND	9243B-ND	Low Pwr Quad Op Amp	14-CDip	2.80	33.33	106.40
LM231AN-ND	9242B-ND	Precision Voltage to Frequency Converter	8-Dip	12.22	145.41	464.17
LM231N-ND	9242B-ND	Precision Voltage to Frequency Converter	8-Dip	9.70	115.41	368.41
LM234Z-3-ND	9242B-ND	Adjustable Current Source/Temp Sensor	TO-92	3.15	37.50	119.70
LM234Z-6-ND	9242B-ND	Adjustable Current Source/Temp Sensor	TO-92	2.00	23.75	75.81
LM235AH-ND	9242B-ND	Precision Temp Sensor	TO-46	19.95	237.49	758.10
LM235H-ND	9242B-ND	Precision Temp Sensor	TO-46	7.88	93.75	299.25
LM236AH-2.5-ND	9242B-ND	Volt Ref. 2.5V (1%)	TO-46	15.75	187.49	598.50
LM236AH-5.0-ND	9242B-ND	5V Ref Diode	TO-46	9.63	114.58	365.75
LM236H-2.5-ND	9242B-ND	2.5 Ref Diode	TO-46	6.30	75.00	239.40
LM236H-5.0-ND	9242B-ND	5V Ref Diode	TO-46	12.11	144.16	460.18
LM239AJ-ND	9243B-ND	Low Power Low Offset Voltage Quad Comparator	14-CDip	6.41	76.25	243.39
LM239J-ND	9243B-ND	High Performance Quad Comparator	14-CDip	2.45	29.17	93.10
LM246J-ND	9243B-ND	Programmable Quad Op Amp	16-CDip	6.90	82.08	262.01
LM248J-ND	9243B-ND	Quad 741 Op Amp	14-CDip	3.05	36.25	115.71
LM285BXZ-ND	9242B-ND	Adjustable M Ropower Volt Ref	TO-92	7.77	92.75	273.00
LM285BXZ-2.5-ND	9242B-ND	2.5V Ref Diode	TO-92	6.76	80.41	256.69
LM285BYZ-ND	9242B-ND	Micropower Adjustable Volt Reference	TO-92	6.57	78.50	231.00
LM285BYZ-1.2-ND	9242B-ND	Micropower Voltage Ref. 1.2V	TO-92	5.71	67.91	216.79
LM285BYZ-2.5-ND	9242B-ND	2.5V Ref Diode	TO-92	5.71	67.91	216.79
LM285M-ND	**9242B-ND**	**Micropower Adjustable Volt Reference**	**SO-8**	**3.09**	**37.00**	**109.00**
LM285M-1.2-ND	**9242B-ND**	**1.2V Ref Diode**	**SO-8**	**2.59**	**30.83**	**98.42**
LM285M-2.5-ND	**9242B-ND**	**Micropower Volt Reference Diode**	**SO-8**	**2.59**	**30.83**	**98.42**
LM285Z-1.2-ND	9242B-ND	Micropower Voltage Reference Diode	TO-92	2.59	30.83	98.42
LM285Z-2.5-ND	9242B-ND	2.5V Ref Diode	TO-92	2.59	30.83	98.42
LM293H-ND	9243B-ND	Low Power Low Offset Volt Dual Comparator	TO-99	7.18	85.41	272.65
LM299AH-ND	9242B-ND	Precision Reference	H04D	35.00	416.65	1330.00
LM301AH-ND	9243B-ND	General Purpose Op Amp	TO-99	3.50	41.67	133.00
LM301AN-ND	9243B-ND	General Purpose Op Amp	8-Dip	1.12	13.33	42.56
LM305AH-ND	9244B-ND	Pos Adj V Regulator 30mA	TO-5	4.73	56.25	179.55
LM305H-ND	9244B-ND	Pos Adj V Regulator 30mA	TO-5	1.75	20.83	66.50
LM306H-ND	9243B-ND	Voltage Comparator	H08A	8.75	104.16	332.50
LM307N-ND	9243B-ND	Gen. Pur. Compensated Op Amp	8-Dip	1.40	16.67	53.20
LM308AH-ND	9243B-ND	General Purpose Op Amp	TO-99	3.15	37.50	119.70
LM308AM-ND	**9243B-ND**	**General Purpose Op Amp**	**SO-8**	**1.75**	**20.83**	**66.50**
LM308AN-ND	9243B-ND	Op Amp	8-Dip	1.75	20.83	66.50
LM308H-ND	9243B-ND	Super Gain Op Amp	TO-99	2.28	27.08	86.45
LM308M-ND	**9243B-ND**	**Operational Amplifier**	**SO-8**	**1.30**	**15.42**	**49.21**
LM308N-ND	9243B-ND	Super Gain Op Amp	8-Dip	1.30	15.42	49.21
LM309H-ND	9244B-ND	5 Volt Regulator	TO-39	5.43	64.58	206.15
LM309K STEEL-ND	9244B-ND	+5V 1.5A Volt Regulator	TO-3	6.48	77.08	246.05
LM310H-ND	9243B-ND	Improved Voltage Follower Op Amp	TO-99	4.03	47.91	152.95
LM310M-ND	**9243B-ND**	**Voltage Follower**	**SO-8**	**4.48**	**53.33**	**170.24**
LM310N-ND	9243B-ND	Voltage Follower	8-Dip	4.38	52.08	166.25
LM311H-ND	9243B-ND	Voltage Comparator	TO-99	3.50	41.67	133.00
LM311M-ND	**9243B-ND**	**Voltage Comparator**	**SO-8**	**1.12**	**13.33**	**42.56**
LM311N-ND	9243B-ND	High Perform. Volt Comparator	8-Dip	1.12	13.33	42.56
LM313H-ND	9242B-ND	Precision Reference, 2-Pin	TO-18	11.73	139.58	445.55
LM317AH-ND	9244B-ND	Positive Adjustable Volt Reg 500mA	TO-39	7.35	87.50	279.30
LM317AT-ND	9244B-ND	Positive Adjustable Volt Reg 1.5A	TO-220	2.28	27.08	86.45
LM317H-ND	9244B-ND	Positive Adjustable Volt Reg 500mA	TO-39	6.83	81.25	259.35
LM317HVH-ND	9244B-ND	High Volt Adjustable Volt Reg 500mA	TO-39	10.50	125.00	399.00
LM317HVK STEEL-ND	9244B-ND	High Volt Adjustable Volt Reg 1.5A	TO-3	10.50	125.00	399.00
LM317HVT-ND	9244B-ND	High Volt Adjustable Volt Reg 1.5A	TO-220	3.15	37.50	119.70
LM317K STEEL-ND	9244B-ND	Positive Adjustable Volt Reg 1.5A	TO-3	6.48	77.08	246.05
LM317LM-ND	**9244B-ND**	**Positive Adjustable Volt Reg 100mA**	**SO-8**	**.95**	**11.25**	**35.91**
LM317LZ-ND	9244B-ND	Positive Adjustable Volt Reg 100mA	TO-92	.95	11.25	35.91
LM317MP-ND	9244B-ND	Positive Adjustable Volt Reg 500mA	TO-202	1.93	22.92	73.15
LM317T-ND	9244B-ND	Positive Adjustable Volt Reg 1.5A	TO-220	1.30	15.42	49.21
LM318H-ND	9243B-ND	High Slew Rate Op Amp.	TO-99	4.73	56.25	179.55
LM318M-ND	**9243B-ND**	**High Slew Rate Op Amp**	**SO-8**	**3.22**	**38.33**	**122.36**
LM318N-ND	9243B-ND	Hi Slew Rate Op Amp	8-Dip	1.68	20.00	63.84
LM319AM-ND	**9243B-ND**	**High Speed Dual Comparators**	**SO-14**	**3.50**	**41.67**	**133.00**
LM319AN-ND	9243B-ND	High Speed Dual Comparators	14-Dip	3.50	41.67	133.00
LM319H-ND	9243B-ND	Hi Speed Dual Comp	TO-100	5.25	62.50	199.50
LM319M-ND	**9243B-ND**	**Hi Speed Dual Comp**	**SO-14**	**2.63**	**31.25**	**99.75**
LM319MX-ND	**9243B-ND**	**High Speed Dual Comparator**	**SO-14**	**2599.99/2,500**		
LM319N-ND	9243B-ND	Hi Speed Dual Comp	14-Dip	2.63	31.25	99.75
LM320H-5.0-ND	9244B-ND	3-Terminal Negative Volt Regulator .5A	TO-39	7.70	91.66	292.60
LM320K-15-ND	9244B-ND	-15V 1.5 Amp Voltage Reg	TO-3	8.75	104.16	332.50
LM320LZ-5.0-ND	9244B-ND	5 Volt 0.1 Amp Neg Volt. Reg.	TO-92	.92	11.00	35.11
LM320LZ-12-ND	9244B-ND	12 Volt 0.1 Amp Neg Volt. Reg.	TO-92	.79	9.40	30.00
LM320LZ-15-ND	9244B-ND	15 Volt 0.1 Amp Neg Volt. Reg.	TO-92	.79	9.40	30.00
LM320MP-15-ND	9244B-ND	15 Volt 0.5 Amp Neg Volt Reg.	TO-202	3.45	49.62	145.25
LM320T-5.0-ND	9244B-ND	3-Terminal Negative 5-Volt 1.5 Amp Reg	TO-220	2.17	25.83	82.46
LM320T-12-ND	9244B-ND	3-Terminal Negative Volt Regulator 1.5 Amp	TO-220	2.17	25.83	82.46
LM320T-15-ND	9244B-ND	3-Terminal Negative Volt Regulator 1.5 Amp	TO-220	2.17	25.83	82.46
LM323AK STEEL-ND	9244B-ND	5V 3A Pos Volt Regulator	TO-3	12.88	153.33	489.44
LM323K STEEL-ND	9244B-ND	3 Amp 5 Volt Positive Regulator	TO-3	10.50	125.00	399.00
LM324AM-ND	**9243B-ND**	**Low Power Quad Op Amp**	**SO-14**	**1.05**	**12.50**	**39.90**
LM324AN-ND	9243B-ND	Low Power Quad Op Amp	14-Dip	1.05	12.50	39.90
LM324J-ND	9243B-ND	Low Power Quad Op Amp	14-CDip	2.28	27.08	86.45
LM324M-ND	**9243B-ND**	**Low Power Quad Op Amp**	**SO-14**	**.88**	**10.42**	**33.25**
LM324MX-ND	**9243B-ND**	**Low Power Quad Op Amp**	**SO-14**	**875.00/2,500**		
LM324N-ND	9243B-ND	Quad Op Amp	14-Dip	.88	10.42	33.25
LM325H-ND	9244B-ND	Voltage Regulator	TO-100	10.95	157.50	461.00
LM325N-ND	9244B-ND	Dual Track Reg +15V, –15V	14-Dip	10.00	143.75	421.00
LM327N-ND	—	Dual Track Reg +5V, –12V	14-Dip	4.73	56.25	202.50
LM329AH-ND	9242B-ND	Precision Zener 10 PPM/DEG C	TO-46	9.63	114.58	365.75
LM329BZ-ND	9242B-ND	Precision Reference	TO-92	3.50	41.67	133.00
LM329CZ-ND	9242B-ND	Precision Reference	TO-92	2.63	31.25	99.75
LM329DZ-ND	9242B-ND	Prec Zener 100 PPM/DEG C 6.9 Volt	TO-92	1.05	12.50	39.90
LM330T-5.0-ND	9244B-ND	3-Terminal Positive Regulator	TO-220	1.58	18.75	59.85
LM331AN-ND	9242B-ND	Precision Volt To Frequency Converter	8-Dip	10.64	126.66	404.32
LM331N-ND	9242B-ND	Prec Volt-To-Freq Converter	8-Dip	8.26	98.33	313.88
LM333K STEEL-ND	9244B-ND	3-Amp Neg Adj Voltage Reg	TO-3	13.48	160.41	512.05
LM333T-ND	9244B-ND	3-Amp Neg Adj Voltage Reg	TO-220	6.13	72.91	232.75
LM334H-ND	9242B-ND	3-Term Adjustable Current Source	TO-46	3.50	41.67	133.00
LM334M-ND	**9242B-ND**	**3-Term Adjustable Current Source**	**SO-8**	**2.59**	**30.83**	**98.42**
LM334Z-ND	9242B-ND	3-Term Adjustable Current Source	TO-92	2.10	25.00	79.80
LM335AH-ND	9242B-ND	Precision Temperature Sensor	TO-46	11.80	140.41	448.21
LM335AM-ND	**9242B-ND**	**Precision Temperature Sensor**	**SO-8**	**7.00**	**83.33**	**266.00**
LM335AZ-ND	9242B-ND	Precision Temperature Sensor	TO-92	6.30	75.00	239.40
LM335H-ND	9242B-ND	Precision Temperature Sensor	TO-46	3.01	35.83	114.38
LM335M-ND	**9242B-ND**	**Precision Temperature Sensor**	**SO-8**	**3.68**	**43.75**	**139.65**
LM335Z-ND	9242B-ND	Volt Mode Temperature Sensor	TO-92	3.12	37.08	118.37
LM336BM-2.5-ND	**9242B-ND**	**2.5V Referance Diode**	**SO-8**	**3.15**	**37.50**	**119.70**
LM336BM-5.0-ND	**9242B-ND**	**5V Referance Diode**	**SO-8**	**3.15**	**37.50**	**119.70**
LM336BZ-2.5-ND	9242B-ND	2.5 Volt Reference Diode	TO-92	3.15	37.50	119.70
LM336BZ-5.0-ND	9242B-ND	5 Volt Reference Diode	TO-92	3.15	37.50	119.70
LM336M-2.5-ND	**9242B-ND**	**2.5 Volt Reference Diode**	**SO-8**	**1.47**	**17.50**	**55.[illegible]**
LM336M-5.0-ND	**9242B-ND**	**5.0 Volt Reference Diode**	**SO-8**	**1.75**	**20.83**	**66.50**
LM336Z-2.5-ND	9242B-ND	2.5 Volt Reference Diode	TO-92	1.75	20.83	66.50
LM336Z-5.0-ND	9242B-ND	5.0 Volt Reference Diode	TO-92	1.75	20.83	66.50
LM337H-ND	9244B-ND	Negative Adjustable Volt Reg 500mA	TO-39	8.23	97.91	312.55
LM337HVH-ND	9244B-ND	Negative Adjustable Reg (High Volt) 500mA	TO-39	13.48	160.41	512.05
LM337HVK STEEL-ND	9244B-ND	Negative Adjustable Reg (High Volt) 1.5A	TO-3	16.98	202.08	645.05
LM337K STEEL-ND	9244B-ND	Negative Adjustable Volt Reg 1.5A	TO-3	9.45	112.50	359.10
LM337LM-ND	**9244B-ND**	**Negative Adjustable Volt Reg 100mA**	**SO-8**	**1.82**	**21.67**	**69.16**
LM337LZ-ND	9244B-ND	Negative Adjustable Volt Reg 100 mA	TO-92	1.82	21.67	69.16
LM337T-ND	9244B-ND	Negative Adjustable Volt Reg 1.5 Amp.	TO-220	2.17	25.83	82.46
LM338K STEEL-ND	9244B-ND	5 Amp Adjustable Pos Reg	TO-3	12.78	152.08	485.45
LM338T-ND	9244B-ND	5 Amp Adjustable Pos Reg	TO-220	3.01	35.83	114.38
LM339AN-ND	9243B-ND	Low Power Low Offset Quad Volt Comparator	14-Dip	1.05	12.50	39.90
LM339AM-ND	**9243B-ND**	**Low Power Low Offset Quad Volt Comparator**	**SO-14**	**1.05**	**12.50**	**39.90**
LM339J-ND	9243B-ND	High Performance Quad Comparator	14-CDip	2.17	25.83	82.46
LM339M-ND	**9243B-ND**	**Low Power Low Offset Volt Quad Comparators**	**SO-14**	**.88**	**10.42**	**33.25**
LM339MX-ND	**9243B-ND**	**Low Power Quad Volt Comparator**	**SO-14**	**875.00/2,500**		
LM339N-ND	9243B-ND	High Performance Quad Comparator	14-Dip	.88	10.42	33.25
LM340AK-5.0-ND	9244B-ND	5V 1.5 Amp Pos Volt Regulator	TO-3	8.12	96.66	308.56
LM340AT-5.0-ND	9244B-ND	5V 1.5 Amp Pos Volt Regulator	TO-220	2.28	27.08	86.45
LM340AT-12-ND	9244B-ND	12V 1.5 Amp Pos Volt Regulator	TO-220	2.28	27.08	86.45
LM340AT-15-ND	9244B-ND	15V 1 Amp Pos Volt Regulator	TO-220	2.28	27.08	86.45
LM340K-5.0-ND	9244B-ND	5V 1.5 Amp Pos Volt Regulator	TO-3	6.30	75.00	239.40
LM340K-12-ND	9244B-ND	12V 1.5 Amp Pos Volt Regulator	TO-3	6.30	75.00	239.40
LM340K-15-ND	9244B-ND	15V 1 Amp Pos Volt Regulator	TO-3	6.30	75.00	239.40
LM340LAH-5.0-ND	9244B-ND	5V 100mA Pos Volt Regulator	TO-39	2.63	31.25	99.75
LM340LAH-12-ND	9244B-ND	12V 100mA Pos Volt Regulator	TO-39	2.63	31.25	99.75

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★		
				1	25	100
LM340LAZ-5.0-ND	9244B-ND	5V 100mA Pos Volt Regulator	TO-92	1.33	15.83	50.54
LM340LAZ-12-ND	9244B-ND	12V 100mA Pos Volt Regulator	TO-92	1.33	15.83	50.54
LM340S-5.0-ND	9244B-ND	Series 3-Terminal Positive Regulator	TO-263	1.50	21.45	63.10
LM340S-12-ND	9244B-ND	Series 3-Terminal Positive Regulator	TO-263	1.50	21.45	63.10
LM340T-5.0-ND	9244B-ND	5V 1.5 Amp Pos Volt Regulator (7805)	TO-220	1.23	14.58	46.55
LM340T-12-ND	9244B-ND	12V 1.5 Amp Pos Volt Reg (7812)	TO-220	1.23	14.58	46.55
LM340T-15-ND	9244B-ND	15V 1.5 Amp Pos Volt Reg (7815)	TO-220	1.23	14.58	46.55
LM341T-15-ND	9244B-ND	15V 500mA Volt Regulator	TO-220	1.51	17.92	57.19
LM343H-ND	9243B-ND	High Voltage Oper. Amplifier	TO-99	11.20	133.33	425.60
LM345K-5.0-ND	9244B-ND	Negative 3-Amp Regulator	TO-3	13.50	193.75	570.00
LM346M-ND	**9243B-ND**	**Programmable Quad Op Amp**	**SO-16**	**3.33**	**39.58**	**126.35**
LM346N-ND	9243B-ND	Programmable Quad Op Amp	16-Dip	3.22	38.33	122.36
LM348J-ND	9243B-ND	Quad 741 Operational Amp	14-CDip	2.28	27.08	86.45
LM348M-ND	**9243B-ND**	**Quad 741 Operational Amp**	**SO-14**	**1.12**	**13.33**	**42.56**
LM348N-ND	9243B-ND	Quad 741 Op Amp	14-Dip	1.12	13.33	42.56
LM349N-ND	9243B-ND	Hi Speed Quad 741 Op Amp	14-Dip	2.28	27.08	86.45
LM350AT-ND	9244B-ND	3 Term Pos Adj Reg 3 Amp	TO-220	7.70	91.66	292.60
LM350K STEEL-ND	9244B-ND	3 Term Pos Adj Reg 3 Amp	TO-3	9.80	116.66	372.40
LM350T-ND	9244B-ND	3 Term Pos Adj Volt Reg 3 Amp	TO-220	6.58	78.33	250.04
LM358AM-ND	**9243B-ND**	**Low Power Dual Op Amp**	**SO-8**	**1.05**	**12.50**	**39.90**
LM358AN-ND	9243B-ND	Low Power Dual Op Amp (Elect. Improv.)	8-Dip	1.05	12.50	39.90
LM358M-ND	**9243B-ND**	**Low Power Dual Op Amp**	**SO-8**	**.88**	**10.42**	**33.25**
LM358MX-ND	**9243B-ND**	**Low Power Dual Op Amp**	**SO-8**		**933.33/2,500**	
LM358N-ND	9243B-ND	Low Power Dual Op Amp	8-Dip	.88	10.42	33.25
LM359M-ND	**9242B-ND**	**Dual, Hi Speed Programmable Curr Mode (Norton) Amp**	**SO-14**	**4.14**	**49.50**	**146.00**
LM359N-ND	9243B-ND	High Speed Norton Op Amp	14-Dip	3.78	45.25	133.00
LM360H-ND	9243B-ND	High Speed Differential Comparators	TO-99	9.51	113.50	334.00
LM360M-ND	**9243B-ND**	**High Speed Differential Comparators**	**SO-8**	**6.42**	**76.75**	**226.00**
LM360N-ND	9243B-ND	High Speed Diff Comparator	8-Dip	6.33	75.50	222.00
LM361H-ND	9243B-ND	High Speed Differential Comparator	TO-5	4.38	52.08	166.25
LM361M-ND	**9243B-ND**	**High Speed Differential Comparator**	**SO-14**	**4.73**	**56.25**	**179.55**
LM361N-ND	9243B-ND	High Speed Diff Comparator	14-Dip	5.15	61.25	195.51
LM368H-5.0-ND	9242B-ND	Precision Volt Reference	TO-99	9.73	115.83	369.74
LM368YH-10-ND	9242B-ND	Precision Voltage Diode	TO-99	14.00	166.66	532.00
LM369BH-ND	9242B-ND	Precision Voltage Reference	TO-99	17.85	212.49	678.30
LM369BN-ND	9242B-ND	Precision Voltage Reference	8-Dip	14.67	174.58	557.27
LM369CN-ND	9242B-ND	Precision Voltage Reference	8-Dip	8.89	105.83	337.82
LM369DM-ND	**9242B-ND**	**Precision Voltage Reference**	**SO-8**	**6.58**	**78.33**	**250.04**
LM369H-ND	9242B-ND	Precision Voltage Reference	TO-99	12.18	144.99	462.84
LM376N-ND	9244B-ND	Positive Adjustable 30mA Voltage Regulator	8-Dip	.98	11.67	37.24
LM380N-ND	9241B-ND	2 Watt Audio Power Amplifier	14-Dip	1.75	20.83	66.50
LM380N-8-ND	9241B-ND	0.6 Watt Audio Amplifier	8-Dip	1.40	16.67	53.20
LM383AT-ND	9241B-ND	7 Watt Audio Amplifier (40V)	5-pin TO-220	5.04	60.00	191.52
LM383T-ND	9241B-ND	7 Watt Audio Amplifier (25V)	5-pin TO-220	4.03	47.91	152.95
LM384N-ND	9241B-ND	5 Watt Audio Amplifier	14-Dip	3.50	41.67	133.00
LM385BM-1.2-ND	**9242B-ND**	**1.2 Volt Reference Diode 150PPM/DEG C**	**SO-8**	**2.35**	**27.92**	**89.11**
LM385BM-2.5-ND	**9242B-ND**	**2.5 Volt Reference Diode 150PPM/DEG C**	**SO-8**	**2.35**	**27.92**	**89.11**
LM385BXZ-2.5-ND	9242B-ND	2.5 Volt Reference Diode 30PPM/DEG C	TO-92	4.66	55.41	176.89
LM385BYZ-1 2-ND	9242B-ND	Precision Voltage Reference 50PPM/DEG C	TO-92	3.96	47.08	150.29
LM385BYZ-2.5-ND	9242B-ND	Precision Voltage Reference 50PPM/DEG C	TO-92	3.96	47.08	150.29
LM385BYZ-ND	9242B-ND	Adj Reference Diode	TO-92	4.62	55.25	162.00
LM385BZ-1.2-ND	9242B-ND	Micropower Volt. Ref. Diode	TO-92	2.35	27.92	89.11
LM385BZ-2.5NS-ND	9242B-ND	2.5 Volt Reference Diode	TO-92	2.35	27.92	89.11
LM385M-ND	**9242B-ND**	**Adjustable Voltage Reference Diode**	**SO-8**	**1.85**	**26.50**	**77.80**
LM385M-1.2-ND	**9242B-ND**	**1.2 Volt Reference Diode**	**SO-8**	**1.79**	**21.25**	**67.83**
LM385M-2.5-ND	**9242B-ND**	**Voltage Ref Diode 2.5 V**	**SO-8**	**1.79**	**21.25**	**67.83**
LM385Z-ND	9242B-ND	Adjustable Volt. Ref. Diode	TO-92	2.22	26.50	77.80
LM385Z-1.2-ND	9242B-ND	1.2 Volt Reference Diode	TO-92	1.79	21.25	67.83
LM385Z-2.5-ND	9242B-ND	2.5 Volt Reference Diode	TO-92	1.79	21.25	67.83
LM386M-1-ND	**9241B-ND**	**Low Volt Audio Pwr Amp**	**SO-8**	**.95**	**11.25**	**35.91**
LM386MX-1-ND	**9241B-ND**	**Low Volt Audio Pwr Amp**	**SO-8**		**843.75/2,500**	
LM386N-1-ND	9241B-ND	Low Volt Audio Pwr Amp	8-Dip	.95	11.25	35.91
LM386N-3-ND	9241B-ND	Low Volt Audio Pwr Amp	8-Dip	1.98	23.60	69.40
LM386N-4-ND	9241B-ND	Low Volt Audio Pwr Amp	8-Dip	2.19	26.25	76.80
LM387AN-ND	9241B-ND	Low Noise Dual Preamplifier	8-Dip	4.03	47.91	152.95
LM387N-ND	9241B-ND	Low Noise Dual Preamplifier	8-Dip	2.49	29.58	94.43
LM388N-1-ND	9241B-ND	1.5 W Audio Power Amp	14-Dip	2.38	28.33	90.44
LM391N-100-ND	9241B-ND	High Volt (100V) Audio Amplifier	16-Dip	3.47	41.25	131.67
LM392M-ND	**9243B-ND**	**Quad Op Amp and Comparator**	**SO-8**	**1.71**	**20.37**	**59.90**
LM392N-ND	9243B-ND	Op Amp and Comparator	8-Dip	1.56	18.60	54.70
LM393M-ND	**9243B-ND**	**Low Power Low Offset Volt Dual Comparator**	**SO-8**	**.88**	**10.42**	**33.25**
LM393N-ND	9243B-ND	Dual Comparator	8-Dip	.88	10.42	33.25
LM394BH-ND	9243B-ND	Super Match Pair	TO-5	6.57	78.50	231.00
LM394CH-ND	9243B-ND	Super Matched NPN Pairs	TO-5	6.57	78.50	231.00
LM394CN-ND	9243B-ND	Super Match Pair	8-Dip	4.31	51.25	163.59
LM394H-ND	9243B-ND	Super Matched NPN Pairs	TO-5	10.50	126.25	369.00
LM394N-ND	9243B-ND	Supermatch Transistor Pair	8-Dip	7.07	84.16	268.66
LM395T-ND	9243B-ND	Ultra Reliable Hi Gain Power Transistor	TO-220	5.11	60.83	194.18
LM399H-ND	9242B-ND	Precision Reference	TO-46	6.30	75.00	239.40
LM431ACZ-ND	9244B-ND	Adjustable Precision Zener Shunt Regulator	TO-92	.74	8.75	27.93
LM431AIZ-ND	9244B-ND	Adjustable Precision Zener Shunt Regulator Ind. Temp	TO-92	.91	10.83	34.58
LM555CJ-ND	9241B-ND	Timer	8-CDip	2.28	27.08	86.45
LM555CM-ND	**9241B-ND**	**Timer**	**SO-8**	**.88**	**10.42**	**33.25**
LM555CN-ND	9241B-ND	Timer	8-Dip	.81	9.58	30.59
LM555J-ND	9241B-ND	Timer (Ceramic Pkg) High Temperature	8-CDip	7.77	92.50	295.26
LM556CM-ND	**9241B-ND**	**Dual Timer**	**SO-14**	**1.16**	**13.75**	**43.89**
LM556CN-ND	9241B-ND	Dual Timer	14-Dip	1.16	13.75	43.89
LM556J-ND	9241B-ND	Dual Timer (Ceramic Pkg) High Temp.	14-CDip	4.73	56.25	179.55
LM565CN-ND	9241B-ND	Phase Locked Loop	14-Dip	3.15	37.50	119.70
LM566CN-ND	9241B-ND	Voltage Controlled Oscillator.	8-Dip	1.40	16.67	53.20
LM567CM-ND	**9241B-ND**	**Tone Decoder Phase Lock Loop**	**SO-8**	**1.12**	**13.33**	**42.56**
LM567CN-ND	9241B-ND	Tone Decoder Phase Locked Loop	8-Dip	1.12	13.33	42.56
LM611AIN-ND	9243B-ND	Op Amp W/ Adjustable Ref Ind Temp	8-Dip	5.25	62.75	185.00
LM611CN-ND	9243B-ND	Op Amp w/ Adjustable Ref	8-Dip	2.80	28.75	84.10
LM612AIN-ND	9243B-ND	Dual Channel Comparator and Reference	8-Dip	5.55	66.25	195.00
LM612IM-ND	**9243B-ND**	**Dual Channel Comparator and Reference**	**SO-8**	**2.55**	**30.50**	**89.40**
LM612IN-ND	9243B-ND	Dual Channel Comparator and Ref	8-Dip	2.98	30.50	89.40
LM613IWM-ND	**9243B-ND**	**Dual Op Amp, Dual Comparator, and Adj. Reference**	**SO-16**	**3.90**	**46.50**	**137.00**
LM613AIN-ND	9243B-ND	Dual Op Amp, Dual Comparator, & Adj. Ref.	16-Dip	6.57	78.50	231.00
LM613AMN-ND	9243B-ND	Dual Op Amp, Dual Comparator, & Adj. Ref.	16-Dip	34.65	355.00	1050.00
LM613CN-ND	9243B-ND	Dual Op Amp, Dual Comparator, & Adj. Ref.	16-Dip	3.72	44.50	131.00
LM613IN-ND	9243B-ND	Dual Op Amp and Comparator	16-Dip	4.55	46.50	137.00
LM614AIN-ND	9243B-ND	Quad Op Amp w/ Adj Reference	16-Dip	7.35	75.25	221.00
LM614AMN-ND	9243B-ND	Quad Op Amp w/ Adj Reference	16-Dip	32.20	330.00	970.00
LM614BIN-ND	9243B-ND	Quad Op Amp w/ Adj Reference	16-Dip	4.34	44.50	131.00
LM614CN-ND	9243B-ND	Quad Op Amp w/ Volt Reference	16-Dip	3.48	41.50	122.00
LM614CWM-ND	**9243B-ND**	**Quad Op Amp w/ Adj Reference**	**SO-16**	**4.06**	**41.50**	**122.00**
LM614IWM-ND	**9243B-ND**	**Quad Op Amp w/ Adj Reference**	**SO-16**	**4.48**	**46.00**	**135.00**
LM615AIN-ND	9243B-ND	Quad Comparator and Adj. Reference	16-Dip	6.30	75.25	221.00
LM615IM-ND	**9243B-ND**	**Quad Comparator and Adj Reference**	**SO-16**	**4.20**	**43.00**	**127.00**
LM615IN-ND	9243B-ND	Quad Comparator and Adj Reference	16-Dip	4.06	41.50	122.00
LM628N-6-ND	9244B-ND	Precision Motion Controller (6MHZ)	28-Dip	58.50	697.50	2060.00
LM628N-8-ND	9244B-ND	Precision Motion Controller	28-Dip	78.30	935.00	2750.00
LM629M-6-ND	**9244B-ND**	**Precision Motion Controller**	**SO-24**	**68.25**	**697.50**	**2060.00**
LM629M-8-ND	**9244B-ND**	**Precision Motion Controller**	**SO-24**	**91.35**	**935.00**	**2750.00**
LM629N-6-ND	9244B-ND	Prec Motion Controller	28-Dip	58.50	697.50	2060 00
LM629N-8-ND	9244B-ND	8-Bit Pwm Motion Controller	28-Dip	78.30	935.00	2750.00
LM675T-ND	9243B-ND	Power Oper. Amplifier	5-Pin TO-220	12.00	143.75	421.00
LM709CH-ND	9243B-ND	General Purpose Op Amp	TO-99	3.50	41.67	133.00
LM709CN-ND	9243B-ND	General Purpose Op Amp.	14-Dip	1.23	14.58	46.55
LM709H-ND	9243B-ND	General Purpose Op Amp	TO-99	3.68	43.75	139.65
LM710CH-ND	9243B-ND	Voltage Comparator	TO-99	3.50	41.67	133.00
LM710CN-ND	9243B-ND	Voltage Comparator	14-Dip	1.23	14.58	46.55
LM723CH-ND	9244B-ND	Positive Adjustable 150 mA Volt. Regulator	TO-99	2.03	24.17	77.14
LM723CN-ND	9244B-ND	Precision Voltage Regulator	14-Dip	1.05	12.50	39.90
LM723H-ND	9244B-ND	Adj Volt Reg 2V-37V	TO-100	6.48	77.08	246.05
LM725CH-ND	9243B-ND	Instrumentation Op Amp	TO-99	8.40	100.00	319.20
LM725CN-ND	9243B-ND	Instrumentation Op Amp.	8-Dip	6.30	75.00	239.40
LM741CH-ND	9243B-ND	High Performance Op Amp (18V)	TO-99	3.15	37.50	119.70
LM741CM-ND	**9243B-ND**	**High Performance Op Amp (18V)**	**SO-8**	**.91**	**10.83**	**34.58**
LM741CN-ND	9243B-ND	High Performance Op Amp (18V)	8-Dip	.91	10.83	34.58
LM741EN-ND	9243B-ND	High Performance Op Amp (22V)	8-Dip	1.79	21.25	67.83
LM741H-ND	9243B-ND	High Performance Op Amp High Temp	TO-99	4.90	58.33	186.20
LM741J-ND	9243B-ND	High Performance Op Amp High Temp	8-CDip	3.15	37.50	119.70
LM747CN-ND	9243B-ND	Dual High Performance Op Amp	14-Dip	.98	11.67	37.24
LM747H-ND	9243B-ND	Dual High Performance Op Amp Lo Offset	TO-100	3.68	43.75	139.65
LM748CN-ND	9243B-ND	High Performance Op Amp	8-Dip	1.05	12.50	39.90
LM759CH-ND	9243B-ND	Power Op Amp	TO-5-8	6.15	73.50	216.00
LM759CP-ND	9243B-ND	Power Op Amp.	TO-202	4.83	57.75	170.00
LM759MH-ND	9243B-ND	Power Op Amp (325 mA)	TO-99	7.62	91.00	268.00
LM831M-ND	**9241B-ND**	**3V Audio Power Amp**	**SO-16**	**3.96**	**47.08**	**150.29**
LM831N-ND	9241B-ND	3V Audio Power Amp.	16-Dip	**3.96**	**47.08**	**150.29**
LM833M-ND	**9241B-ND**	**Dual Audio Op Amp**	**SO-8**	**1.47**	**17.50**	**55.86**
LM833N-ND	9241B-ND	Dual Audio Op Amp	8-Dip	1.47	17.50	55.86
LM837M-ND	**9241B-ND**	**Low Noise Quad Op Amp**	**SO-14**	**3.33**	**39.58**	**126.35**
LM837N-ND	9241B-ND	Low Noise Quad Op Amp	14-Dip	3.33	39.58	126.35
LM903N-ND	9241B-ND	Fluid Level Detector	16-Dip	5.91	70.50	208.00
LM1036N-ND	9241B-ND	Dual DC Op Tone/Vol/Bal Circuit	20-Dip	4.03	47.91	152.95
LM1037N-ND	—	Dual 4-Channel Analog Switch	18-Dip	5.25	62.50	199.50
LM1040N-ND	—	Dual DC Oper. Tone/Vol./Bal. Circuit w/Stereo Enhance Facility	24-Dip	5.25	62.50	199.50
LM1201M-ND	**9241B-ND**	**Video Amplifier System**	**SO-16**	**4.80**	**57.25**	**169.00**
LM1201N-ND	9241B-ND	Wideband Vid Amp Syst	16-Dip	4.80	57.25	169.00
LM1202M-ND	**9241B-ND**	**230 MHz Video Amplifier System**	**SO-20**	**18.60**	**222.50**	**655.00**
LM1202N-ND	9241B-ND	230 MHz Video Amplifier System	20-Dip	16.20	193.75	570.00
LM1203AN-ND	9241B-ND	150 MHz RGB Video Amplifier System	28-Dip	9.69	115.75	340.00
LM1203BN-ND	9241B-ND	100 MHz RGB Video Amplifier System	28-Dip	6.39	76.25	224.00
LM1203N-ND	9241B-ND	RGB Video Amplifier System	28-Dip	5.04	60.00	191.52
LM1204V-ND	9241B-ND	150Mhz RGB Video Amp System	44-PLCC	13.50	161.25	474.00
LM1205N-ND	9245B-ND	130Mhz RGB Video Amp System.	28-Dip	7.86	93.75	276.00
LM1391N-ND	9241B-ND	Phase-Locked Loop	8-Dip	1.58	18.75	59.85
LM1458H-ND	9243B-ND	Dual Op Amp	TO-99	2.80	33.33	106.40
LM1458J-ND	9243B-ND	Dual Op Amp	8-CDip	1.58	18.75	59.85
LM1458M-ND	**9243B-ND**	**Dual Op Amp**	**SO-8**	**.88**	**10.42**	**33.25**
LM1458N-ND	9243B-ND	Dual Op Amp	8-Dip	.88	10.42	33.25
LM1496H-ND	9241B-ND	Balance Modulator-Demodulator	TO-99	4.73	56.25	179.55
LM1496M-ND	**9241B-ND**	**Balance Modulator-Demodulator**	**SO-14**	**1.40**	**16.67**	**53.20**
LM1496N-ND	9241B-ND	Balanced Modulator/Demodulator	14-Dip	1.40	16.67	53.20
LM1558H-ND	9243B-ND	Dual Op Amp High Temp (-55 to +125)	TO-99	4.38	52.08	166.25
LM1558J-ND	9243B-ND	Dual Op Amp High Temp (-55 to +125)	8-CDip	3.50	41.67	133.00
LM1596H-ND	9241B-ND	Balanced Modulator-Demodulator	TO-99	5.95	70.83	226.10
LM1815N-ND	9241B-ND	Adaptive Variable Reluctance Sensor Amp.	14-Dip	5.70	68.00	200.00
LM1819N-ND	9241B-ND	Air Core Meter Driver (Tach)	14-Dip	2.63	31.25	99.75
LM1823N-ND	9241B-ND	Video IF Amplifier/PLL Detector System	28-Dip	9.84	117.50	345.00
LM1830N-ND	9241B-ND	Fluid Level Detector	14-Dip	5.46	65.25	192.00
LM1851N-ND	9241B-ND	Ground Fault Interrupter	8-Dip	2.45	29.17	93.10
LM1865M-ND	**9241B-ND**	**Advanced FM IF System**	**SO-20**	**7.04**	**83.72**	**267.33**
LM1865N-ND	9241B-ND	Advanced FM IF System	20-Dip	7.04	83.72	267.33
LM1868N-ND	9241B-ND	AM/FM Radio System	20-Dip	4.03	47.90	152.95
LM1871N-ND	9029B-ND	Radio Control 4 Channel Trans.	18-Dip	8.89	105.83	381.00
LM1872N-ND	9029B-ND	Radio Control 4 Channel Rec.	18-Dip	9.63	114.58	412.50
9029B-ND	—	Data Book for LM1871 & LM1872		2.00	—	—
LM1875T-ND	9241B-ND	20W Audio Power Amp, 5-pin	TO-220	4.83	57.50	183.54
LM1876TF-ND	9245B-ND	Dual 20W Audio Power Amplifier w/ Mute/Standby	TO-220	11.20	133.33	425.60
LM1877M-9-ND	**9241B-ND**	**Dual Power Audio Amplifier**	**SO-14**	**3.89**	**46.25**	**147.63**
LM1877N-9-ND	9241B-ND	Dual Power Audio Amplifier	14-Dip	3.89	46.25	147.63
LM1881M-ND	**9241B-ND**	**Video Sync Separator**	**SO-8**	**7.14**	**85.54**	**251.00**
LM1881N-ND	9241B-ND	Video Sync Separator.	8-Dip	7.14	85.54	251.00
LM1889N-ND	—	TV Video Modulator	18-Dip	4.41	52.50	189.00
LM1893N-ND	9241B-ND	Biline Carrier Current Transceiver	18-Dip	16.05	192.50	565.00
LM1896N-1-ND	9241B-ND	Dual Power Audio Amp 4 Ohm	14-Dip	4.06	48.33	174.00
LM1896N-2-ND	9241B-ND	Dual Power Audio Amp 8 Ohm	14-Dip	2.75	33.52	96.23

LINEAR SERIES (Continued)

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LM1921T-ND	9241B-ND	1 Amp 5 Volt Industrial Switch	TO-220	4.48	53.33	170.24
LM1946N-ND	9241B-ND	Over/Under Current Limit Diagnostic Circuit	20-Dip	6.30	75.25	221.00
LM1950T-ND	9241B-ND	750 mA High Side Switch	TO-220	3.85	45.83	146.30
LM1951T-ND	9241B-ND	Solid State 1 Amp Switch	TO-220	6.42	76.75	226.00
LM1973N-ND	9241B-ND	UpotTM 3 Channel Audio Attenuator w/ Mute	20-Dip	9.90	118.25	347.00
LM2416CT-ND	9241B-ND	Triple 50 MHz CRT Driver	11-Sip	17.40	207 50	610.00
LM2416T-ND	9241B-ND	Triple 50 MHz CRT Driver	11-Sip	19.20	230.00	675.00
LM2418T-ND	9241B-ND	Triple 30 MHz CRT Driver	11-Sip	19.65	235.00	690.00
LM2524DN-ND	9244B-ND	Regulator Pulse Width Mod	16-Dip	5.25	62.50	199.50
LM2574HVM-5.0-ND	**9244B-ND**	**5V 500mA Step Down Switch Reg.**	**SO-14**	**6.06**	**72.08**	**230.09**
LM2574HVM-15-ND	**9244B-ND**	**15V 500mA Step Down Switch Reg.**	**SO-14**	**6.06**	**72.08**	**230.09**
LM2574HVN-5.0-ND	9244B-ND	5V 500mA Step Down Switch Reg.	8-Dip	5.11	60.83	194.18
LM2574HVN-12-ND	9244B-ND	12V 500mA Step Down Switch Reg.	8-Dip	5.11	60.83	194.18
LM2574HVN-15-ND	9244B-ND	15V 500mA Step Down Switch Reg.	8-Dip	5.11	60.83	194.18
LM2574HVN-ADJ-ND	9244B-ND	Adj V 500mA Step Down Switch Reg.	8-Dip	5.11	60.83	194.18
LM2574M-3.3-ND	**9244B-ND**	**3.3V 500mA Step Down Switch Reg.**	**SO-14**	**5.11**	**60.83**	**194.18**
LM2574M-5.0-ND	**9244B-ND**	**5V 500mA Step Down Switch Reg.**	**SO-14**	**5.11**	**60.83**	**194.18**
LM2574M-12-ND	**9244B-ND**	**12V 500mA Step Down Switch Reg.**	**SO-14**	**5.11**	**60.83**	**194.18**
LM2574M-ADJ-ND	**9244B-ND**	**Adj V 500mA Step Down Switch Reg.**	**SO-14**	**5.11**	**60.83**	**194.18**
LM2574N-3.3-ND	9244B-ND	3.3V 500mA Step Down Switch Reg.	8-Dip	4.73	56.25	179.55
LM2574N-5 0-ND	9244B-ND	5V 500mA Step Down Switch Reg.	8-Dip	4.52	53.75	171.57
LM2574N-12-ND	9244B-ND	12V 500mA Step Down Switch Reg.	8-Dip	4.52	53.75	171.57
LM2574N-15-ND	9244B-ND	15V 500mA Step Down Switch Reg.	8-Dip	4.52	53.75	171.57
LM2574N-ADJ-ND	9244B-ND	Adj V 500mA Step Down Switch Reg.	8-Dip	4.52	53.75	171.57
LM2575HVM-5.0-ND	**9244B-ND**	**5V 1A Step Down Switch Reg.**	**SO-24**	**7.91**	**94.16**	**300.58**
LM2575HVM-ADJ-ND	**9244B-ND**	**Adj V 1A Step Down Switch Reg.**	**SO-24**	**7.91**	**94.16**	**300.58**
LM2575HVN-5.0-ND	9244B-ND	5V 1A Step Down Switch Reg.	16-Dip	7.28	86.66	276.64
LM2575HVN-12-ND	9244B-ND	12V 1A Step Down Switch Reg.	16-Dip	7.28	86.66	276.64
LM2575HVN-15-ND	9244B-ND	15V 1A Step Down Switch Reg.	16-Dip	7.28	86.66	276.64
LM2575HVN-ADJ-ND	9244B-ND	Adj V 1A Step Down Switch Reg.	16-Dip	7.28	86.66	276.64
LM2575HVT-5.0-ND	9244B-ND	5V 1A Step Down Switch Reg. HV	TO-220	7.91	94.16	300.58
LM2575HVT-12-ND	9244B-ND	12V 1A Step Down Switch Reg.	TO-220	7.91	94.16	300.58
LM2575HVT-15-ND	9244B-ND	15V 1A Step Down Switch Reg.	TO-220	7.91	94.16	300.58
LM2575HVT-ADJ-ND	9244B-ND	Adj V 1A Step Down Switch Reg.	TO-220	7.91	94.16	300.58
LM2575M-5.0-ND	**9244B-ND**	**5V 1A Step Down Switch Reg.**	**SO-24**	**6.23**	**74.16**	**236.74**
LM2575M-ADJ-ND	**9244B-ND**	**Adj V 1A Step Down Switch Reg.**	**SO-24**	**6.23**	**74.16**	**236.74**
LM2575N-5.0-ND	9244B-ND	5V 1A Step Down Switch Reg.	16-Dip	6.23	74.16	236.74
LM2575N-12-ND	9244B-ND	12V 1A Step Down Switch Reg.	16-Dip	6.23	74.16	236.74
LM2575N-15-ND	9244B-ND	15V 1A Step Down Switch Reg.	16-Dip	6.23	74.16	236.74
LM2575N-ADJ-ND	9244B-ND	Adj V 1A Step Down Switch Reg.	16-Dip	6.23	74.16	236.74
LM2575T-3.3-ND	9244B-ND	3.3V 1A Step Down Switch Reg.	TO-220	6.23	74.16	236.74
LM2575T-5.0-ND	9244B-ND	5V 1A Step Down Switch Regulator	TO-220	6.23	74.16	236.74
LM2575T-12-ND	9244B-ND	12V 1A Step Down Switch Reg.	TO-220	6.23	74.16	236.74
LM2575T-15-ND	9244B-ND	15V 1A Step Down Switch Regulator	TO-220	6.23	74.16	236.74
LM2575T-ADJ-ND	9244B-ND	Adj. 1A Step Down Switch Volt Regulator	TO-220	6.23	74.16	236.74
LM2576HVS-12-ND	9244B-ND	Simple Switcher 3A Step Down Volt Reg.	TO-263	13.72	163.33	521.36
LM2576HVT-5.0-ND	9244B-ND	5V 3A Step Down Reg. (High Volt)	TO-220	13.72	163.33	521.36
LM2576HVT-12-ND	9244B-ND	12V 3A Step Down Reg. (High Volt)	TO-220	13.72	163.33	521.36
LM2576HVT-15-ND	9244B-ND	15V 3A Step Down Reg. (High Volt)	TO-220	13.72	163.33	521.36
LM2576HVT-ADJ-ND	9244B-ND	Adj. 3A Step Down Switch Reg.	TO-220	13.72	163.33	521.36
LM2576T-5.0-ND	9244B-ND	5V 3A Step Down Switch Reg.	TO-220	12.25	145.83	465.50
LM2576T-12-ND	9244B-ND	3A Step Down Simple Switch Regulator	TO-220	12.25	145.83	465.50
LM2576T-ADJ-ND	9244B-ND	3A Step Down Voltage Regulator	TO-220-5	12.25	145.83	465.50
LM2577M-12-ND	**9244B-ND**	**12V 3A Step Up Switch Reg.**	**SO-24**	**11.45**	**136.24**	**434.91**
LM2577M-ADJ-ND	**9244B-ND**	**Adj. 3A Step Up Switch Reg.**	**SO-24**	**11.45**	**136.24**	**434.91**
LM2577N-12-ND	9244B-ND	12V 3A Step Up Switch Reg.	16-Dip	10.40	123.75	395.01
LM2577N-15-ND	9244B-ND	12V 3A Step Up Switch Reg.	16-Dip	10.40	123.75	395.01
LM2577N-ADJ-ND	9244B-ND	12V 3A Step Up Switch Reg.	16-Dip	10.40	123.75	395.01
LM2577T-12-ND	9244B-ND	12V 3A Step Up Switch Reg.	TO-220	9.03	107.50	343.14
LM2577T-15-ND	9244B-ND	15V 3A Step Up Switch Reg.	TO-220	9.03	107.50	343.14
LM2577T-ADJ-ND	9244B-ND	Adj 3A Step Up Switch Volt Regulator	TO-220-5	9.03	107.50	343.14
LM2578AM-ND	**9244B-ND**	**Switching Regulator 750mA**	**SO-8**	**7.14**	**85.25**	**251.00**
LM2578AN-ND	9244B-ND	Switching Regulator 750mA	8-Dip	6.30	75.25	221.00
LM2588S-3.3-ND	—	3V Simple Switcher 5A Flyback Reg.	TO-263	12.88	184.62	544.15
LM2588S-5.0-ND	—	5V Simple Switcher 5A Flyback Reg.	TO-263	12.88	184.62	544.15
LM2588S-12-ND	—	12V Simple Switcher 5A Flyback Reg.	TO-263	12.88	184.62	544.15
LM2588S-ADJ-ND	—	Simple Switcher Adj Volt, 5A Flyback Reg.	TO-263	12.88	184.62	544.15
LM2588T-3.3-ND	—	3V Simple Switcher 5A Flyback Reg.	TO-220	12.88	185.00	545.00
LM2588T-5.0-ND	—	5V Simple Switcher 5A Flyback Reg.	TO-220	12.88	185.00	545.00
LM2588T-12-ND	—	12V Simple Switcher 5A Flyback Reg.	TO-220	12.88	185.00	545.00
LM2588T-ADJ-ND	—	Simple Switcher Adj Volt, 5A Flyback Reg.	TO-220	12.88	185.00	545.00
LM2876TF-ND	9241B-ND	High-Performance 40W Audio Power Amplifier w/ Mute	TF11B	11.55	137.49	438.90
LM2877P-ND	9243B-ND	Dual 4-Watt Pwr Audio Amp	11-Sip	3.54	42.08	134.33
LM2878P-ND	9243B-ND	Dual 4-Watt Pwr Audio Amp	11-Sip	5.25	62.50	199.50
LM2879T-ND	9243B-ND	Dual 8-Watt Audio Amp 11 LD	TO-220	9.24	110.00	351.12
LM2893N-ND	9245B-ND	Biline Carrier Current Transceiver	20-Dip	9.90	118.25	347.00
LM2896P-1-ND	9241B-ND	Dual Power Audio Amp 4 Ohm	11-Sip	5.39	64.16	204.82
LM2896P-2-ND	9241B-ND	Dual Power Audio Amp 8 Ohm	11-Sip	5.74	68.33	218.12
LM2900N-ND	9243B-ND	Quad Amplifiers	14-Dip	2.63	31.25	99.75
LM2901M-ND	**9243B-ND**	**Quad Volt. Comparator**	**SO-14**	**.98**	**11.67**	**37.24**
LM2901N-ND	9243B-ND	Quad Comparator	14-Dip	.98	11.67	37.24
LM2902M-ND	**9243B-ND**	**Low Power Quad Op Amp**	**SO-14**	**.98**	**11.67**	**37.24**
LM2902N-ND	9243B-ND	Low Power Quad Op Amp	14-Dip	.98	11.67	37.24
LM2903M-ND	**9243B-ND**	**Dual Comparator**	**SO-8**	**.98**	**11.67**	**37.24**
LM2903N-ND	9243B-ND	Dual Comparator	8-Dip	.98	11.67	37.24
LM2904M-ND	**9243B-ND**	**Low Power Dual Op Amp**	**SO-8**	**.98**	**11.67**	**37.24**
LM2904N-ND	9243B-ND	Dual Op Amp.	8-Dip	.98	11.67	37.24
LM2907N-ND	9241B-ND	Freq.-To-Voltage Converter	14-Dip	4.20	50.00	159.60
LM2907N-8-ND	9241B-ND	Freq.-To-Voltage Converter	8-Dip	4.20	50.00	159.60
LM2917M-ND	**9241B-ND**	**Freq-To-Voltage Converter**	**SO-14**	**4.20**	**50.00**	**159.60**
LM2917N-ND	9241B-ND	Freq.-To-Voltage Converter	14-Dip	4.38	52.08	166.25
LM2917N-8-ND	9241B-ND	Freq.-To-Voltage Converter	8-Dip	4.20	50.00	159.60
LM2924M-ND	**9243B-ND**	**Low Power Op Amp/Voltage Comparator**	**SO-8**	**3.78**	**45.25**	**133.00**
LM2924N-ND	9243B-ND	Low Power Op Amp/Voltage Comparator	8-Dip	3.72	44.50	131.00
LM2925T-ND	9244B-ND	Low Drop-Out Reg w/Delay Reset	TO-220-5	3.22	38.33	122.36
LM2926T-ND	9244B-ND	Low Drop-Out Reg w/Delay Reset	TO-220-5	6.42	76.75	226.00
LM2927T-ND	9244B-ND	Low Drop-Out Reg w/Delay Reset	TO-220-5	6.42	76.75	226.00
LM2930T-5.0-ND	9244B-ND	Positive 5 Volt Regulator 150mA	TO-220	1.40	16.67	53.20
LM2930T-8.0-ND	9244B-ND	Positive 8 Volt Regulator 150mA	TO-220	1.40	16.67	53.20

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LM2931AM-5.0-ND	**9244B-ND**	**5V Low Dropout Reg**	**SO-8**	**1.58**	**18.75**	**59.85**
LM2931AT-5.0-ND	9244B-ND	5V Low Dropout Reg	TO-220	2.45	29.17	93.10
LM2931AZ-5.0-ND	9244B-ND	5V Low Dropout Reg	TO-92	1.23	14.58	46.55
LM2931CM-ND	**9244B-ND**	**Series Low Dropout Regulators**	**SO-8**	**2.45**	**29.17**	**93.10**
LM2931CT-ND	9244B-ND	Low Dropout (0.6V) Pos Adj Reg	TO-220-5	2.63	31.25	99.75
LM2931M-5.0-ND	**9244B-ND**	**Low Dropout (0.6V) 5V Reg**	**SO-8**	**1.23**	**14.58**	**46.55**
LM2931T-5.0-ND	9244B-ND	Low Dropout (0.6V) 100µA 5V Reg	TO-220	1.40	16.67	53.20
LM2931Z-5.0-ND	9244B-ND	Low Dropout (0.6V) 100µA 5V Reg	TO-92	1.05	12.50	39.90
LM2935T-ND	9244B-ND	Low Drop-Out Dual Reg.	TO-220-5	4.20	50.00	159.60
LM2936Z-5.0-ND	9244B-ND	Ultra Low Current 5V Reg	TO-92	3.27	39.00	115.00
LM2937ET-5.0-ND	9244B-ND	5V 500mA High Temp Reg	TO-220	2.03	24.17	77.14
LM2937ET-8.0-ND	9244B-ND	8V 500mA High Temp Volt Reg	TO-220	2.03	24.17	77.14
LM2937ET-10-ND	9244B-ND	10V 500mA High Temp Volt Reg	TO-220	2.03	24.17	77.14
LM2937ET-12-ND	9244B-ND	12V 500mA High Temp Volt Reg	TO-220	2.03	24.17	77.14
LM2937ET-15-ND	9244B-ND	15V 500mA High Temp Volt Reg	TO-220	2.03	24.17	77.14
LM2940CT-5.0-ND	9244B-ND	5V 1Amp Low Dropout Volt Reg	TO-220	2.45	29.17	93.10
LM2940CT-12-ND	9244B-ND	12V 1Amp Low Dropout Volt Reg	TO-220	2.45	29.17	93.10
LM2940CT-15-ND	9244B-ND	15V 1Amp Low Dropout Volt Reg	TO-220	2.45	29.17	93.10
LM2940T-5.0-ND	9244B-ND	5V 1Amp Low Dropout Volt Reg	TO-220	2.98	35.42	113.05
LM2940T-8.0-ND	9244B-ND	8V 1Amp Low Dropout Volt Reg	TO-220	2.98	35.42	113.05
LM2940T-9.0-ND	9244B-ND	9V 1Amp Low Dropout Volt Reg	TO-220	2.98	35.42	113.05
LM2940T-10.0-ND	9244B-ND	10V 1Amp Low Dropout Volt Reg	TO-220	2.98	35.42	113.05
LM2940T-12.0-ND	9244B-ND	12V 1Amp Low Dropout Volt Reg	TO-220	2.98	35.42	113.05
LM2941CT-ND	9244B-ND	Adj Low Dropout 1Amp Volt Reg	TO-220	2.63	31.25	99.75
LM2941T-ND	9244B-ND	Adj Low Dropout 1Amp Volt Reg	TO-220	2.98	35.42	113.05
LM2984CT-ND	9244B-ND	Microprocessor Power Supply System	11-Sip	9.84	117.50	345.00
LM2990T-5.2-ND	9244B-ND	5.2V Neg Low Dropout Volt Reg	TO-220	4.29	51.25	151.00
LM2990T-12-ND	9244B-ND	Negative Low Dropout Volt Reg	TO-220	4.29	51.25	151.00
LM2990T-15-ND	9244B-ND	Negative Low Dropout Volt Reg	TO-220	4.29	51.25	151.00
LM2991T-ND	9244B-ND	Neg Adj Low Dropout 1Amp Volt Reg	TO-220	4.29	51.25	151.00
LM3045J-ND	9243B-ND	Transistor Array	14-CDip	2.63	31.25	99.75
LM3046N-ND	9243B-ND	Transistor Array	14-Dip	1.44	17.08	54.53
LM3080AN-ND	9243B-ND	Operational Transconductance Amplifier	8-Dip	5.25	62.50	199.50
LM3080M-ND	**9243B-ND**	**Operational Transconductance Amp**	**SO-8**	**1.82**	**21.67**	**69.16**
LM3080N-ND	9243B-ND	Oper. Transconductance Amp	8-Dip	1.72	20.42	65.17
LM3086N-ND	9243B-ND	Transistor Array	14-Dip	1.16	13.70	43.89
LM3301N-ND	9243B-ND	Quad Op Amp	14-Dip	1.40	16.67	53.20
LM3302N-ND	9243B-ND	Quad Comparator	14-Dip	1.23	14.58	46.55
LM3303N-ND	9243B-ND	Quad Operational Amplifiers	14-Dip	2.45	29.17	93.10
LM3403M-ND	**9243B-ND**	**Quad Operational Amplifiers**	**SO-14**	**.84**	**10.00**	**31.92**
LM3403N-ND	9243B-ND	Quad Operational Amplifiers	14-Dip	.84	10.00	31.92
LM3420AM5-4.2-ND	**9244B-ND**	**4.2V Lithium-Ion Battery Chrg Ctrl**	**SOT-23-5**	**2.83**	**40.50**	**119.00**
LM3420AM5-8.4-ND	**9244B-ND**	**8.4V Lithium-Ion Battery Chrg Ctrl**	**SOT-23-5**	**2.83**	**40.50**	**119.00**
LM3420AM5-12.6-ND	**9244B-ND**	**12.6V Lithium-Ion Battery Chrg Ctrl**	**SOT-23-5**	**2.83**	**40.50**	**119.00**
LM3420M5-4.2-ND	**9244B-ND**	**4.2V Lithium-Ion Battery Chrg Ctrl**	**SOT-23-5**	**2.43**	**34.75**	**102.00**
LM3420M5-8.4-ND	**9244B-ND**	**8.4V Lithium-Ion Battery Chrg Ctrl**	**SOT-23-5**	**2.43**	**34.75**	**102.00**
LM3420M5-12.6-ND	**9244B-ND**	**12.6V Lithium-Ion Battery Chrg Ctrl**	**SOT-23-5**	**2.43**	**34.75**	**102.00**
LM3524DM-ND	**9244B-ND**	**Regulating Pulse Width Modulator**	**SO-16**	**3.50**	**41.67**	**133.00**
LM3524N-ND	9244B-ND	Regulating Pulse Width Modulator	16-Dip	4.03	47.91	152.95
LM3524DN-ND	9244B-ND	Reg Pulse Width Mod (Book #1)	16-Dip	3.50	41.67	133.00
LM3578AM-ND	**9244B-ND**	**Switching Regulator *NEW!***	**SO-8**	**3.93**	**47.00**	**138.00**
LM3578AN-ND	9244B-ND	Switching Regulator	8-Dip	3.93	47.00	138.00
LM3578H-ND	9244B-ND	Switching Regulator	TO-99	7.35	87.50	315.00
LM3875T-ND	9241B-ND	High Power 40 W Audio Pwr Amp	TO-220-11	13.34	158.74	506.73
LM3876T-ND	9241B-ND	High Power 40 W Audio Pwr Amp	TO-220-11	9.56	113.75	363.09
LM3886T-ND	9241B-ND	60W Audio Amp w/ Mute	TO-220-11	14.88	177.08	565.25
LM3900N-ND	9241B-ND	Quad Amplifier	14-Dip	1.23	14.58	46.55
LM3905N-ND	9241B-ND	Precision Timer	8-Dip	2.90	34.55	110.28
LM3909N-ND	9241B-ND	LED Flasher/Oscillator	8-Dip	2.19	26.25	76.80
LM3914N-ND	9241B-ND	Dot/Bar Graph Display Driver	18-Dip	4.38	52.08	166.25
LM3914V-ND	**9241B-ND**	**Dot/Bar Graph Display Driver**	**20-PLCC**	**6.13**	**72.91**	**232.75**
LM3915N-ND	9241B-ND	3DB Step Bar Graph Display Dr.	18-Dip	4.38	52.08	166.25
LM3916N-ND	9241B-ND	VU Meter Display Driver	18-Dip	4.38	52.08	166.25
LM3999Z-ND	9242B-ND	Precision Reference (5%)	TO-92	5.25	62.75	185.00
LM4040AIM-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- .1%**	**SO-8**	**4.10**	**48.75**	**155.61**
LM4040AIM-5.0-ND	**9242B-ND**	**5V Volt Reference +/- .1%**	**SO-8**	**4.10**	**48.75**	**155.61**
LM4040AIM-10.0-ND	**9242B-ND**	**10V Volt Reference +/-.1%**	**SO-8**	**4.10**	**48.75**	**155.61**
LM4040AIM3-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- .1%**	**SOT-23**	**4.10**	**48.75**	**155.61**
LM4040AIM3-5.0-ND	**9242B-ND**	**5V Volt Reference +/- .1%**	**SOT-23**	**4.10**	**48.75**	**155.61**
LM4040AIM3-10.0-ND	**9242B-ND**	**10V Volt Reference +/-.1%**	**SOT-23**	**4.10**	**48.75**	**155.61**
LM4040AIZ-2.5-ND	9242B-ND	2.5V Volt Reference +/- .1%	TO-92	4.10	48.75	155.61
LM4040AIZ-4.1-ND	9242B-ND	4.1V Volt Reference +/-.1%	TO-92	4.10	48.75	155.61
LM4040AIZ-5.0-ND	9242B-ND	5V Volt Reference +/- .1%	TO-92	4.10	48.75	155.61
LM4040AIZ-8.2-ND	9242B-ND	8.2V Volt Reference +/-.1%	TO-92	4.10	48.75	155.61
LM4040AIZ-10.0-ND	9242B-ND	10V Volt Reference +/-.1%	TO-92	4.10	48.75	155.61
LM4040BIM-2.5-ND	**9242B-ND**	**10V Volt Reference +/-.2%**	**SO-8**	**3.05**	**36.25**	**115.71**
LM4040BIM-5.0-ND	**9242B-ND**	**5V Volt Reference +/-.2%**	**SO-8**	**3.05**	**36.25**	**115.71**
LM4040BIM-8.2-ND	**9242B-ND**	**8.2V Volt Reference +/-.2%**	**SO-8**	**3.05**	**36.25**	**115.71**
LM4040BIM-10.0-ND	**9242B-ND**	**10V Volt Reference +/-.2%**	**SO-8**	**3.05**	**36.25**	**115.71**
LM4040BIM3-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/-.2%**	**SOT-23**	**3.05**	**36.25**	**115.71**
LM4040BIM3-4.1-ND	**9242B-ND**	**4.1V Volt Reference +/-.2%**	**SOT-23**	**3.05**	**36.25**	**115.71**
LM4040BIM3-5.0-ND	**9242B-ND**	**5V Volt Reference +/-.2%**	**SOT-23**	**3.05**	**36.25**	**115.71**
LM4040BIM3-10.0-ND	**9242B-ND**	**10V Volt Reference +/-.2%**	**SOT-23**	**3.05**	**36.25**	**115.71**
LM4040BIZ-2.5-ND	9242B-ND	2.5V Volt Reference +/-.2%	TO-92	3.05	36.25	115.71
LM4040BIZ-8.2-ND	9242B-ND	8.2V Volt Reference +/-.2%	TO-92	3.05	36.25	115.71
LM4040BIZ-10.0-ND	9242B-ND	10V Volt Reference +/-.2%	TO-92	3.05	36.25	115.71
LM4040CIM-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- .5%**	**SO-8**	**2.17**	**25.83**	**82.46**
LM4040CIM-4.1-ND	**9242B-ND**	**4.1V Volt Reference +/-.5%**	**SO-8**	**2.17**	**25.83**	**82.46**
LM4040CIM-5.0-ND	**9242B-ND**	**5V Volt Reference +/- .5%**	**SO-8**	**2.17**	**25.83**	**82.46**
LM4040CIM-8.2-ND	**9242B-ND**	**8.2V Volt Referance +/-.5%**	**SO-8**	**2.17**	**25.83**	**82.46**
LM4040CIM3-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- .5%**	**SOT-23**	**2.17**	**25.83**	**82.46**
LM4040CIM3-4.1-ND	**9242B-ND**	**4.1V Volt Reference +/-.5%**	**SOT-23**	**2.17**	**25.83**	**82.46**
LM4040CIM3-5.0-ND	**9242B-ND**	**5V Volt Reference +/- .5%**	**SOT-23**	**2.17**	**25.83**	**82.46**
LM4040CIM3-8.2-ND	**9242B-ND**	**8.2V Volt Reference +/-.5%**	**SOT-23**	**2.17**	**25.83**	**82.46**
LM4040CIZ-2.5-ND	9242B-ND	**2.5V Volt Reference +/- .5%**	TO-92	2.17	25.83	82.46
LM4040CIZ-4.1-ND	9242B-ND	4.1V Volt Reference +/-.5%	TO-92	2.17	25.83	82.46
LM4040CIZ-5.0-ND	9242B-ND	**5V Volt Reference +/- .5%**	TO-92	2.17	25.83	82.46
LM4040CIZ-8.2-ND	9242B-ND	8.2V Volt Reference +/-.5%	TO-92	2.17	25.83	82.46
LM4040CIZ-10.0-ND	9242B-ND	10V Volt Reference +/-.5%	TO-92	2.17	25.83	82.46
LM4040DIM-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- 1%**	**SO-8**	**1.58**	**18.75**	**59.85**

National Semiconductor LINEAR SERIES *(Continued)*

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★		
				1	25	100
LM4040DIM-5.0-ND	**9242B-ND**	**5V Volt Reference +/- 1%**	**SO-8**	**1.58**	**18.75**	**59.85**
LM4040DIM-10.0-ND	**9242B-ND**	**10V Volt Reference +/- 1%**	**SO-8**	**1.58**	**18.75**	**59.85**
LM4040DIM3-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- 1%**	**SOT-23**	**1.58**	**18.75**	**59.85**
LM4040DIM3-4.1-ND	**9242B-ND**	**4.1V Volt Reference +/- 1%**	**SOT-23**	**1.58**	**18.75**	**59.85**
LM4040DIM3-5.0-ND	**9242B-ND**	**5V Volt Reference +/- 1%**	**SOT-23**	**1.58**	**18.75**	**59.85**
LM4040DIM3-10.0-ND	**9242B-ND**	**10V Volt Reference +/- 1%**	**SOT-23**	**1.58**	**18.75**	**59.85**
LM4040DIZ-2.5-ND	9242B-ND	2.5V Volt Reference +/- 1%	TO-92	1.58	18.75	59.85
LM4040DIZ-4.1-ND	9242B-ND	4.1V Volt Reference +/- 1%	TO-92	1.58	18.75	59.85
LM4040DIZ-5.0-ND	9242B-ND	5V Volt Reference +/- 1%	TO-92	1.58	18.75	59.85
LM4040DIZ-8.2-ND	9242B-ND	8.2V Volt Reference +/- 1%	TO-92	1.58	18.75	59.85
LM4040DIZ-10.0-ND	9242B-ND	10V Volt Reference +/- 1%	TO-92	1.58	18.75	59.85
LM4040EIM3-2.5-ND	**9242B-ND**	**2.5V Volt Reference +/- 2%**	**SOT-23**	**1.19**	**14.17**	**45.22**
LM4040EIZ-2.5-ND	9242B-ND	2.5V Volt Reference +/- 2%	TO-92	1.19	14.17	45.22
LM4041AIM-1.2-ND	**9242B-ND**	**2.5V Volt Reference +/-.1%**	**SO-8**	**4.10**	**48.75**	**155.61**
LM4041AIM3-1.2-ND	**9242B-ND**	**1.2V Volt Reference +/-.1%**	**SOT-23**	**4.10**	**48.75**	**155.61**
LM4041BIM-1.2-ND	**9242B-ND**	**1.2V Volt Referance +/-.2%**	**SO-8**	**3.05**	**36.25**	**115.71**
LM4041BIM3-1.2-ND	**9242B-ND**	**1.2V Volt Referance +/-.2%**	**SOT-23**	**3.05**	**36.25**	**115.71**
LM4041CIM-1.2-ND	**9242B-ND**	**1.2V Volt Referance +/-.5%**	**SO-8**	**2.17**	**25.83**	**82.46**
LM4041CIM-ADJ-ND	**9242B-ND**	**Adj Volt Referance +/- .5%**	**SO-8**	**2.17**	**25.83**	**82.46**
LM4041CIM3-1.2-ND	**9242B-ND**	**Adj Volt Referance +/- .5%**	**SOT-23**	**2.17**	**25.83**	**82.46**
LM4041CIM3-ADJ-ND	**9242B-ND**	**Adj Volt Referance +/- .5%**	**SOT-23**	**2.17**	**25.83**	**82.46**
LM4041CIZ-1.2-ND	9242B-ND	1.2V Volt Reference +/-.5%	TO-92	2.17	25.83	82.46
LM4041CIZ-ADJ-ND	9242B-ND	**Adj Volt Reference +/- .5%**	TO-92	2.17	25.83	82.46
LM4041DIM-ADJ-ND	**9242B-ND**	**Adj Volt Reference +/-1.0%**	**SO-8**	**1.58**	**18.75**	**59.85**
LM4041DIM3-1.2-ND	**9242B-ND**	**1.2V Volt Reference +/-1.0%**	**SOT-23**	**1.85**	**22.04**	**70.36**
LM4041DIM3-ADJ-ND	**9242B-ND**	**Adj Volt Reference +/-1.0%.**	**SOT-23**	**1.58**	**18.75**	**59.85**
LM4041EIM3-1.2-ND	**9242B-ND**	**1.2V Volt Reference +/- 2%**	**SOT-23**	**1.19**	**14.17**	**45.22**
LM4250CH-ND	9243B-ND	Programmable Op Amp	TO-99	3.85	45.83	146.30
LM4250CM-ND	**9243B-ND**	**Programmable Op Amp**	**SO-8**	**2.45**	**29.17**	**93.10**
LM4250CN-ND	9243B-ND	Programmable Op Amp	8-Dip	2.28	27.08	86.45
LM4431M3-2.5-ND	**9242B-ND**	**Precision Voltage Micropower Shunt Volt Ref.**	**SOT-23**	**1.19**	**14.17**	**45.22**
LM4700TF-ND	9241B-ND	Overture 30W Audio Power Amplifier w/ Mute/Standby.	TO-220	7.88	93.75	299.25
LM6118N-ND	9243B-ND	Fast Settling Dual Op Amp	8-Dip	51.80	530.00	1559.99
LM6132AIM-ND	**9243B-ND**	**Dual High Speed/Low Power 7 MHz Rail-to-Rail Op Amp**	**SO-8**	**4.73**	**56.25**	**179.55**
LM6132AIN-ND	9243B-ND	Dual High Speed/Low Power 7 MHz Rail-to-Rail Op Amp	8-Dip	4.73	56.25	179.55
LM6132BIM-ND	**9243B-ND**	**Dual High Speed/Low Power 7 MHz Rail-to-Rail Op Amp**	**SO-8**	**3.75**	**44.58**	**142.31**
LM6132BIN-ND	9243B-ND	Dual High Speed/Low Power 7 MHz Rail-to-Rail Op Amp	8-Dip	3.75	44.58	142.31
LM6134AIM-ND	**9243B-ND**	**Quad High Speed/Low Power 7 MHz Rail-to-Rail Op Amp**	**SO-14**	**5.95**	**70.83**	**226.10**
LM6134AIN-ND	9243B-ND	Quad High Speed/Low Power 7 MHz Rail-to-Rail Op Amp	14-Dip	5.95	70.83	226.10
LM6134BIN-ND	9243B-ND	Quad High Speed/Low Power 7 MHz Rail-to-Rail Op Amp	14-Dip	4.73	56.25	179.55
LM6152ACM-ND	**9243B-ND**	**Dual High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 4mV *NEW!***	**SO-8**	**9.42**	**112.08**	**357.77**
LM6152ACN-ND	9243B-ND	Dual High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 4mV ***NEW!***	8-Dip	9.42	112.08	357.77
LM6152BCM-ND	**9243B-ND**	**Dual High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 7mV *NEW!***	**SO-8**	**6.27**	**74.58**	**238.07**
LM6152BCN-ND	9243B-ND	Dual High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 7mV ***NEW!***	8-Dip	6.27	74.58	238.07
LM6154ACM-ND	**9243B-ND**	**Quad High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 4mV *NEW!***	**SO-14**	**14.56**	**173.33**	**553.28**
LM6154ACN-ND	9243B-ND	Quad High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 4mV ***NEW!***	14-Dip	14.56	173.33	553.28
LM6154BCM-ND	**9243B-ND**	**Quad High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 7mV *NEW!***	**SO-14**	**9.73**	**115.83**	**369.74**
LM6154BCN-ND	9243B-ND	Quad High Speed 75MHz Rail-to-Rail I/O Op Amp Vos = 7mV ***NEW!***	14-Dip	9.73	115.83	369.74
LM6162N-ND	9243B-ND	High Speed Op Amp	8-Dip	30.28	310.00	910.00
LM6171AIM-ND	**9243B-ND**	**Voltage Feedback Low Distortion Low Power Op Amp**	**SO-8**	**5.60**	**66.66**	**212.80**
LM6171AIN-ND	9243B-ND	Voltage Feedback Low Distortion Low Power Op Amp	8-Dip	5.60	66.66	212.80
LM6171BIM-ND	**9243B-ND**	**Voltage Feedback Low Distortion Low Power Op Amp**	**SO-8**	**4.87**	**57.91**	**184.87**
LM6171BIN-ND	9243B-ND	Voltage Feedback Low Distortion Low Power Op Amp	8-Dip	4.87	57.91	184.87
LM6181AIM-ND	**9243B-ND**	**Current Feedback Amp 100MHz**	**SO-16**	**10.50**	**125.00**	**399.00**
LM6181AIN-ND	9243B-ND	Current Feedback Amp 100MHz	8-Dip	10.50	125.00	399.00
LM6181AMN-ND	9243B-ND	Current Feedback Amp 100Mhz	8-Dip	18.03	214.57	684.95
LM6181IM-ND	**9243B-ND**	**Current Feedback Amp 100Mhz**	**SO-16**	**5.64**	**67.08**	**214.13**
LM6181IN-ND	9243B-ND	Current Feedback Amp 100Mhz	8-Dip	5.64	67.08	214.13
LM6218AN-ND	9243B-ND	Fast Settling Dual Op Amp	8-Dip	14.76	176.25	520.00
LM6218N-ND	9243B-ND	Fast Settling Dual Op Amp	8-Dip	11.40	136.25	400.00
LM6218WM-ND	**9243B-ND**	**Fast Settling Dual Op Amp**	**SO-14**	**13.30**	**136.25**	**400.00**
LM6221N-ND	9243B-ND	High Speed Buffer	8-Dip	12.90	155.00	453.00
LM6225N-ND	9243B-ND	High Speed Buffer	14-Dip	13.80	165.00	484.00
LM6261M-ND	**9243B-ND**	**High Speed Op Amp**	**SO-8**	**7.20**	**86.00**	**253.00**
LM6261N-ND	9243B-ND	High Speed Op Amp	8-Dip	7.20	86.00	253.00
LM6262M-ND	**9243B-ND**	**High Speed Op Amp**	**SO-8**	**7.20**	**86.00**	**253.00**
LM6262N-ND	9243B-ND	High Speed Op Amp	8-Dip	7.20	86.00	253.00
LM6264N-ND	9243B-ND	High Speed Op Amp	8-Dip	7.20	86.00	253.00
LM6265N-ND	9243B-ND	High Speed Op Amp	8-Dip	8.40	86.00	253.00
LM6313N-ND	9243B-ND	High Speed, High Power Op Amp	16-Dip	10.02	119.50	352.00
LM6321M-ND	**9243B-ND**	**High Speed Buffer**	**SO-14**	**10.80**	**128.75**	**379.00**
LM6321N-ND	9243B-ND	High Speed Buffer	8-Dip	10.80	128.75	379.00
LM6325N-ND	9243B-ND	High Speed Buffer	14-Dip	11.85	142.50	416.00
LM6361M-ND	**9243B-ND**	**High Speed Op Amp 50Mhz**	**SO-8**	**6.57**	**78.50**	**231.00**
LM6361N-ND	9243B-ND	High Speed Op Amp 50Mhz	8-Dip	6.57	78.50	231.00
LM6362M-ND	**9243B-ND**	**High Speed Op Amp**	**SO-8**	**6.57**	**78.50**	**231.00**
LM6362N-ND	9243B-ND	High Speed Op Amp	8-Dip	6.57	78.50	231.00
LM6364M-ND	**9243B-ND**	**High Speed Op Amp**	**SO-8**	**6.57**	**78.50**	**231.00**
LM6364N-ND	9243B-ND	High Speed Op Amp 175Mhz	8-Dip	6.57	78.50	231.00
LM6365M-ND	**9243B-ND**	**High Speed Op Amp**	**SO-8**	**6.57**	**78.50**	**231.00**
LM6365N-ND	9243B-ND	High Speed Op Amp 725Mhz	8-Dip	6.57	78.50	231.00
LM6685IM-ND	—	**Ultra Fast** Single **Latched Comparator**	**SO-14**	**8.05**	**95.83**	**305.90**
LM6685IN-ND	—	Ultra Fast Single Latched Comparator	14-Dip	8.05	95.83	305.90
LM6687IN-ND	—	Ultra Fast Voltage Comparator	16-Dip	12.60	149.99	478.80
LM7121IM-ND	**9243B-ND**	**235 MHz Tiny Low Power Voltage Feedback Amplifier *NEW!***	**SO-8**	**2.52**	**35.00**	**112.00**
LM7121IN-ND	9243B-ND	235 MHz Tiny Low Power Voltage Feedback Amplifier ***NEW!***	8-Dip	2.10	35.00	112.00
LM7171AIM-ND	**9243B-ND**	**Very High Speed High Output Voltage Feedback Amplifier *NEW!***	**SO-8**	**4.45**	**52.91**	**168.91**
LM7171AIN-ND	9243B-ND	Very High Speed High Output Voltage Feedback Amplifier ***NEW!***	8-Dip	4.45	52.91	168.91
LM7171BIM-ND	**9243B-ND**	**Very High Speed High Output Voltage Feedback Amplifier *NEW!***	**SO-8**	**3.82**	**45.41**	**144.97**
LM7171BIN-ND	9243B-ND	Very High Speed High Output Voltage Feedback Amplifier ***NEW!***	8-Dip	3.82	45.41	144.97
LM7808CT-ND	9244B-ND	8 Volt 1.0 Amp Pos Volt Regulator	TO-220	1.23	14.58	46.55
LM7818CT-ND	9244B-ND	18 Volt 1 Amp Pos Volt Regulator	TO-220	1.51	17.92	57.19
LM7824CT-ND	9244B-ND	24V 1A Positive Regulator	TO-220	1.23	14.58	46.55
LM7905CT-ND	9244B-ND	5 Volt 1.5 Amp Neg Volt Regulator	TO-220	1.23	14.58	46.55
LM7912CT-ND	9244B-ND	12 Volt 1.5 Amp Neg Volt Regulator	TO-220	1.23	14.58	46.55
LM7915CT-ND	9244B-ND	15 Volt 1.5 Amp Neg Volt Regulator.	TO-220	1.23	14.58	46.55
LM9140BYZ-2.5-ND	9242B-ND	Prec Micro Power Volt Regulator 2.5V	TO-92	4.41	52.50	167.58
LM9140BYZ-5.0-ND	9242B-ND	Prec Micro Power Volt Regulator 5.0V	TO-92	4.41	52.50	167.58
LM9140BYZ-10.0-ND	9242B-ND	Prec Micro Power Volt Regulator 10V	TO-92	4.41	52.50	167.58
LM12458CIV-ND	—	**12 Bit and Sign Data Acquisition**	**44-PLCC**	**48.00**	**572.50**	**1690.00**
LM13600AN-ND	9243B-ND	Dual Transconductance Amp	16-Dip	2.28	27.08	86.45
LM13600M-ND	**9243B-ND**	**Dual Operational Transconductance Amp with Linearizing**	**SO-16**	**2.03**	**24.17**	**77.14**
LM13600N-ND	9243B-ND	Dual Transconductance Amp	16-Dip	1.93	22.92	73.15
LM13700N-ND	9243B-ND	Dual Operational Transconductance Amplifier	16-Dip	1.93	22.92	73.15
LM77000CP-ND	9243B-ND	Power Op Amp (250mA)	TO-202	3.06	36.50	108.00
LM18293N-ND	9244B-ND	4-Channel Push Pull Driver	16-Dip	4.73	56.25	179.55
LMC555CM-ND	**9241B-ND**	**CMOS Timer**	**SO-8**	**1.33**	**15.83**	**50.54**
LMC555CN-ND	9241B-ND	CMOS Timer	8-Dip	1.33	15.83	50.54
LMC567CN-ND	9241B-ND	Tone Decoder Phase Locked Loop	8-Dip	2.10	25.00	79.80
LMC568CM-ND	**9241B-ND**	**Low Power Phase-Locked Loop**	**SO-8**	**4.34**	**51.66**	**164.92**
LMC568CN-ND	9241B-ND	Low Power Phase Locked Loop	8-Dip	4.34	51.66	164.92
LMC660AIM-ND	**9243B-ND**	**Cmos Quad Op Amp Industrial Temperature**	**SO-14**	**3.42**	**41.00**	**120.00**
LMC660AIN-ND	9243B-ND	Cmos Quad Op Amp Industrial Temperature	14-Dip	3.42	41.00	120.00
LMC660CM-ND	**9243B-ND**	**Cmos Quad Op Amp**	**SO-14**	**3.09**	**37.00**	**109.00**
LMC660CN-ND	9243B-ND	CMOS Quad Op Amp	14-Dip	3.09	37.00	109.00
LMC662AIM-ND	**9243B-ND**	**Cmos Dual Op Amp Industrial Temperature**	**SO-8**	**3.09**	**37.00**	**109.00**
LMC662AIN-ND	9243B-ND	Cmos Dual Op Amp	8-Dip	3.09	37.00	109.00
LMC662CM-ND	**9243B-ND**	**Cmos Dual Op Amp**	**SO-8**	**2.28**	**27.24**	**79.94**
LMC662CN-ND	9243B-ND	Cmos Dual Op Amp	8-Dip	2.28	27.25	79.90
LMC835N-ND	9241B-ND	Digital Controlled Graphic Equalizer	28-Dip	19.65	235.00	690.00
LMC835V-ND	**9241B-ND**	**7-Band Sterograph Equalizer**	**28-PLCC**	**22.80**	**272.50**	**800.00**
LMC1982CIN-ND	9241B-ND	Digitally-Contr Stereo Tone/Vol Circuit With Two Select	28-Dip	10.50	125.00	399.00
LMC1983CIN-ND	9241B-ND	Digitally-Contr Stereo Tone/Vol Circuit With Three Select	28-Dip	10.50	125.00	399.00
LMC1992CCN-ND	9241B-ND	Digitally-Contr Stereo Tone/Vol Circuit With Four Select	28-Dip	21.00	249.99	798.00
LMC6024IM-ND	**9243B-ND**	**Micropower Cmos Quad Op Amp**	**SO-14**	**2.49**	**34.75**	**111.00**
LMC6024IN-ND	9243B-ND	Micropower Cmos Quad Op Amp	14-Dip	2.91	34.58	110.39
LMC6032IN-ND	9243B-ND	Cmos Dual Op Amp Ind Temp	8-Dip	1.68	20.00	63.84
LMC6034IM-ND	**9243B-ND**	**Cmos Quad Op Amp**	**SO-14**	**1.86**	**22.08**	**70.49**
LMC6034IN-ND	9243B-ND	Cmos Quad Op Amp	14-Dip	1.86	22.08	70.49
LMC6041AIM-ND	**9243B-ND**	**Cmos Single Micropower Op Amp**	**SO-8**	**2.85**	**34.00**	**99.90**
LMC6041AIN-ND	9243B-ND	Cmos Single Micropower Op Amp	8-Dip	2.85	34.00	99.90
LMC6042AIM-ND	**9243B-ND**	**Cmos Dual Micropower Op Amp**	**SO-8**	**3.84**	**46.00**	**135.00**
LMC6042AIN-ND	9243B-ND	Cmos Dual Micropower Op Amp	8-Dip	3.84	46.00	135.00
LMC6042IN-ND	9243B-ND	Cmos Dual Micropower Op Amp	8-Dip	2.70	32.25	94.60
LMC6044AIM-ND	**9243B-ND**	**Cmos Quad Micropower Op Amp**	**SO-14**	**5.37**	**64.25**	**189.00**
LMC6044AIN-ND	9243B-ND	Cmos Quad Micropower Op Amp	Dip-14	5.37	64.25	189.00
LMC6044IN-ND	9243B-ND	Cmos Quad Micropower Op Amp	Dip-14	4.29	51.25	151.00
LMC6061AIM-ND	**9243B-ND**	**Precision Cmos Single Micropower Op Amp**	**SO-8**	**5.70**	**68.00**	**200.00**
LMC6061AIN-ND	9243B-ND	Precision Cmos Single Micropower Op Amp	8-Dip	5.70	68.00	200.00
LMC6061IN-ND	9243B-ND	Precision Cmos Single Micropower Op Amp	8-Dip	3.90	46.50	137.00
LMC6062AIM-ND	**9243B-ND**	**Precision Cmos Dual Micropower Op Amp**	**SO-8**	**7.50**	**89.50**	**263.00**
LMC6062AIN-ND	9243B-ND	Precision Cmos Dual Micropower Op Amp	8-Dip	7.50	89.50	263.00
LMC6062IN-ND	9243B-ND	Precision Cmos Dual Micropower Op Amp	8-Dip	4.80	57.25	169.00
LMC6064AIM-ND	**9243B-ND**	**Precision Cmos Quad Micropower Op Amp**	**SO-14**	**10.98**	**131.25**	**385.00**
LMC6064AIN-ND	9243B-ND	Precision Cmos Quad Micropower Op Amp	14-Dip	10.98	131.25	385.00
LMC6064IN-ND	9243B-ND	Precision Cmos Quad Micropower Op Amp	14-Dip	7.35	87.75	258.00
LMC6081AIM-ND	**9243B-ND**	**Precision Cmos Single Op Amp**	**SO-8**	**5.40**	**64.50**	**190.00**
LMC6081AIN-ND	9243B-ND	Precision Cmos Single Op Amp	8-Dip	5.40	64.50	190.00
LMC6081IN-ND	9243B-ND	Precision Cmos Single Op Amp	8-Dip	3.60	43.00	127.00
LMC6082AIM-ND	**9243B-ND**	**Precision Cmos Dual Op Amp**	**SO-8**	**7.20**	**86.00**	**253.00**
LMC6082AIN-ND	9243B-ND	Precision Cmos Dual Op Amp	8-Dip	7.20	86.00	253.00
LMC6082IM-ND	**9243B-ND**	**Precision Cmos Dual Op Amp**	**SO-8**	**4.44**	**53.00**	**156.00**
LMC6082IN-ND	9243B-ND	Precision Cmos Dual Op Amp	8-Dip	4.50	53.75	158.00
LMC6464AIM-ND	**9243B-ND**	**Quad Micropower, Rail-to-Rail Input/Output Op Amp**	**SO-14**	**8.88**	**106.00**	**312.00**
LMC6464AIN-ND	9243B-ND	Quad Micropower, Rail-to-Rail Input/Output Op Amp	14-Dip	8.88	106.00	312.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LMC6464AMN-ND	9243B-ND	Quad Micropower, Rail-to-Rail Input/Output Op Amp	14-Dip	9.51	113.50	334.00
LMC6464BIM-ND	9243B-ND	Quad Micropower, Rail-to-Rail Input/Output Op Amp	SO-14	6.84	81.75	240.00
LMC6464BIN-ND	9243B-ND	Quad Micropower, Rail-to-Rail Input/Output Op Amp	14-Dip	6.84	81.75	240.00
LMC6482AIM-ND	9243B-ND	Cmos Dual Rail to Rail Input and Output Operational Amp	SO-8	4.95	59.25	174.00
LMC6482AIN-ND	9243B-ND	Cmos Dual Rail to Rail Input and Output Operational Amp	8-Dip	4.95	59.25	174.00
LMC6484AIM-ND	9243B-ND	Cmos Quad Rail to Raid Input and Output Operational Amp	SO-14	8.22	98.00	289.00
LMC6484AIN-ND	9243B-ND	Cmos Quad Rail-to-Raid Input and Output Operational Amp	14-Dip	8.22	98.00	289.00
LMC6484IN-ND	9243B-ND	Cmos Quad Rail-to-Raid Input and Output Operational Amp	14-Dip	6.81	81.37	239.03
LMC6492AEM-ND	9243B-ND	Dual Rail-to-Rail Input/Output Op Amp	SO-8	4.13	59.25	174.00
LMC6492AEN-ND	9243B-ND	Dual Rail-to-Rail Input/Output Op Amp	8-Dip	4.13	59.25	174.00
LMC6492BEM-ND	9243B-ND	Dual Rail-to-Rail Input/Output Op Amp	SO-8	3.38	48.50	142.00
LMC6492BEN-ND	9243B-ND	Dual Rail-to-Rail Input/Output Op Amp	8-Dip	3.38	48.50	142.00
LMC6494AEM-ND	9243B-ND	Dual Rail-to-Rail Input/Output Op Amp	SO-14	6.88	98.50	290.00
LMC6494AEN-ND	9243B-ND	Quad Rail-to-Rail Input/Output Op Amp	14-Dip	6.88	98.50	290.00
LMC6494BEM-ND	9243B-ND	Quad Rail-to-Rail Input/Output Op Amp	SO-8	5.53	79.25	233.00
LMC6494BEN-ND	9243B-ND	Quad Rail-to-Rail Input/Output Op Amp	14-Dip	5.53	79.25	233.00
LMC6582AIM-ND	9243B-ND	Dual Rail-to-Rail Input and Output Cmos Op Amp	SO-8	6.41	65.50	193.00
LMC6582AIN-ND	9243B-ND	Dual Rail-to-Rail Input and Output Cmos Op Amp	8-Dip	6.41	65.50	193.00
LMC6582BIM-ND	9243B-ND	Dual Rail-to-Rail Input and Output Cmos Op Amp	SO-8	5.39	55.25	162.00
LMC6582BIN-ND	9243B-ND	Dual Rail-to-Rail Input and Output Cmos Op Amp	8-Dip	5.39	55.25	162.00
LMC6584AIM-ND	9243B-ND	Quad Rail-to-Rail Input and Output Cmos Op Amp	SO-14	9.42	112.50	331.00
LMC6584AIN-ND	9243B-ND	Quad Rail-to-Rail Input and Output Cmos Op Amp	14-Dip	9.42	112.50	331.00
LMC6584BIM-ND	9243B-ND	Quad Rail-to-Rail Input and Output Cmos Op Amp	SO-14	7.14	85.25	251.00
LMC6584BIN-ND	9243B-ND	Quad Rail-to-Rail Input and Output Cmos Op Amp	14-Dip	7.14	85.25	251.00
LMC6681AIM-ND	9243B-ND	Single Low Voltage Rail/Rail I/O Op Amp w/ Power Down	SO-8	6.36	76.00	223.00
LMC6681AIN-ND	9243B-ND	Single Low Voltage Rail/Rail I/O Op Amp w/ Power Down	8-Dip	6.36	76.00	223.00
LMC6681BIM-ND	9243B-ND	Single Low Voltage Rail/Rail I/O Op Amp w/ Power Down	SO-8	4.86	58.00	171.00
LMC6681BIN-ND	9243B-ND	Single Low Voltage Rail/Rail I/O Op Amp w/ Power Down	8-Dip	4.86	58.00	171.00
LMC6682AIM-ND	9243B-ND	Dual Low Voltage Rail/Rail I/O Op Amp w/ Power Down	SO-14	6.75	80.50	237.00
LMC6682AIN-ND	9243B-ND	Dual Low Voltage Rail/Rail I/O Op Amp w/ Power Down	14-Dip	6.75	80.50	237.00
LMC6682BIM-ND	9243B-ND	Dual Low Voltage Rail/Rail I/O Op Amp w/ Power Down	SO-14	5.10	61.00	179.00
LMC6682BIN-ND	9243B-ND	Dual Low Voltage Rail/Rail I/O Op Amp w/ Power Down	4-Dip	5.10	61.00	179.00
LMC6684AIM-ND	9243B-ND	Quad Low Voltage Rail/Rail I/O Op Amp w/ Power Down	SO-16	9.81	117.00	344.00
LMC6684AIN-ND	9243B-ND	Quad Low Voltage Rail/Rail I/O Op Amp w/ Power Down	16-Dip	9.81	117.00	344.00
LMC6684BIM-ND	9243B-ND	Quad Low Voltage Rail/Rail I/O Op Amp w/ Power Down	SO-16	7.59	90.50	267.00
LMC6684BIN-ND	9243B-ND	Quad Low Voltage Rail/Rail I/O Op Amp w/ Power Down	16-Dip	7.59	90.50	267.00
LMC6762AIM-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator ***NEW!***	SO-8	3.99	47.75	140.00
LMC6762AIN-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator ***NEW!***	8-Dip	3.99	47.75	140.00
LMC6762BIM-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator ***NEW!***	SO-8	3.33	39.75	117.00
LMC6762BIN-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator ***NEW!***	8-Dip	3.33	39.75	117.00
LMC6772AIM-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator w/ Open Drain ***NEW!***	SO-8	3.99	47.75	140.00
LMC6772AIN-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator w/ Open Drain ***NEW!***	8-Dip	3.99	47.75	140.00
LMC6772BIM-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator w/ Open Drain ***NEW!***	SO-8	3.33	39.75	117.00
LMC6772BIN-ND	9243B-ND	Micro Power Rail-to-Rail Cmos Comparator w/ Open Drain ***NEW!***	8-Dip	3.33	39.75	117.00
LMC7111AIN-ND	9243B-ND	Tiny Cmos Op Amp w/ Rail-to-Rail Input and Output ***NEW!***	8-Dip	3.00	36.00	106.00
LMC7111BIN-ND	9243B-ND	Tiny Cmos Op Amp w/ Rail-to-Rail Input and Output ***NEW!***	8-Dip	2.00	28.75	84.00
LMC7211AIM-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input	SO-8	2.85	34.00	99.90
LMC7211AIM5-ND	9243B-ND	Tiny Cmos Comp. w/ Rail-to-Rail Input	SOT-23-5	2.38	34.00	99.90
LMC7211AIN-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input	8-Dip	2.85	34.00	99.90
LMC7211BIM-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input	SO-8	2.43	29.00	85.20
LMC7211BIM5-ND	9243B-ND	Tiny Cmos Comp. w/ Rail-to-Rail Input	SOT-23-5	2.03	29.00	85.20
LMC7211BIN-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input	8-Dip	2.43	29.00	85.20
LMC7221AIM-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input and Open Drain	SO-8	2.38	34.00	99.90

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LMC7221AIN-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input and Open Drain	8-Dip	2.85	34.00	99.90
LMC7221BIM-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input and Open Drain	SO-8	2.43	29.00	85.20
LMC7221BIN-ND	9243B-ND	Tiny Cmos Comparator w/ Rail-to-Rail Input and Open Drain	8-Dip	2.43	29.00	85.20
LMC7660IN-ND	9244B-ND	Switched Capacitor Volt. Conv.	8-Dip	2.70	37.50	119.70
LMD18200T-ND	9244B-ND	3 Amp 55 Volt H Bridge	TO-220	19.63	282.50	830.00
LMD18201T-ND	9244B-ND	3 Amp 55 Volt H Bridge	TO-220	18.00	257.50	760.00
LMF40CIN-50-ND	9242B-ND	Hi Perform 4th Ord Switch Capacitor Butterworth Low	8-Dip	4.95	68.75	219.45
LMF40CIN-100-ND	9242B-ND	Hi Perform 4th Ord Switch Capacitor Butterworth Low	8-Dip	4.95	68.75	219.45
LMF40CIWM-50-ND	9242B-ND	Hi Perform 4th Ord Switch Capacitor Butterworth Low	SO-14	5.40	75.00	239.40
LMF60CIN-50-ND	9242B-ND	Hi Perform 6th Ord Switch Capacitor Butterworth Low	14-Dip	7.89	109.58	349.79
LMF60CIN-100-ND	9242B-ND	Hi Perform 6th Ord Switch Capacitor Butterworth Low	14-Dip	7.89	109.58	349.79
LMF60CIWM-50-ND	9242B-ND	Hi Perform 6th Ord Switch Capacitor Butterworth Low	SO-14	8.79	122.08	389.69
LMF90CCN-ND	9242B-ND	4th Order Elliptic Notch Filter	14-Dip	7.38	105.50	311.00
LMF100ACN-ND	9242B-ND	High Performance Dual Switched Capacitor Filter	20-Dip	6.30	87.50	279.30
LMF100CCN-ND	9242B-ND	Dual Switched Capicator Filter	20-Dip	5.70	79.16	252.70
LMF100CIWM-ND	9242B-ND	High Performance Dual Switched Capacitor Filter	SO-20	7.44	103.33	329.84
LMF380CIN-ND	9242B-ND	Triple One Third Octave Switched Capacitor Active Filter	16-Dip	24.30	290.00	855.00
LMX1501AM-ND	—	1.1 GHz Frequency Synthesizer for Personal comm	SO-16	6.27	87.25	279.00
LMX2325TM-ND	—	Frequency Synthesizer for RF Communications 2.5GHz	SO-20	11.63	167.50	489.00
LMX2330ATM-ND	—	Dual Frequency Synthesizer for RF Communications 2.5GHz	20 SSOP	14.75	211.25	625.00
LMX2332ATM-ND	—	Dual Frequency Synthesizer for RF Communications 1.2GHz	20 TSSOP	11.38	163.75	479.00
LMX2335M-ND	—	Dual Frequency Synthesizer for RF Communications 1.1GHz	SO-20	10.98	157.50	462.00
LMX2336TM-ND	—	Dual Frequency Synthesizer for RF Communications 2.0GHz	20 TSSOP	12.25	176.25	520.00
LP311M-ND	9243B-ND	Voltage Comparator	SO-8	1.11	15.42	49.21
LP311N-ND	9243B-ND	Voltage Comparator	8-Dip	1.11	15.42	49.21
LP324M-ND	—	Low Power Quad Op Amp	SO-14	1.20	16.67	53.20
LP324N-ND	—	Micropower Quad Op Amp	14-Dip	1.20	16.67	53.20
LP339M-ND	9243B-ND	High Performance Quad Comparator	SO-14	1.20	16.67	53.20
LP339N-ND	9243B-ND	Ultra Low Power Quad Comparator	14-Dip	1.20	16.67	53.20
LP365AN-ND	—	Micropower Programmable Quad Comparator	16-Dip	5.10	70.83	226.10
LP365M-ND	—	Micropower Programmable Quad Comparator	SO-16	1.23	17.08	54.53
LP365N-ND	—	Programmable Quad Comparator	16-Dip	1.14	15.83	50.54
LP395Z-ND	—	Ultra Reliable Power Trans	TO-92	1.44	17.18	50.50
LP2902N-ND	9243B-ND	Micropower Quad Op. Amp	14-Dip	1.56	21.67	69.16
LP2950ACZ-5.0-ND	9244B-ND	5 Volt Micro Power Voltage Regulator	TO-92	2.77	32.92	105.07
LP2950CZ-5.0-ND	9244B-ND	5 Volt Micro Power Voltage Regulator	TO-92	2.42	28.75	91.77
LP2951ACM-ND	9244B-ND	Adjustable Voltage Regulator 1.24-29V	SO-8	3.15	43.75	139.65
LP2951ACN-ND	9244B-ND	Adjustable Micropower Volt. Reg. 1.24-29V	8-Dip	3.19	37.92	121.03
LP2951CM-ND	9244B-ND	Adjustable Micropower Volt. Reg. 1.24-29V	SO-8	2.85	39.58	126.35
LP2951CN-ND	9244B-ND	Adjustable Micropower Volt Regulator	8-Dip	3.33	39.58	126.35
LP2952AIN-ND	9244B-ND	Adjustable Micropower Low Dropout Voltage Regulator	14-Dip	6.99	83.50	245.00
LP2952IM-ND	9244B-ND	Low Power Adj Volt Reg 250mA	SO-16	5.85	69.75	206.00
LP2952IN-ND	9244B-ND	Low Power Adj Volt Reg 250mA	14-Dip	5.85	69.75	206.00
LP2953AIM-ND	9244B-ND	Low Power Adj Volt Reg .25 A (Elect. Improved) ***NEW!***	SO-16	7.98	95.25	280.00
LP2953AIN-ND	9244B-ND	Adjustable Micropower Low Dropout Voltage Regulator	16-Dip	7.98	95.25	280.00
LP2953IM-ND	9244B-ND	Low Power Adj Volt Reg 250mA	SO-16	6.72	80.25	236.00
LP2953IN-ND	9244B-ND	Low Power Adj Volt Reg 250mA	16-Dip	6.72	80.25	236.00
LP2954AIT-ND	9244B-ND	5V Micropower Low Dropout Voltage Reg.	TO-220	7.83	93.50	275.00
LP2954IT-ND	9244B-ND	+5V Low Power Voltage Regulator	TO-220	6.57	78.50	231.00
LP2957IT-ND	—	5V Low Power Low Drive Volt Reg.	TO-220-5	7.20	86.00	253.00
LP2960AIM-3.3-ND	—	Micropower 3.3V .5A Low Dropout Regulator 130ppm	SO-16	9.53	137.50	401.00
LP2960AIM-5.0-ND	—	Micropower 5.0V .5A Low Dropout Regulator 130ppm	SO-16	9.53	137.50	401.00
LP2960AIN-3.3-ND	—	Micropower 3.3V .5A Low Dropout Regulator 130ppm	16-Dip	9.53	137.50	401.00
LP2960AIN-5.0-ND	—	Micropower 5.0V .5A Low Dropout Regulator 130ppm	16-Dip	9.53	137.50	401.00
LP2960IM-3.3-ND	—	Micropower 3.3V .5A Low Dropout Regulator 160ppm	SO-16	7.15	102.50	301.00
LP2960IM-5.0-ND	—	Micropower 5.0V .5A Low Dropout Regulator 160ppm	SO-16	7.15	102.50	301.00
LP2960IN-3.3-ND	—	Micropower 3.3V .5A Low Dropout Regulator 160ppm	16-Dip	7.15	102.50	301.00
LP2960IN-5.0-ND	—	Micropower 5.0V .5A Low Dropout Regulator 160ppm	16-Dip	7.15	102.50	301.00
LPC660AIM-ND	9243B-ND	Low Power Cmos Quad Op Amp	SO-14	4.74	56.75	167.00
LPC660AIN-ND	9243B-ND	Low Power Cmos Quad Op Amp	14-Dip	4.74	56.75	167.00
LPC660IN-ND	9243B-ND	Low Power Cmos Quad Op Amp	14-Dip	3.81	45.50	134.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LPC661AIM-ND	**9243B-ND**	**Low Power Cmos Op Amp**	**SO-8**	**2.73**	**32.75**	**95.70**
LPC661AIN-ND	9243B-ND	Low Power Cmos Op Amp	8-Dip	2.73	32.75	95.70
LPC661IN-ND	9243B-ND	Low Power Cmos Op Amp	8-Dip	1.86	22.18	65.20
LPC662AIM-ND	**9243B-ND**	**Low Power Cmos Dual Op Amp**	**SO-8**	**3.72**	**44.50**	**131.00**
LPC662AIN-ND	9243B-ND	Low Power Cmos Dual Op Amp	8-Dip	3.72	44.50	131.00
LPC662IN-ND	9243B-ND	Low Power Cmos Dual Op Amp	8-Dip	2.55	30.50	89.40
MF4CN-50-ND	9242B-ND	4th Order Switched Capacitor Butterworth Low Pass Filter	8-Dip	2.19	30.42	97.09
MF4CN-100-ND	9242B-ND	4th Order Switched Capacitor Butterworth Low Pass Filter	8-Dip	2.19	30.42	97.09
MF5CN-ND	9242B-ND	Monolithic Switched Capacitor Filter	14-Dip	2.76	38.33	122.36
MF5CWM-ND	**9242B-ND**	**Monolithic Switched Capacitor Filter**	**SO-14**	**2.76**	**38.33**	**122.36**
MF6CN-50-ND	9242B-ND	6th Order Switched Capacitor Butterworth Low Pass Filter	14-Dip	4.80	57.25	169.00
MF6CN-100-ND	9242B-ND	6th Order Switched Cap Low Pass Filter	14-Dip	4.80	57.25	169.00
MF6CWM-50-ND	9242B-ND	6th Order Switched Cap Low Pass Filter	**SO-14**	**5.55**	**66.25**	**195.00**
MF8CCN-ND	9242B-ND	4th Order Switched Capacitor Band Pass Filter	18-Dip	11.04	132.50	387.00
MF10ACN-ND	9242B-ND	General Purpose Dual Active Filter	20-Dip	6.57	91.25	291.27
MF10CCN-ND	9242B-ND	Gen. Purpose Dual Active Filter	20-Dip	4.50	62.50	199.50
MM5368N-ND	9241B-ND	Cmos Oscillator Divider Circuit	8-Dip	5.40	64.50	190.00
MM5369AAN-ND	9241B-ND	17 Stg. Osc/Div (3.58 MHz in, 60 Hz out)	8-Dip	4.50	53.75	158.00
MM5437N-ND	—	Digital Noise Generator	8-Dip	2.94	35.25	104.00
MM5450N-ND	9241B-ND	LED Display Driver	40-Dip	6.30	87.50	279.30
MM5451N-ND	9241B-ND	LED Display Driver	40-Dip	6.30	87.50	279.30
MM5452N-ND	9241B-ND	Liquid Crystal Display Driver	40-Dip	6.30	87.50	279.30
MM5452V-ND	**9241B-ND**	**Liquid Crystal Display Driver**	**44-PLCC**	**6.30**	**87.50**	**279.30**
MM5453N-ND	9241B-ND	Liquid Crystal Display Driver	40-Dip	6.30	87.50	279.30
MM5480N-ND	9241B-ND	LED Display Driver	28-Dip	6.15	85.41	272.65
MM5481N-ND	9241B-ND	LED Display Driver	20-Dip	6.00	83.33	266 00
MM5484N-ND	9241B-ND	16 Segment LED Display Driver	22-Dip	3.63	50.41	160.93
MM5486N-ND	9241B-ND	LED Display Driver	40-Dip	5.25	72.91	232.75
MM53200N-ND	—	Digital Code Transmitter/Receiver	18-Dip	4.38	52.08	166.25
MM58167BN-ND	9205B-ND	MPU Real Time Clock	24-Dip	21.75	260.00	765.00
MM58167BV-ND	9205B-ND	MPU Real Time Clock	24-Dip	22.50	270.00	790 00
MM58174AN-ND	—	Micro. Real-Time Clock Calendar	16-Dip	19.80	236.25	695.00
MM58201N-ND	—	Multiplexed LCD Driver	40-Dip	15.15	181.25	535.00
MM58241N-ND	9241B-ND	High Voltage Display Driver	40-Dip	6.93	82.75	243.00
MM58248N-ND	—	High Voltage Display Driver	40-Dip	9.60	114.50	337.00
MM58274CN-ND	—	MPU 24 hr Real Time Clock	16-Dip	19.80	236.25	695.00
MM58274CV-ND	**9241B-ND**	**MPU 24 hr Real Time Clock**	**20-PLCC**	**20.85**	**248.75**	**735.00**
MM58341N-ND	9241B-ND	High Voltage Display Driver	40-Dip	9.00	107.50	316.00
MM58342N-ND	9241B-ND	High Voltage Display Driver	28-Dip	8.25	98.50	290 00
OP07CJ-ND	9243B-ND	Precision Op Amp	TO-99	5.25	72.91	232.75
TL081CP-ND	—	Bi-Fet Op Amp Single	8-Dip	.87	12.08	38.57
TL082CP-ND	—	Bi-Fet Dual Op Amp	8-Dip	.87	12.08	38.57
9241B-ND		1995 Application Specific Analog Products Contains data on: Audio • Automotive • Video • Special Function		16.00	—	—
9242B-ND		1995 Data Acquisition Data Book Contains data on: D/A and A/D Converters • Voltage References • Sample and Hold • Temperature Sensors • Analog Switches-Multiplexers • Active Filters		18.00	—	—
9243B-ND		1995 Operational Amplifiers Data Book Contains data on: • Op Amps • Buffers • Voltage Comparators • Instrumentation amplifiers • Surface Mount • Appendixes/Physical Dimensions.		17.00	—	—
9244B-ND		1995 Power IC's Data Book Contains data on: • Linear • Low Dropout & Switching Voltage Regulators • Motion Control • Peripheral Drivers • High Current Switches • Surface Mount • Appendixes/Physical Dimensions.		12.00	—	—
9245B-ND		1994 Linear Applications Handbook		16 00	—	—
9192B-ND		1993 Power IC's Data Book Contains data on: • Linear • low dropout, & switching voltage regulators • motion control • peripheral drivers • high current switches • surface mount • appendixes/physical dimensions.		9.90	—	—

★ *Call for better pricing on larger quantities!*

National Semiconductor — Telecommunications ICs

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
TP3064WM-ND	**9246B-ND**	**Serial Interface Cmos Codec/Filter Combo**	**SO-20**	**9.98**	**118.75**	**379.05**
TP3420AJ305-ND	9246B-ND	ISDN S/T Interface Device Transceiver	20-CDip	**36.50**	**522.50**	**1539.99**
TP3420AV307-ND	**9246B-ND**	**ISDN S/T Interface Device Transceiver**	**20-PLCC**	**36.00**	**515.00**	**1519.99**
TP5088N-ND	9246B-ND	DTMF Generator for Binary Data	14-Dip	4.38	91.25	194.18
TP5088WM-ND	**9166B-ND**	**DTMF Generator for Binary Data**	**SO-14**	[illegible]	**62.50**	**133.00**
TP5089N-ND	9246B-ND	DTMF Touch-Tone Generator	16-Dip	4.38	91.25	194.18
TP3040AJ-ND	9246B-ND	PCM Filter	16-CDip	8.75	104.16	332.50
TP3040J-ND	9246B-ND	PCM Filter	16-CDip	8.05	95.83	305.90
TP3054J-ND	9246B-ND	Enhanced Serial Interface CODEC Filter	16-CDip	11.38	135.41	432.25
TP3054N-ND	9246B-ND	Enhanced Serial Interface CODEC Filter	16-Dip	6.27	74.58	238.07
TP3054WM-ND	**9246B-ND**	**Enhanced Serial Interface CODEC Filter**	**SO-16**	**6.48**	**77.08**	**246.05**
TP3064J-ND	9246B-ND	Mono Serial Combo Filter	20-CDip	10.20	141.66	452.20
TP3070V-XD-ND	**9246B-ND**	**Combo II ext.temp.**	**28-PLCC**	**19.50**	**406.25**	**929.50**
TP3070V-XG-ND	**9246B-ND**	**Combo II Prog. PCM CODEC /Filter**	**28-PLCC**	**19.50**	**270.82**	[illegible]
9246B-ND	—	1995 Telecommunications Book		10.00	—	—

★ *Call for better pricing on larger quantities!*

Comlinear — LINEAR SERIES

A National Semiconductor Co.

Comlinear Corporation, located in Fort Collins, CO merged with National Semiconductor Corporation in January of 1995. As a separate business unit within National's Analog Mixed Signal Systems Division. Comlinear continues to supply high performance analog signaling processing components.

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
CLC114AJE-ND	**Quad Low Power Video Buffer**	**SO-14**	**16.50**	**277.50**	**880.00**
CLC114AJP-ND	Quad Low Power Video Buffer	14-Dip	16.50	277.50	880.00
CLC400AJE-ND	**Fast Settling Wideband Monolithic Op Amp**	**SO-8**	**10.58**	**175.55**	**562.59**
CLC400AJP-ND	Fast Settling Wideband, Monolithic Op Amp	8-Dip	10.58	175.55	562.59
CLC402AJE-ND	**Low Gain Op Amp W/ Fast 14 Bit Settling**	**SO-8**	**11.33**	**190.00**	**605.00**
CLC402AJP-ND	Low Gain Op Amp W/ Fast 14 Bit Settling	8-Dip	11.33	190.00	605.00
CLC404AJE-ND	**Wideband High Slew Rate, Monolithic Op Amp**	**SO-8**	**10.25**	**171.25**	**550.00**
CLC404AJP-ND	Wideband High Slew Rate, Monolithic Op Amp	8-Dip	10.25	171.25	550.00
CLC405AJE-ND†	**Low Cost, Low Power, 110MHz Op Amp W/ Disable**	**SO-8**	**4.35**	**62.25**	**183.00**
CLC405AJP-ND†	Low Cost, Low Power, 110MHz Op Amp W/ Disable	8-Dip	4.35	62.25	183.00
CLC406AJE-ND	**Wideband, Low Power Monolithic Op Amp**	**SO-8**	**6.45**	**107.07**	**343.14**
CLC406AJP-ND	Wideband, Low Power Monolithic Op Amp	8-Dip	6.45	107.07	343.14
CLC407AJE-ND†	**High Speed Video Op Amp W/ Disable**	**SO-8**	**4.35**	**62.25**	**183.00**
CLC407AJP-ND†	High Speed Video Op Amp W/ Disable	8-Dip	4.35	62.25	183.00
CLC409AJE-ND	**Very Wideband, Low Distortion Monolithic Op Amp**	**SO-8**	**9.05**	**151.25**	**483.00**
CLC409AJP-ND	Very Wideband, Low Distortion Monolithic Op Amp	8-Dip	9.05	151.25	483.00
CLC411AJE-ND†	**High Speed Video Op Amp W/ Disable**	**SO-8**	**9.05**	**151.25**	**483.00**
CLC411AJP-ND†	High Speed Video Op Amp W/ Disable	8-Dip	9.05	151.25	483.00
CLC414AJE-ND	**Quad, Low Power Monolithic Op Amp**	**SO-14**	**12.88**	**215.00**	**690.00**
CLC414AJP-ND	Quad, Low Power Monolithic Op Amp	14-Dip	12.88	215.00	690.00
CLC420AJE-ND	**High Speed, Voltage Feedback Op Amp**	**SO-8**	**8.08**	**134.05**	**429.59**
CLC420AJP-ND	High Speed, Voltage Feedback Op Amp	8-Dip	8.08	134.05	484.50
CLC425AJE-ND†	**Ultra Low Noise Wideband Op Amp**	**SO-8**	**10.78**	**155.00**	**454.00**
CLC425AJP-ND†	Ultra Low Noise Wideband Op Amp	8-Dip	10.78	155.00	454.00
CLC426AJE-ND†	**Wideband, Low Noise Voltage Feedback Op Amp**	**SO-8**	**10.78**	**155.00**	**454.00**
CLC426AJP-ND†	Wideband, Low Noise Voltage Feedback Op Amp	8-Dip	10.78	155.00	454.00
CLC428AJE-ND†	**Dual Wideband, Low Noise Voltage Feedback Op Amp**	**SO-8**	**14.88**	**213.75**	**630.00**
CLC428AJP-ND†	Dual Wideband, Low Noise Voltage Feedback Op Amp	8-Dip	14.88	213.75	630.00
CLC430AJE-ND†	**General Purpose 100MHz Op Amp**	**SO-8**	**3.43**	**56.86**	**182.21**
CLC430AJP-ND†	General Purpose 100MHz Op Amp	8-Dip	3.43	56.86	182.21
CLC432AJE-ND†	**Dual Wideband Monolithic Op Amp**	**SO-8**	**6.48**	**92.82**	**273.16**
CLC432AJP-ND†	Dual Wideband Monolithic Op Amp	8-Dip	6.40	91.75	270.00
CLC440AJE-ND	**High Speed, Low Power Voltage Feedback Op Amp**	**SO-8**	**11.48**	**165.00**	**483.00**
CLC440AJP-ND†	High Speed, Low Power Voltage Feedback Op Amp	8-Dip	11.48	165.00	483.00
CLC449AJE-ND†	**1.2GHz Ultra Wideband Monolithic Op Amp**	**SO-8**	**11.48**	**165.00**	**483.00**
CLC449AJP-ND†	1.2GHz Ultra Wideband Monolithic Op Amp	8-Dip	11.48	165.00	483.00
CLC502AJE-ND†	**Clamping, Low Gain Op Amp W/ Fast 14 bit Settling**	**SO-8**	**8.05**	**135.00**	**430.00**
CLC502AJP-ND	Clamping, Low Gain Op Amp W/ Fast 14 bit Settling	8-Dip	8.05	135.00	430.00
CLC505AJE-ND	**High Speed, Programmable Supply Curr. Monolithic Op Amp**	**SO-8**	**7.03**	**117.25**	**375.00**
CLC505AJP-ND	High Speed, Programmable Supply Curr. Monolithic Op Amp	8-Dip	7.03	117.25	375.00
CLC520AJE-ND	**Amplifier W/ Voltage Controlled Gain, AGC+Amp**	**SO-14**	**12.75**	**213.75**	**680.00**
CLC520AJP-ND	Amplifier W/ Voltage Controlled Gain, AGC+Amp	14-Dip	12.75	213.75	680.00
CLC522AJE-ND†	**Wideband Variable Gain Amplifier**	**SO-14**	**11.15**	**186.25**	**595.00**
CLC522AJP-ND†	Wideband Variable Gain Amplifier	14-Dip	11.15	186.25	595 00
CLC532AJE-ND	**High Speed 2:1 Analog Multiplexer**	**SO-14**	**17.00**	**285.00**	**910.00**
CLC532AJP-ND	High Speed 2:1 Analog Multiplexer	14-Dip	17.00	285.00	910.00
9251B-ND	"Solutions With Speed" Databook		4.95	—	—
9252B-ND	1995 Databook Supplement † Parts marked are contained in the supplement.		4.95	—	—

★ *Call for better pricing on larger quantities!*

LINEAR TECHNOLOGY — LINEAR SERIES

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LM385BZ-2.5LT-ND	9175B-ND	Precision Volt Reference 2.5V	TO-92	2.00	36.26	105.04
LT1001CN8-ND	9175B-ND	Precision Op Amp	8-Dip	2 88	47.50	165.00
LT1001CS8-ND	**9175B-ND**	**Precision Op Amp**	**SO-8**	**3.63**	**60.50**	**215.00**
LT1004CS8-1.2-ND	**9175B-ND**	**Micropower 1.2 Volt Reference**	**SO-8**	**2.88**	**48.00**	**165.03**
LT1004CS8-2.5-ND	**9175B-ND**	**Micropower 2.5 Volt Reference**	**SO-8**	**2.88**	**48.00**	**165.03**
LT1004CZ-1.2-ND	9175B-ND	Micropower 1.2 Volt Reference	TO-92	2.38	39.50	135.00
LT1004CZ-2.5-ND	9175B-ND	Micropower 2.5 Volt Reference	TO-92	2.38	39.50	135.00
LT1004IS8-1.2-ND	**9175B-ND**	Micropower **1.2 Volt Referance**	**SO-8**	**5.63**	**93.75**	**320.00**
LT1004IS8-2.5-ND	**9175B-ND**	Micropower **2.5 Volt Referance**	**SO-8**	**5.63**	**93.75**	**320.00**
LT1006CN8-ND	9175B-ND	5V Precision Op Amp	8-Dip	2.88	53.76	159.97
LT1006S8-ND	**9175B-ND**	**5V Precision Op Amp**	**SO-8**	**3.50**	**58.25**	**195.02**
LT1007CN8-ND	9175B-ND	Low Noise, High Speed, Prec Op Amp	8-Dip	3.63	65.00	195.03
LT1007CS8-ND	**9175B-ND**	**Low Noise High Speed Prec Op Amp**	**SO-8**	**4.13**	**68.75**	**215.00**
LT1008CN8-ND	9175B-ND	Low Noise Op Amp w/ Micro Volt Offset.	8-Dip	5.50	91.75	310.00
LT1008S8-ND	**9175B-ND**	**Low Noise Op Amp with Micro Volt Offset**	**SO-8**	**6.00**	**100.00**	**345.00**
LT1009CZ-ND	9175B-ND	Volt Reference 2.5V, 0.2% Tolerance	TO-92	2.38	39.50	135 00
LT1009S8-ND	**9175B-ND**	**2.5 Volt Reference**	**SO-8**	**3.13**	**52.00**	**185.00**
LT1010CN8-ND	9175B-ND	Fast 150mA Power Buffer	8-Dip	4.38	73.00	250.00
LT1011ACN8-ND	9175B-ND	Precision Voltage Comparator	8-Dip	5.25	87.50	285.00
LT1011CN8-ND	9175B-ND	Precision Voltage Comparator	8-Dip	2.38	39.50	140.00
LT1011CS8-ND	**9175B-ND**	**Precision Voltage Comparator**	**SO-8**	**3.00**	**50.00**	**170.00**
LT1012CN8-ND	9175B-ND	Comp. Precision, Low Noise Op Amp	8-Dip	5.00	83.25	275.00
LT1012S8-ND	**9175B-ND**	**Precision Voltage Comp. Low Noise Op Amp**	**SO-8**	**6.00**	**100.00**	**345.00**
LT1013ACN8-ND	9176B-ND	Dual Precision Op Amp	8-Dip	7.13	118 75	395.00
LT1013CN8-ND	9176B-ND	Dual Precision Op Amp, Vos=300µV	8-Dip	4.25	70.75	240.04
LT1013DN8-ND	9176B-ND	Dual Precision Op Amp, Vos=800µV	8-Dip	3.50	58.25	195.02
LT1013DS8-ND	**9176B-ND**	**Dual Precision Op Amp, Vos=800µV**	**SO-8**	**4.00**	**66.75**	**230.08**
LT1014ACN-ND	9176B-ND	Quad Precision Op Amp	14-Dip	12.75	212.50	710.00
LT1014CN-ND	9176B-ND	Quad Precision Op Amp, Vos=300µV	14-Dip	9.38	156.25	535.13
LT1014DN-ND	9176B-ND	Quad Precision Op Amp, Vos=800µV	14-Dip	6.25	104.25	360.00
LT1014DSW-ND	**9176B-ND**	**Quad Precision Op Amp**	**SOL-16**	**7.38**	**123.00**	**415.07**
LT1016CN8-ND	9175B-ND	High Speed Comparator	8-Dip	5.50	91.75	295.02
LT1016CS8-ND	**9175B-ND**	**High Speed Comparator**	**SO-8**	**6.13**	**102.00**	**319.97**
LT1017CN8-ND	9210B-ND	Micropower Dual Comparator 30ua Supply Current	8-Dip	3.63	60.50	210.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LT1017CS8-ND	9210B-ND	**Micropower Dual Comparator 30ua Supply Current**	SO-8	4.00	66.75	230.00
LT1018CN8-ND	9210B-ND	High Speed Micropwr Dual Comparator 110ua Supply Current	8-Dip	3.38	56.25	195.00
LT1018CS8-ND	9210B-ND	**High Speed Micropwr Dual Comparator 110ua Supply Current**	SO-8	3.75	62.50	220.00
LT1019ACN8-2.5-ND	9175B-ND	Precision 2.5V Bandgap Reference (Elect. Improved)	8-Dip	11.25	187.50	650.00
LT1019ACN8-5-ND	9175B-ND	Precision 5V Bandgap Reference (Elect. Improved)	8-Dip	11.25	187.50	650.00
LT1019ACN8-10-ND	9175B-ND	Precision 10V Bandgap Reference (Elect. Improved)	8-Dip	11.25	187.50	650.00
LT1019CN8-2.5-ND	9175B-ND	Precision 2.5V Bandgap Reference	8-Dip	6.88	114.50	389.95
LT1019CN8-5-ND	9175B-ND	Precision 5V Bandgap Reference	8-Dip	6.88	114.50	389.95
LT1019CN8-10-ND	9175B-ND	Precision 10V Bandgap Reference	8-Dip	6 88	114.50	389.95
LT1019CS8-2.5-ND	9175B-ND	**Precision 2.5V Bandgap Reference**	SO-8	8.38	139.50	485.08
LT1019CS8-5-ND	9175B-ND	**Precision 5V Bandgap Reference**	SO-8	8.38	139.50	485.08
LT1019CS8-10-ND	9175B-ND	**Precision 10V Bandgap Reference**	SO-8	8.38	139.50	485.08
LT1020CN-ND	9175B-ND	Micropower Voltage Reg. & Comparator	14-Dip	6.88	114.50	389.95
LT1020CSW-ND	9175B-ND	**Micropower Voltage Reg. & Comparator**	SOL-16	7.50	125.00	425.10
LT1021BCN8-5-ND	9175B-ND	Precision 5V Ref. TC 5ppm/DegC	8-Dip	9.63	160.50	550.00
LT1021BCN8-10-ND	9175B-ND	Precision 10V Ref. TC 5ppm/DegC	8-Dip	9.63	160.50	550.00
LT1021CCN8-5-ND	9175B-ND	Precision 5V Ref, 0.05% Tolerance	8-Dip	6.38	106.25	364.91
LT1021CCN8-10-ND	9175B-ND	Precision 10V Ref, 0.05% Tolerance	8-Dip	6.38	106.25	364.91
LT1021DCN8-5-ND	9175B-ND	Precision 5V Ref. TC 20ppm/Deg C	8-Dip	4.75	79.25	275.00
LT1021DCN8-10-ND	9175B-ND	Precision 10V Ref. TC 20ppm/Deg C	8-Dip	4.75	79.25	275.00
LT1021DCS8-5-ND	9175B-ND	**Precision 5V Reference**	SO-8	5.88	98.00	335.11
LT1021DCS8-10-ND	9175B-ND	**Precision 10V Reference**	SO-8	5.88	98.00	335.11
LT1025ACN8-ND	9175B-ND	Thermocouple Cold Junction Compensator	8-Dip	8.63	143.75	475.00
LT1025CN8-ND	9175B-ND	Thermocouple Cold Junction Compensator	8-Dip	4.63	77.00	265.00
LT1026CN8-ND	9175B-ND	Switch Capacitor Voltage Doubler/Inverter	8-Dip	3.75	62.50	210.00
LT1026CS8-ND	9175B-ND	**Switch Capacitor Voltage Doubler/Inverter**	SO-8	4.25	70.75	230.00
LT1027BCH-5-ND	9176B-ND	Precision +5V Reference 2PPM/DEG C .05%	TO-5	15.75	312.55	938.88
LT1027BCN8-5-ND	9176B-ND	+5V Reference 2PPM/DEG C	8-Dip	9.25	154.25	495.06
LT1027CCN8-5-ND	9176B-ND	+5V Reference 3PPM/DEG C	8-Dip	8.38	139.50	449.91
LT1027DCN8-5-ND	9176B-ND	+5V Reference 5PPM/DEG C	8-Dip	7.38	123.00	395.01
LT1027ECN8-5-ND	9176B-ND	+5V Reference 7.5PPM/DEG C	8-Dip	6.88	114.50	364.93
LT1028CN8-ND	9210B-ND	Ultra Low Noise Op Amp	8-Dip	8.63	143.75	495.08
LT1028CS8-ND	9210B-ND	**Ultra Low Noise Op Amp**	SO-8	8.63	143.75	495.00
LT1029ACZ-ND	9175B-ND	5V Precision Bandgap Reference	TO-92	4.50	75.00	259.92
LT1029CZ-ND	9175B-ND	5V Precision Bandgap Reference	TO-92	2.75	45.75	160.05
LT1030CN-ND	9175B-ND	Quad Low Power Line Driver	14-Dip	3.13	52.00	165.00
LT1030CS-ND	9175B-ND	**Quad Low Power Line Driver**	SO-14	4.00	66.75	215.04
LT1032CN-ND	9175B-ND	Quad Low Power Line Driver w/Adjustable Slew Rate	14-Dip	4.50	75.00	255.06
LT1032CSW-ND	9175B-ND	**Quad Low Power Line Driver**	SO-16	4.63	77.00	259.93
LT1034CS8-1.2-ND	9210B-ND	**1.2V Reference, Max TC = 40 ppm/DEG C**	SO-8	4.50	75.00	239.94
LT1034CS8-2.5-ND	9210B-ND	**2.5V Reference, Max TC = 40 ppm/DEG C**	SO-8	4.50	75.00	239.40
LT1034BCZ-1.2-ND	9210B-ND	1.2V Ref. Max TC 20 ppm/DEG C	TO-92	5.00	83.25	285.00
LT1034BCZ-2.5-ND	9210B-ND	2.5V Ref. Max TC 20 ppm/DEG C	TO-92	5.00	83.25	285.00
LT1034CZ-1.2-ND	9210B-ND	1.2V Reference, Max TC = 40 ppm/DEG C	TO-92	3.75	62.50	214.95
LT1034CZ-2.5-ND	9210B-ND	2.5V Reference, Max TC = 40 ppm/DEG C	TO-92	3.75	62.50	214.95
LT1034IS8-2.5-ND	9210B-ND	**2.5V Ref, 40 ppm/DEG C Max TC**	SO-8	6.25	104.25	335.00
LT1037ACN8-ND	9175B-ND	Low Noise High Speed Op Amp	8-Dip	8.75	145.75	500.00
LT1037CN8-ND	9175B-ND	Low Noise High Speed Op Amp	8-Dip	3.63	60.50	195.03
LT1037CS8-ND	9175B-ND	**Low Noise High Speed Op Amp**	SO-8	4.13	68.75	215.00
LT1038CK-ND	9175B-ND	Adjustable Positive Volt Regulator, 1% Tolerance, 10 Amps	TO-3	16.09	297.50	1031.03
LT1039CN-ND	9175B-ND	Triple RS232 Driver/Receiver	18-Dip	4.38	73.00	245.00
LT1039CSW-ND	9175B-ND	**Triple RS232 Driver/Receiver**	SO-18	5.25	87.50	290.01
LT1054CN8-ND	9210B-ND	100mA Switching Cap Volt Converter	8-Dip	4.88	81.25	280.02
LT1054CS8-ND	9210B-ND	**100mA Switch Cap Volt Converter**	SO-8	6.00	100.00	324.96
LT1055CN8-ND	9175B-ND	Precision JFet Op Amp	8-Dip	3.38	56.25	194.94
LT1056CN8-ND	9175B-ND	Precision High Speed JFET Op Amp	8-Dip	3.38	56.25	194.94
LT1056S8-ND	9175B-ND	**Precision JFet Op Amp**	SO-8	4.00	66.75	250.08
LT1057ACN8-ND	9175B-ND	Dual Precision JFET Op Amp	8-Dip	8.75	145.75	495.00
LT1057CN8-ND	9176B-ND	Dual Precision JFET Op Amp	8-Dip	4.50	75.00	255.06
LT1057S8-ND	9176B-ND	**Dual Precision JFet Op Amp**	SO-8	4.75	79.25	295.07
LT1058ACN-ND	9175B-ND	Quad Precision JFET Op Amp	14-Dip	16.50	275.00	955.00
LT1058CN-ND	9175B-ND	Quad Precision JFET Op Amp	14-Dip	7.63	127.00	434.93
LT1058SW-ND	9175B-ND	**Quad Precision JFet Op Amp**	SOL-16	8.88	148.00	499.84
LT1070CT-ND	9175B-ND	5 Amp Power Switching Regulator	TO-220-5	10.63	177.00	564.83
LT1070HVCT-ND	9175B-ND	High Voltage 5A Power Switching Reg.	TO-220-5	13.75	229.25	735.00
LT1071CT-ND	9175B-ND	2.5A Power Switching Regulator	TO-220-5	8.63	143.75	475.07
LT1071HVCT-ND	9175B-ND	High Voltage 2.5A Power Switching Reg.	TO-220-5	11.25	187.50	620.00
LT1072CN8-ND	9210B-ND	1.25 Amp Power Switching Regulator	8-Dip	4.38	73.00	245.00
LT1072CS8-ND	9210B-ND	**1.25 Amp Power Switching Regulator**	SO-8	5.38	89.50	299.93
LT1072CT-ND	9210B-ND	1.25 Amp Power Switching Regulator	TO-220-5	5.63	93.75	294.98
LT1072HVCT-ND	9210B-ND	High Voltage 1.25A Power Switching Reg.	TO-220-5	7.38	123.00	385.00
LT1073CN8-ND	9176B-ND	DC to DC Converter Adjustable Output	8-Dip	5.50	91.75	315.04
LT1073CN8-5-ND	9176B-ND	DC to DC Converter 5V	8-Dip	5.50	91.75	315.04
LT1073CN8-12-ND	9176B-ND	DC to DC Converter 12V	8-Dip	5.50	91.75	315.04
LT1073CS8-ND	9176B-ND	**DC to DC Converter Adjustable Output**	SO-8	6.38	106.25	360.06
LT1073CS8-5-ND	9176B-ND	**DC to DC Converter 5V**	SO-8	6.38	106.25	360.06
LT1073CS8-12-ND	9176B-ND	**DC to DC Converter 12V**	SO-8	6.38	106.25	360.00
LT1074CT-ND	9210B-ND	5 Amp, Step Down Switching Regulator	TO-220-5	9.25	154.25	525.03
LT1074HVCT-ND	9210B-ND	High Voltage 5A Step Down Switching Reg.	TO-220-5	13.88	231.25	790.00
LT1074HVIT-ND	9210B-ND	High Volt 5A Step Down Switching Regulator (Ind Temp)	TO-220-5	18.75	312.50	1065.00
LT1074IT-ND	9210B-ND	5 Amp Step Down Switching Regulator (Ind Temp)	TO-220-5	12.50	208.25	710.00
LT1076CQ-ND	9210B-ND	**2A Step Down Switching Reg**	5-DD	7.50	125.00	400.00
LT1076CQ-5-ND	9175B-ND	**2A Step Down 5V Switching Reg**	5-DD	7.50	125.00	400.00
LT1076CR-ND	9210B-ND	**2A Step-Down Switching Regulator**	7-DD	8.13	135.50	434.85
LT1076CR-5-ND	9176B-ND	**2A Step-Down Switching Regulator**	7-DD	8.13	135.50	434.85
LT1076CT-ND	9210B-ND	2A Step Down Switching Regulator	TO-220-5	6.50	108.25	349.96
LT1076CT-5-ND	9176B-ND	2A Step Down Switching Regulator	TO-220-5	6.50	108.25	349.96
LT1077ACN8-ND	9176B-ND	Micropower Precision Op Amp	8-Dip	5.63	93.75	320.00
LT1077CN8-ND	9176B-ND	Micropower Precision Op Amp	8-Dip	3.13	52.00	165.00
LT1077S8-ND	9176B-ND	**Micropower Precision Op Amp**	SO-8	3.63	60.50	205.03
LT1078ACN8-ND	9176B-ND	Micropower Precision Dual Op Amp	8-Dip	9.00	150.00	515.00
LT1078CN8-ND	9176B-ND	Micropower Precision Dual Op Amp	8-Dip	5.00	83.25	280.00
LT1078S8-ND	9176B-ND	**Micropower Precision Dual Op Amp**	SO-8	6.50	108.25	365.04
LT1079ACN-ND	9176B-ND	Micropower Precision Quad Op Amp	14-Dip	11.25	187.50	650.00
LT1079CN-ND	9176B-ND	Micropower Precision Quad Op Amp	14-Dip	6.25	104.25	350.00
LT1079IN-ND	9176B-ND	Micropower Precision Quad Op Amp (Ind Temp)	14-Dip	7.75	129.25	445.00
LT1079ISW-ND	9176B-ND	**Micropower Precision Quad Op Amp (Ind Temp)**	SOL-16	10.13	168.75	570.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LT1079SW-ND	9176B-ND	**Micropower Precision Quad Op Amp**	SOL-16	8.13	135.50	455.00
LT1080CN-ND	9175B-ND	5V, RS232 Driver/Receiver w/ Shut Down	18-Dip	5.63	93.75	315.00
LT1081CN-ND	9175B-ND	5V Powered RS232 Driver/Receiver	16-Dip	4.75	79.25	265.05
LT1081CSW-ND	9175B-ND	**5V Powered RS232 Driver/Receiver**	SOL-16	6.00	100.00	335.00
LT1082CN8-ND	9210B-ND	1 Amp High Voltage Switching Reg.	8-Dip	8.13	135.50	460.00
LT1082CT-ND	9210B-ND	1 Amp High Voltage Switching Reg.	TO220-5	9.38	156.25	535.00
LT1083CK-ND	9210B-ND	Adjustable Low Dropout V Reg 7.5A	TO-3	16.25	271.25	930.00
LT1083CP-ND	9210B-ND	Adjustable Low Dropout V Reg 7.5A	TO-247	13.25	220.75	770.00
LT1084CP-ND	9210B-ND	Adjustable Low Dropout V Reg 5A	TO-247	8.88	148.00	500.00
LT1084CT-ND	9210B-ND	Adjustable Low Dropout Reg, 5 Amps	TO-220	7.75	129.25	444.85
LT1084CT-3.3-ND	9210B-ND	+3.3V Low Dropout V Reg 5A	TO-220	7.75	129.25	444.85
LT1085CM-ND	9210B-ND	**Adjustable Low Dropout V Reg 3A**	3-DD	7.13	118.75	400.00
LT1085CM-3.3-ND	9210B-ND	**+3.3V Low Dropout V Reg 3A**	3 DD	7.13	118.75	400.14
LT1085CM-3.6-ND	9210B-ND	**+3.6V Low Dropout V Reg 3A**	3 DD	7.13	118.75	400.14
LT1085CT-ND	9210B-ND	Adjustable Low Dropout Positive Volt Regulator, 3 Amps	TO-220	6.50	108.25	369.98
LT1085CT-3.3-ND	9210B-ND	+3.3V Low Dropout V Reg 3A	TO-220	6.50	108.25	370.00
LT1085CT-3.6-ND	9210B-ND	+3.6V Low Dropout V Reg 3A	TO-220	6.50	108.25	369.98
LT1085CT-5-ND	9210B-ND	+5V Low Dropout V Reg 3A	TO-220	6.50	108.25	370.00
LT1085CT-12-ND	9210B-ND	+12V Low Dropout V Reg 3A	TO-220	6.50	108.25	370.00
LT1086CM-ND	9210B-ND	**Adjustable Low Dropout Pos Voltage Regulator 1.5 Amp**	3 DD	4.00	66.75	224.96
LT1086CM-3.3-ND	9210B-ND	**3.3V Low Dropout Pos V Reg 1.5A**	3 DD	4.00	66.75	224.96
LT1086CT-ND	9210B-ND	Adjustable Low Dropout Positive Volt Regulator, 1.5 Amps	TO-220	3.75	62.50	216.60
LT1086CT-2.85-ND	9210B-ND	+2.85V Low Dropout V Reg 1.5A	TO-220	3.75	62.50	216.60
LT1086CT-3.3-ND	9210B-ND	1.5A Low Dropout Reg. 3.3V	TO-220	3.75	62.50	216.60
LT1086CT-3.6-ND	9210B-ND	1.5A Low Dropout Reg. 3.6V	TO-220	3.75	62.50	216.60
LT1086CT-5-ND	9210B-ND	+5V Low Dropout V Reg 1.5A	TO-220	3.75	62.50	216.60
LT1086CT-12-ND	9210B-ND	+12V Low Dropout V Reg 1.5A	TO-220	3.75	62.50	216.60
LT1097CN8-ND	9176B-ND	Low Cost, Low Noise Precision Op Amp	8-Dip	3.13	51.25	180.00
LT1097S8-ND	9176B-ND	**Low Cost Low Noise Precision Op Amp**	SO-8	3.38	56.25	191.84
LT1101ACN8-ND	9176B-ND	Precision Micropower Instrumentation Amp	8-Dip	12.25	204.25	695.00
LT1101CN8-ND	9176B-ND	Precision Micropower Instrumentation Amp	8-Dip	8.75	145.75	494.90
LT1101SW-ND	9176B-ND	**Precision Micropower Instrumentation Amp**	SOL-16	10.50	175.00	595.14
LT1102ACN8-ND	9176B-ND	Precision Micropower Instrumentation Amp Jfet Input	8-Dip	12.25	204.25	695.00
LT1102CN8-ND	9176B-ND	Precision Micropower Instrumentation Amp Jfet Input	8-Dip	8.75	145.75	495.00
LT1105CN-ND	9210B-ND	Offline Switching Regulator	14-Dip	7.63	127.00	405.00
LT1105CN8-ND	9210B-ND	Offline Switching Regulator	8-Dip	7.13	118.75	375.00
LT1109ACN8-12-ND	9210B-ND	Micropower Switching Regulator +12V Out	8-Dip	4.38	73.00	245.00
LT1109ACS8-12-ND	9210B-ND	**Micropower Switching Regulator +12V Out**	SO-8	4.38	73.00	245.00
LT1109CS8-ND	9210B-ND	**Adjustable Micropower Switching Regulator**	SO-8	4.38	73.00	245.00
LT1109CS8-12-ND	9210B-ND	**Micropower Switching Regulator +12V Out**	SO-8	4.38	73.00	245.00
LT1110CN8-ND	9176B-ND	Micropower Switching Regulator Adj. Out	8-Dip	5.50	91.75	315.04
LT1110CN8-5-ND	9176B-ND	Micropower Switching Regulator +5V Out	8-Dip	5.50	91.75	315.04
LT1110CN8-12-ND	9176B-ND	Micropower Switching Regulator +12V Out	8-Dip	5.50	91.75	315.04
LT1110CS8-ND	9176B-ND	**Micropower Switching Regulator Adj. Out**	SO-8	6.38	106.25	360.06
LT1110CS8-5-ND	9176B-ND	**Micropower Switching Regulator +5V Out**	SO-8	6.38	106.25	360.00
LT1110CS8-12-ND	9176B-ND	**Micropower Switching Regulator +12V Out**	SO-8	6.38	106.25	360.00
LT1111CN8-ND	9210B-ND	Micropower Switching Regulator Adj. Out	8-Dip	4.25	70.75	240.04
LT1111CN8-5-ND	9210B-ND	Micropower Switching Regulator +5V Out	8-Dip	4.25	70.75	240.04
LT1111CN8-12-ND	9210B-ND	Micropower Switching Regulator +12V Out	8-Dip	4.25	70.75	240.04
LT1111CS8-ND	9210B-ND	**Micropower Switching Regulator Adj. Out**	SO-8	4.88	81.25	280.02
LT1111CS8-5-ND	9210B-ND	**Micropower Switching Regulator +5V Out**	SO-8	4.88	81.25	280.00
LT1111CS8-12-ND	9210B-ND	**Micropower Switching Regulator +12V Out**	SO-8	4.88	81.25	280.00
LT1112ACN8-ND	9210B-ND	Dual Precision Op Amp	8-Dip	6.25	104.25	350.00
LT1112CN8-ND	9210B-ND	Dual Precision Op Amp	8-Dip	4.38	73.00	245.00
LT1112S8-ND	9210B-ND	**Dual Precision Op Amp**	SO-8	4.88	81.25	265.01
LT1113CN8-ND	9210B-ND	Dual Low Noise Precision JFet Input Op Amp	8-Dip	6.00	100.00	324.96
LT1113CS8-ND	9210B-ND	**Dual Low Noise Precision JFet Input Op Amp**	SO-8	6.50	108.25	354.90
LT1114ACN-ND	9210B-ND	Quad Precision Op Amp	14-Dip	12.13	202.00	650.00
LT1114CN-ND	9210B-ND	Quad Precision Op Amp	14-Dip	8.50	141.75	450 16
LT1114S-ND	9210B-ND	**Quad Precision Op Amp**	SO-16	8.88	148.00	474.99
LT1115CN8-ND	9176B-ND	Ultra Low Noise Audio Op Amp	8-Dip	5.63	89.25	295.00
LT1116CN8-ND	9176B-ND	High Speed Ground Sense Comparator	8-Dip	6.00	100.00	349.92
LT1117CST-ND	9210B-ND	**Adjustable Low Dropout Regulator**	SOT-223	3.63	60.50	195.03
LT1117CST-2.85-ND	9210B-ND	**+2.85V SCSI Terminator**	SOT-223	3.63	60.50	195.03
LT1117CST-3.3-ND	9210B-ND	**+3.3V Low Dropout Regulator**	SOT-223	3.63	60.50	195.00
LT1117CST-5-ND	9210B-ND	**+5V Low Dropout Regulator**	SOT-223	3.63	60.50	195.00
LT1118CST-2.5-ND	8257B-ND	**800mA Low Dropout Pos Regulator with 400mA Isink**	SOT-223	4.75	78.75	265.00
LT1118CST-2.85-ND	8257B-ND	**800mA Low Dropout Pos Regulator with 400mA Isink**	SOT-223	4.38	72.50	240.00
LT1118CST-5-ND	8257B-ND	**800mA Low Dropout Pos Regulator with 400mA Isink**	SOT-223	4.75	78.75	265.00
LT1120ACN8-ND	9210B-ND	2.5V Low Dropout Regulator	8-Dip	4.75	79.25	259.92
LT1120ACS8-ND	9210B-ND	**2.5V Low Dropout Regulator**	SO-8	5.50	91.75	300.08
LT1120CN8-ND	9210B-ND	Micropower Volt Reg and Comparator with Shut Down	8-Dip	4.38	73.00	239.93
LT1120CS8-ND	9210B-ND	**Micropower Volt Reg And Compensatqr with Shut Down**	SO-8	5.13	85.50	280.00
LT1121CN8-ND	9210B-ND	Adjustable Low Dropout Micropower Reg.	8-Dip	2.75	45.75	154.99
LT1121CN8-3.3-ND	9210B-ND	3.3V Low Dropout Micropower Regulator	8-Dip	2.75	45.75	154.99
LT1121CN8-5-ND	9210B-ND	5 Volt Low Dropout Micropower Regulator	8-Dip	2.75	45.75	154.99
LT1121CS8-ND	9210B-ND	**Adjustable Low Dropout Micropower Reg.**	SO-8	3.00	50.00	170.04
LT1121CS8-3.3-ND	9210B-ND	**3.3V Low Dropout Micropower Regulator**	SO-8	3.00	50.00	170.04
LT1121CS8-5-ND	9210B-ND	**5V Low Dropout Micropower Regulator**	SO-8	3.00	50.00	170.04
LT1121CST-3.3-ND	9210B-ND	**3.3V Low Dropout Micropower Regulator**	SOT-223	3.25	54.25	175.00
LT1121CST-5-ND	9210B-ND	**5V Low Dropout Micropower Regulator**	SOT-223	3.25	54.25	175.00
LT1121CZ-3.3-ND	9210B-ND	3.3V Low Dropout Micropower Regulator	TO-92	2.38	39.50	135.00
LT1121CZ-5-ND	9210B-ND	5V Low Dropout Micropower Regulator	TO-92	2.38	39 50	135.00
LT1121IZ-5-ND	9210B-ND	5V Low Dropout Micropower Reg.	TO-92	2.88	48.00	160.00
LT1122DCN8-ND	9210B-ND	Fast Settling Op Amp	8-Dip	4.50	75.00	250.00
LT1122DS8-ND	9210B-ND	**Fast Settling Op Amp**	SO-8	4.88	81.25	270.00
LT1124CN8-ND	9176B-ND	Dual Low High Gain Noise Op Amp	8-Dip	6.38	106.25	364.91
LT1124CS8-ND	9176B-ND	**Dual Low Noise High Gain Op Amp**	SO-8	6.75	112.50	385.00

LINEAR SERIES (Continued)

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★		
				1	25	100
LT1125CN-ND	9176B-ND	Quad Low High Gain Noise Op Amp	14-Dip	10.50	175.00	595.14
LT1125CSW-ND	**9176B-ND**	**Quad Low Noise High Gain Op Amp**	**SOL-16**	**11.50**	**191.75**	**650.00**
LT1126CN8-ND	9176B-ND	Dual Low Noise High Slew Rate Op Amp	8-Dip	6.38	106.25	365.00
LT1126CS8-ND	**9176B-ND**	**Dual Low Noise High Slew Rate Op Amp**	**SO-8**	**6.75**	**112.50**	**385.00**
LT1127CN-ND	9176B-ND	Quad Low Noise High Slew Rate Op Amp	14-Dip	10.50	175.00	595.00
LT1127CSW-ND	**9176B-ND**	**Quad Low Noise High Slew Rate Op Amp**	**SOL-16**	**11.50**	**191.75**	**551.00**
LT1128CN8-ND	9210B-ND	Ultra Low Noise Unity Gain Op Amp	8-Dip	8.63	143.75	495.00
LT1128CS8-ND	**9210B-ND**	**Ultra Low Noise Unity Gain Op Amp**	**SO-8**	**8.63**	**143.75**	**495.00**
LT1129CQ-ND	**9210B-ND**	**700 mA Micropower Low Dropout Volt Reg.**	**5 DD**	**4.63**	**77.00**	**254.93**
LT1129CQ-3.3-ND	**9210B-ND**	**700 mA Micropower Low Dropout 3.3V Reg.**	**5 DD**	**4.63**	**77.00**	**254.93**
LT1129CQ-5-ND	**9210B-ND**	**700 mA Micropower Low Dropout 5V Reg.**	**5 DD**	**4.63**	**77.00**	**254.93**
LT1129CS8-ND	**9210B-ND**	**Adjustable 700mA Low Power Low Dropout Voltage Regulator**	**SO-8**	**4.75**	**79.25**	**255.00**
LT1129CS8-3.3-ND	**9210B-ND**	**3.3V 700 mA Low Power Low Dropout Voltage Regulator**	**SO-8**	**4.75**	**79.25**	**255.00**
LT1129CS8-5-ND	**9210B-ND**	**5V 700 mA Low Power Low Dropout Voltage Regulator**	**SO-8**	**4.75**	**79.25**	**255.00**
LT1129CST-3.3-ND	**9210B-ND**	**3.3V 700 mA Micropower Low Dropout Voltage Regulator**	**SOT-223**	**4.25**	**70.75**	**235.00**
LT1129CST-5-ND	**9210B-ND**	**5V 700 mA Micropower Low Dropout Voltage Regulator**	**SOT-223**	**4.25**	**70.75**	**235.00**
LT1129CT-ND	9210B-ND	700 mA Micropower Low Dropout Volt Regulator	TO-220-5	4.00	66.75	224.96
LT1129CT-3.3-ND	9210B-ND	700 mA Micropower Low Dropout 3.3V Reg.	TO-220-5	4.00	66.75	224.96
LT1129CT-5-ND	9210B-ND	700 mA Micropower Low Dropout 5V Reg.	TO-220-5	4.00	66.75	224.96
LT1130ACNW-ND	9210B-ND	5V RS232 5 Drivers/5 Receivers with Charge and Pump	28-Dip	7.25	120.75	399.91
LT1130ACSW-ND	**9210B-ND**	**5V RS232 5 Drivers/5 Receivers**	**SO-28**	**7.63**	**127.00**	**424.87**
LT1130CNW-ND	9175B-ND	5V RS232 5 Drivers/5 Receivers	28-Dip	8.75	162.49	494.90
LT1131ACNW-ND	9210B-ND	5V RS232 5 Drivers/4 Receivers w/Shut Down	28-Djp	7.25	120.75	399.91
LT1131ACSW-ND	**9210B-ND**	**5V RS232 5 Drivers/4 Receivers with Shut Down**	**SO-28**	**7.63**	**127.00**	**424.87**
LT1131CNW-ND	9175B-ND	5V RS232 5 Drivers/4 Receivers w\Shut Down	24-Dip	8.13	149.99	459.88
LT1132ACN-ND	9210B-ND	5V RS232 5 Drivers/3 Receivers	24 Dip	7.25	120.75	399.91
LT1132ACSW-ND	**9210B-ND**	**5V RS232 5 Drivers/3 Receivers**	**SO-24**	**7.63**	**127.00**	**424.87**
LT1132CN-ND	9175B-ND	5V RS232 5 Driver/3 Receivers	24-Dip	7.50	125.00	425.10
LT1133ACN-ND	9210B-ND	5V RS232 3 Drivers/5 Receivers	24-Dip	7.25	120.75	399.91
LT1133ACSW-ND	**9210B-ND**	**5V RS232 3 Drivers/5 Receivers**	**SO-24**	**7.63**	**127.00**	**424.87**
LT1134ACN-ND	9210B-ND	5V RS232 4 Drivers/4 Receivers	24-Dip	7.00	116.75	374.92
LT1134ACSW-ND	**9210B-ND**	**5V RS232 4 Drivers/4 Receivers**	**SO-24**	**7.00**	**116.75**	**374.92**
LT1135ACN-ND	9210B-ND	5V RS232 5 Drivers/3 Receivers	20-Dip	5.88	98.00	325.01
LT1135ACSW-ND	**9210B-ND**	**5V RS232 5 Drivers/3 Receivers**	**SO-20**	**6.25**	**104.25**	**345.00**
LT1136ACNW-ND	9210B-ND	5V RS232 4 Drivers/5 Rec. w/Shut Down	28-Dip	7.25	120.75	399.91
LT1136ACSW-ND	**9210B-ND**	**5V RS232 4 Drivers/5 Rec. w/Shut Down**	**SO-28**	**7.63**	**127.00**	**424.87**
LT1137ACNW-ND	9210B-ND	5V RS232 3 Drivers/5 Rec. w/Shut Down	28-Dip	7.00	116.75	374.92
LT1137ACSW-ND	**9210B-ND**	**5V RS232 3 Drivers/5 Rec. w/Shut Down**	**SO-28**	**7.00**	**116.75**	**374.92**
LT1138ACG-ND	**9210B-ND**	**5V RS232 5 Drivers/3 Rec. w/Shut Down**	**28 SSOP**	**8.38**	**139.50**	**464.98**
LT1138ACNW-ND	9210B-ND	5V RS232 5 Drivers/3 Rec. w/Shut Down	28-Dip	7.25	120.75	399.91
LT1138ACSW-ND	**9210B-ND**	**5V RS232 3 Drivers/5 Rec. w/Shut Down**	**SO-28**	**7.63**	**127.00**	**424.87**
LT1139ACN-ND	9210B-ND	5V or 12V Supply RS232 4 Drivers/ 4 Receivers with Shut Down	24-Dip	7.25	120.75	399.91
LT1139ACSW-ND	**9210B-ND**	**5V or 12V Supply RS232 4 Drivers/ 4 Receivers with Shut Down**	**SO-24**	**7.63**	**127.00**	**424.87**
LT1140ACN-ND	9210B-ND	RS232 5 Drivers/3 Receivers w/Shut Down	24-Dip	5.88	98.00	325.01
LT1140ACSW-ND	**9210B-ND**	**RS232 5 Drivers/3 Receivers w/Shut Down**	**SO-24**	**6.25**	**104.25**	**345.00**
LT1141ACN-ND	9210B-ND	RS232 3 Drivers/5 Receivers w/Shut Down	24-Dip	5.88	98.00	325.01
LT1141ACSW-ND	**9210B-ND**	**RS232 3 Drivers/5 Receivers w/Shut Down**	**SO-24**	**6.25**	**104.25**	**345.00**
LT1158CN-ND	9176B-ND	Half Bridge N-Channel Power Mosfet Driver	16-Dip	5.88	98.00	350.00
LT1158CSW-ND	**9176B-ND**	**Half Bridge N-Channel Power Mosfet Driver**	**SOL-16**	**6.25**	**104.25**	**375.00**
LT1160CN-ND	9257B-ND	Half Bridge N-Channel Power Mosfet Driver	14-Dip	5.25	87.50	300.00
LT1160CS-ND	**9257B-ND**	**Half Bridge N-Channel Power Mosfet Driver**	**SO-14**	**5.63**	**93.75**	**320.00**
LT1160IN-ND	9257B-ND	Half Bridge N-Channel Power Mosfet Driver Hi Temp	14-Dip	6.13	101.25	350.00
LT1161CN-ND	9210B-ND	Quad High Voltage High Side N Channel Mosfet Driver	20-Dip	6.00	100.00	330.00
LT1161CSW-ND	**9210B-ND**	**Quad High Voltage High Side N Channel Mosfet Driver**	**SO-20**	**6.50**	**107.50**	**360.10**
LT1162CN-ND	9257B-ND	Full Bridge N-Channel Power Mosfet Driver	24-Dip	9.00	150.00	515.00
LT1162CSW-ND	**9257B-ND**	**Full Bridge N-Channel Power Mosfet Driver**	**SO-24**	**9.50**	**157.50**	**545.00**
LT1162IN-ND	9257B-ND	Full Bridge N-Channel Power Mosfet Driver Hi Temp	24-Dip	10.38	172.50	595.00
LT1170CQ-ND	**9210B-ND**	**5 Amp Power Switching Regulator 100kHz**	**5 DD**	**11.38**	**189.50**	**605.15**
LT1170CT-ND	9210B-ND	5 Amp Power Switching Regulator 100kHz	TO-220-5	10.63	177.00	564.83
LT1170HVCT-ND	9210B-ND	High Voltage 5A Power Switching Regulator 100kHz	TO-220-5	13.75	229.25	735.00
LT1171CQ-ND	**9210B-ND**	**3 Amp Power Switching Regulator 100kHz**	**5 DD**	**9.38**	**156.25**	**520.13**
LT1171CT-ND	9210B-ND	3 Amp Power Switching Regulator 100kHz	TO-220-5	8.63	143.75	475.07
LT1171HVCT-ND	9210B-ND	High Voltage 2.5A Power Switching Regulator 100kHz	TO-220-5	11.25	187.50	620.00
LT1172CN8-ND	9210B-ND	1.25 Amp Power Switching Regulator 100kHz	8-Dip	4.38	73.00	245.00
LT1172CQ-ND	**9210B-ND**	**1.25 Amp Power Switching Regulator, 100kHz**	**5 DD**	**6.38**	**106.25**	**354.96**
LT1172CS8-ND	**9210B-ND**	**1.25 Amp Power Switching Regulator 100kHz**	**SO-8**	**5.38**	**89.50**	**299.93**
LT1172CT-ND	9210B-ND	1.25 Amp Power Switching Reg. 100kHz	TO-220-5	5.63	93.75	294.98
LT1172HVCT-ND	9210B-ND	High Volt 1.25A Power Switching Regulator 100kHz	TO-220-5	7.38	123.00	385.00
LT1173CN8-ND	9176B-ND	Micropower Switching Regulator, Adj. Out	8-Dip	4.25	70.75	240.04
LT1173CN8-5-ND	9176B-ND	Micropower Switching Regulator +5V Out	8-Dip	4.25	70.75	240.04
LT1173CN8-12-ND	9176B-ND	Micropower Switching Regulator +12V Out	8-Dip	4.25	70.75	240.04
LT1173CS8-ND	**9176B-ND**	**Micropower Switching Regulator Adj. Out**	**SO-8**	**4.88**	**81.25**	**280.02**
LT1173CS8-5-ND	**9176B-ND**	**Micropower Switching Regulator +5V Out**	**SO-8**	**4.88**	**81.25**	**280.02**
LT1173CS8-12-ND	**9176B-ND**	**Micropower Switching Regulator +12V Out**	**SO-8**	**4.88**	**81.25**	**280.02**
LT1175CN8-5-ND	9257B-ND	5V, 500mA Neg Low Dropout Reg.	8-Dip	4.63	77.50	255.00
LT1175CS8-5-ND	**9257B-ND**	**5V, 500mA Neg Low Dropout Reg.**	**SO-8**	**5.38**	**90.00**	**300.00**
LT1175CT-5-ND	9257B-ND	5V, 500mA Neg Low Dropout Reg.	TO-220-5	5.63	93.75	315.00
LT1176CN8-ND	9210B-ND	1 Amp Step Down Switching Regulator	8-Dip	5.63	93.75	319.95
LT1176CN8-5-ND	9210B-ND	1 Amp Step Down Switching Regulator	8-Dip	5.63	93.75	319.95
LT1176CSW-ND	**9210B-ND**	**Adjustable 1A Step Down Switching Reg.**	**SO-20**	**8.13**	**135.50**	**435.00**
LT1176CSW-5-ND	**9210B-ND**	**5V 1A Step Down Switching Reg.**	**SO-20**	**8.13**	**135.50**	**435.00**
LT1178ACN8-ND	9176B-ND	Ultra Low Power Precision Dual Op Amp	8-Dip	10.00	166.75	560.00
LT1178CN8-ND	9176B-ND	Ultra Low Power Precision Dual Op Amp	8-Dip	5.50	91.75	300 08
LT1178SW-ND	**9210B-ND**	**Ultra Low Power Precision Dual Op Amp**	**SOL-16**	**7.38**	**123.00**	**425.10**
LT1178S8-ND	**9210B-ND**	**Ultra Low Power Precision Dual Op Amp**	**SO-8**	**7.00**	**116.75**	**385.00**
LT1179ACN-ND	9176B-ND	Ultra Low Power Precision Quad Op Amp	14-Dip	12.38	206.25	690.00
LT1179CN-ND	9176B-ND	Ultra Low Power Precision Quad Op Amp	14-Dip	6.88	114.50	389.95
LT1179SW-ND	**9176B-ND**	**Low Power Precision Quad Op Amp**	**SOL-16**	**8.75**	**145.75**	**500.15**
LT1180ACN-ND	9210B-ND	Low Power 5V RS232 Dual Driver/Receiver	18-Dip	4.63	77.00	244.94
LT1180ACSW-ND	**9210B-ND**	**Low Power 5V RS232 Dual Driver/Receiver**	**SO-18**	**5.13**	**85.50**	**269.99**
LT1181ACN-ND	9175B-ND	Low Power 5V RS232 Dual Driver/ Receiver	16-Dip	4.63	77.00	244.94
LT1181ACSW-ND	**9210B-ND**	**Low Power 5V RS232 Dual Driver/ Receiver**	**SOL-16**	**5.13**	**85.50**	**269.99**
LT1182CSW-ND	**9210B-ND**	**CCFL/LCD Contrast Regulator**	**SO-16**	**9.38**	**156.25**	**535.13**
LT1183CSW-ND	**9210B-ND**	**CCFL/LCD Contrast Regulator**	**SO-16**	**9.38**	**156.25**	**535.13**
LT1184CSW-ND	**9257B-ND**	**CCFL Switching Regulator**	**SO-16**	**6.63**	**110.50**	**380.00**
LT1184FCSW-ND	**9257B-ND**	**CCFL Switching Reg. (Floating)**	**SO-16**	**7.88**	**131.25**	**450.00**
LT1185CT-ND	9176B-ND	Adjustable Low Dropout VR 3A	TO-220-5	6.50	108.25	370.00
LT1187CN8-ND	9210B-ND	Low Power Video Difference Amp	8-Dip	5.50	91.75	295.02
LT1187CS8-ND	**9210B-ND**	**Low Power Video Difference Amp**	**SO-8**	**6.13**	**102.00**	**345.00**
LT1188CT-ND	9176B-ND	1.5A High Side Switch	TO-220-5	7.50	125.00	425.00
LT1189CN8-ND	9210B-ND	Low Power Video Difference Amp	8-Dip	5.50	91.75	295.02
LT1189CS8-ND	**9210B-ND**	**Low Power Video Difference Amp**	**SO-8**	**6.13**	**102.00**	**345.00**
LT1191CN8-ND	9176B-ND	Ultra High Speed Op Amp	8-Dip	3.25	54.25	173.00
LT1191CS8-ND	**9175B-ND**	**Ultra High Speed Op Amp**	**SO-8**	**3.75**	**62.50**	**195.00**
LT1193CN8-ND	9176B-ND	Adjustable Gain Video Difference Amp	8-Dip	5.50	91.75	295.02
LT1195CN8-ND	9175B-ND	Low Power High Speed Op Amp	8-Dip	3.25	54.25	173.00
LT1195CS8-ND	**9175B-ND**	**Low Power High Speed Op Amp**	**SO-8**	**3.75**	**62.50**	**195.00**
LT1200CN8-ND	9176B-ND	Low Power High Speed Op Amp	8-Dip	5.50	91.75	295.02
LT1203CN8-ND	9210B-ND	150 MHz Video Multiplexer	8-Dip	5.25	87.50	284.97
LT1203CS8-ND	**9210B-ND**	**150 MHz Video Multiplexer**	**SO-8**	**5.63**	**93.75**	**310.05**
LT1204CN-ND	9210B-ND	4 Input Video Multiplexer w/Current Feedback	16-Dip	9.00	150.00	495.00
LT1204CSW-ND	**9210B-ND**	**4 Input Video Multiplexer with Current Feedback**	**SOL-16**	**9.75**	**162.50**	**540.15**
LT1205CSW-ND	**9210B-ND**	**Dual 150 MHz Video Multiplexer**	**SO-16**	**9.63**	**160.50**	**530.15**
LT1206CS8-ND	**9210B-ND**	**250 mA Out, 60MHz Current Feedback Amplifier**	**SO-8**	**7.25**	**120.75**	**394.98**
LT1208CN8-ND	9210B-ND	High Speed Dual Op Amp	8-Dip	7.75	129.25	444.85
LT1208CS8-ND	**9210B-ND**	**High Speed Dual Op Amp**	**SO-8**	**8.75**	**145.75**	**500.15**
LT1209CN-ND	9210B-ND	High Speed Quad Op Amp	14-Dip	12.13	202.00	690.16
LT1209CS-ND	**9210B-ND**	**High Speed Quad Op Amp**	**SO-16**	**11.70**	**216.75**	**745.16**
LT1211CN8-ND	9210B-ND	14MHz Single Supply Dual Precision Op Amp	8-Dip	6.13	102.00	340.00
LT1211CS8-ND	**9210B-ND**	**14MHz Single Supply Dual Precision Op Amp**	**SO-8**	**6.63**	**110.50**	**365.00**
LT1212CN-ND	9210B-ND	14MHz Single Supply Quad Precision Op Amp	14-Dip	11.00	183.25	610.00
LT1212CS-ND	**9210B-ND**	**14MHz Single Supply Quad Precision Op Amp**	**SO-16**	**11.88**	**198.00**	**660.00**
LT1213CN8-ND	9210B-ND	28MHz Single Supply Dual Precision Op Amp	8-Dip	6.13	102.00	340.00
LT1213CS8-ND	**9210B-ND**	**28MHz Single Supply Dual Precision Op Amp**	**SO-8**	**6.63**	**110.50**	**365.00**
LT1214CN-ND	9210B-ND	28MHz Single Supply Quad Precision Op Amp	14-Dip	11.00	183.25	610 00
LT1214CS-ND	**9210B-ND**	**28MHz Single Supply Quad Precision Op Amp**	**SO-16**	**11.88**	**198.00**	**660.00**
LT1215CN8-ND	9210B-ND	23MHz Single Supply Dual Precision Op Amp	8-Dip	7.38	123.00	410.00
LT1215CS8-ND	**9210B-ND**	**23MHz Single Supply Dual Precision Op Amp**	**SO-8**	**7.88**	**131.25**	**435.00**
LT1216CN-ND	9210B-ND	23MHz Single Supply Quad Precisio Op Amp	14-Dip	13.25	220.75	740.00
LT1216CS-ND	**9210B-ND**	**23MHz Single Supply Quad Precision Op Amp**	**SO-16**	**14.13**	**235.50**	**785.00**
LT1220CN8-ND	9176B-ND	Very High Speed Op Amp	8-Dip	6.25	104.25	350 00
LT1220CS8-ND	**9176B-ND**	**Very Speed Op Amp**	**SO-8**	**6.88**	**114.50**	**375.10**
LT1221CN8-ND	9176B-ND	Very High Speed Op Amp	8-Dip	6.25	104.25	350 00
LT1221CS8-ND	**9176B-ND**	**Very High Speed Op Amp**	**SO-8**	**6.88**	**114.50**	**375.00**
LT1222CS8-ND	**—**	**Low Noise Very High Speed Op Amp**	**SO-8**	**6.88**	**114.50**	**375.00**
LT1223CJ8-ND	9176B-ND	100MHz Current Feedback Op Amp	8-CDip	8.50	141.25	485.00
LT1223CN8-ND	9176B-ND	100MHz Current Feedback Op Amp	8-Dip	5.38	89.50	285.00
LT1223CS8-ND	**9176B-ND**	**100MHz Current Feedback Op Amp**	**SO-8**	**6.13**	**102.00**	**340.06**
LT1224CN8-ND	9176B-ND	400V/us High Speed Op Amp	8-Dip	5.38	89.50	285.00
LT1224CS8-ND	**9176B-ND**	**400V/us High Speed Op Amp**	**SO-8**	**6.13**	**102.00**	**340.06**
LT1225CN8-ND	9176B-ND	Very High Speed Op Amp	8-Dip	5.38	89.50	285.00
LT1225CS8-ND	**9176B-ND**	**Very High Speed Op Amp**	**SO-8**	**6.13**	**102.00**	**340.00**
LT1226CN8-ND	9176B-ND	Very High Speed Low Noise Op Amp	8-Dip	5.38	89.50	285.00
LT1226CS8-ND	**9176B-ND**	**Very High Speed Low Noise Op Amp**	**SO-8**	**6.13**	**102.00**	**340.00**
LT1227CN8-ND	9176B-ND	140MHz High Speed Current Feedback Op Amp	8-Dip	4.63	77.00	244.94
LT1227CS8-ND	**9176B-ND**	**140MHz High Speed Current Feedback Op Amp**	**SO-8**	**5.38**	**89.50**	**285.00**
LT1228CN8-ND	9176B-ND	100MHz Current Feedback Amp w/ DC Gain	8-Dip	6.88	114.50	394.90
LT1228CS8-ND	**9176B-ND**	**100MHz Current Feedback Amp w/DC Gain**	**SO-8**	**7.75**	**129.25**	**430.00**
LT1229CN8-ND	9176B-ND	Dual Current FB Op Amp	8-Dip	6.88	114.50	394.90
LT1229CS8-ND	**9176B-ND**	**Dual Current FB Op Amp**	**SO-8**	**7.75**	**129.25**	**429.97**
LT1230CN-ND	9176B-ND	Quad Current Feedback Op Amp	14-Dip	12.75	212.50	725.00
LT1230CS-ND	**9176B-ND**	**Quad Current Feedback Op Amp**	**SO-14**	**13.75**	**229.25**	**780.00**
LT1236ACN8-5-ND	9257B-ND	5V Precision Reference	8-Dip	9.75	162.50	535.00
LT1236ACN8-10-ND	9257B-ND	Precision 10V Ref 5ppm/Deg C	8-Dip	7.38	122.50	395.00
LT1236ACS8-5-ND	**9257B-ND**	**5V Precision Reference**	**SO-8**	**11.00**	**182.50**	**590.00**
LT1236ACS8-10-ND	**9257B-ND**	**Precision 10V Ref 5ppm/Deg C.**	**SO-8**	**11.75**	**195.00**	**625.00**
LT1236BCN8-5-ND	9257B-ND	5V Precision Reference	8-Dip	8.13	135.00	440.00
LT1236BCN8-10-ND	9257B-ND	Precision 10V Ref 10ppm/Deg C	8-Dip	5.88	97.50	315.00
LT1236BCS8-5-ND	**9257B-ND**	**5V Precision Reference**	**SO-8**	**9.25**	**153.75**	**490.00**
LT1236BCS8-10-ND	**9257B-ND**	**Precision 10V Ref 10ppm/Deg C**	**SO-8**	**6.75**	**112.50**	**365.00**
LT1236CCN8-5-ND	9257B-ND	5V Precision Reference	8-Dip	6.88	115.00	370.00
LT1236CCN8-10-ND	9257B-ND	Precision 10V Ref 15ppm/Deg C	8-Dip	5.00	83.75	285.00
LT1236CCS8-5-ND	**9257B-ND**	**5V Precision Reference**	**SO-8**	**7.75**	**128.75**	**410.00**
LT1236CCS8-10-ND	**9257B-ND**	**Precision 10V Ref 15ppm/Deg C**	**SO-8**	**5.88**	**97.50**	**310.00**
LT1237CNW-ND	9175B-ND	5V RS232 Transceiver w/1 Rec. Active w/SD	28-Dip	7.38	123.00	395.01
LT1237CSW-ND	**9210B-ND**	**5V RS232 Transceiver w/1 Rec. Active w/SD**	**SO-28**	**7.38**	**123.00**	**395.01**
LT1239CS-ND	**9257B-ND**	**Backup Battery Charger**	**SO-16**	**10.00**	**166.75**	**570.00**
LT1241CN8-ND	9176B-ND	Current Mode PWM Controller for DC/DC Converters	8-Dip	3.50	58.25	210.00
LT1241CS8-ND	**9176B-ND**	**High Speed Current Mode PWM**	**SO-8**	**3.88**	**64.50**	**230.00**
LT1242CN8-ND	9176B-ND	High Speed Current Mode PWM	8-Dip	3.50	58.25	210.00

LINEAR SERIES (Continued)

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LT1242CS8-ND	9176B-ND	**High Speed Current Mode PWM**	SO-8	3.88	64.50	230.00
LT1243CN8-ND	9176B-ND	High Speed Current Mode PWM	8-Dip	3.50	58.25	210.00
LT1243CS8-ND	9176B-ND	**High Speed Current Mode PWM**	SO-8	3.88	64.50	230.00
LT1244CN8-ND	9176B-ND	High Speed Current Mode PWM	8-Dip	3.50	58.25	210.00
LT1244CS8-ND	9176B-ND	**High Speed Current Mode PWM**	SO-8	3.88	64.50	230.00
LT1245CN8-ND	9176B-ND	High Speed Current Mode PWM	8-Dip	3.50	58.25	210.00
LT1245CS8-ND	9176B-ND	**High Speed Current Mode PWM**	SO-8	3.88	64.50	230.00
LT1246CN8-ND	9176B-ND	1MHz Current Mode PWM	8-Dip	4.00	66.75	224.96
LT1246CS8-ND	9257B-ND	**1MHz Current Mode PWM**	SO-8	4.38	73.00	245.00
LT1247CN8-ND	9257B-ND	1MHz Offline Current Mode PWM	8-Dip	4.00	68.75	250.00
LT1247CS8-ND	9257B-ND	**1MHz, DC/DC Controller**	SO-8	4.38	73.00	237.50
LT1248CN-ND	9210B-ND	Power Factor Correction Controller	16-Dip	6.88	114.50	364.93
LT1248CS-ND	9210B-ND	**Power Factor Correction Controller**	SO-16	7.38	123.00	389.99
LT1249CN8-ND	9210B-ND	8 Pin Power Factor Correction Controller	8-Dip	6.25	104 25	330.00
LT1249CS8-ND	9210B-ND	**8 Pin Power Factor Correction Controller**	SO-8	6.75	112.50	355.05
LT1251CN-ND	9210B-ND	40MHz Video Fader	14-Dip	11.00	183.25	600.16
LT1251CS-ND	9210B-ND	**40 MHz Video Fader**	SO-14	11.63	193.75	630.08
LT1252CN8-ND	9210B-ND	Low Cost Video Amplifier	8-Dip	3.25	54.25	174.98
LT1252CS8-ND	9210B-ND	**Low Cost Video Amplifier**	SO-8	3.50	58.25	184.94
LT1253CN8-ND	9210B-ND	Low Cost Dual Video Amplifier	8-Dip	4.50	75.00	248.94
LT1253CS8-ND	9210B-ND	**Low Cost Dual Video Amplifier**	SO-8	4.88	81.25	259.94
LT1254CN-ND	9210B-ND	Low Cost Quad Video Amplifier	14-Dip	8.13	135.50	449.15
LT1254CS-ND	9210B-ND	**Low Cost Quad Video Amplifier**	SO-14	8.63	143.75	479.90
LT1256CN-ND	9210B-ND	40 MHz DC Gain Controller Amplifier	14-Dip	11.00	183.25	600.16
LT1256CS-ND	9210B-ND	**40MHz DC Gain Controller Amplifier**	SO-14	11.63	193.75	630.08
LT1259CN-ND	9210B-ND	Dual Current Feedback Amplifier w/Shutdown	14-Dip	6.38	106.25	345.02
LT1259CS-ND	9210B-ND	**Dual Current Feedback Amplifier w/Shutdown**	SO-14	6.88	114.50	375.10
LT1260CN-ND	9210B-ND	Triple Current Feedback Amplifier w/Shutdown	16-Dip	7.25	120.75	394.98
LT1260CS-ND	9210B-ND	**Triple Current Feedback Amplifier w/Shutdown**	SO-16	7.75	129.25	424.70
LT1268CQ-ND	9210B-ND	**7.5 Amp 150KHz Switching Regulator**	5 DD	12.13	202.00	690.16
LT1268CT-ND	9210B-ND	7.5 Amp 150KHz Switching Regulator	TO-5	11.38	189.50	650.20
LT1269CT-ND	9210B-ND	4 Amp Power Switching Regulator	TO-220-5	8.88	148.00	489.90
LT1270ACT-ND	9210B-ND	10 Amp Power Switching Regulator	TO-220-5	14.18	262.50	890.19
LT1270CT-ND	9210B-ND	8 Amp Power Switching Regulator	TO-220-5	10.63	177.00	564.83
LT1271CQ-ND	9210B-ND	**4 Amp Power Switching Regulator**	5 DD	9.38	156.25	520.13
LT1271CT-ND	9210B-ND	4 Amp Power Switching Regulator	TO-220-5	8.63	143.75	475.07
LT1280ACN-ND	9210B-ND	Low Power Dual 5V RS232 Dx/Rx 10kV with shut Down	18-Dip	5.00	83.25	265.00
LT1280ACSW-ND	9210B-ND	**Low Power Dual 5V RS232 Dx/Rx 10kV with shut Down**	SO-18	5.50	91.75	290.00
LT1281ACN-ND	9210B-ND	Low Power Dual 5V RS232 Dx/Rx 10kV	16-Dip	5.00	83.25	265.00
LT1281ACSW-ND	9210B-ND	**Low Power Dual 5V RS232 Dx/Rx 10kV**	SOL-16	5.50	91.75	290.00
LT1300CN8-ND	9210B-ND	3.3V/5V Micro Power DC to DC Boost Converter	8-Dip	5.00	83.25	260.00
LT1300CS8-ND	9210B-ND	**3.3V/5V Micro Power DC to DC Boost Converter**	SO-8	5.00	83.25	260.00
LT1301CN8-ND	9210B-ND	5V/12V Micro Power DC to DC Boost Converter	8-Dip	4.75	79.25	250.04
LT1301CS8-ND	9210B-ND	**5V/12V Micro Power DC to DC Boost Converter**	SO-8	4.75	79.25	250.04
LT1302CN8-5-ND	9210B-ND	Micro Power High Output DC/DC 5V Converter	8-Dip	6.13	102.00	334.92
LT1302CS8-ND	9210B-ND	**Micro Power High Output Current DC/DC Converter**	SO-8	6.38	106.25	350.12
LT1302CS8-5-ND	9210B-ND	**Micro Power High Output DC/DC 5V Converter**	SO-8	6.38	106.25	350.12
LT1303CN8-ND	9210B-ND	Micropower DC/DC Converter	8-Dip	4.75	78.75	250.04
LT1303CN8-5-ND	9210B-ND	Micropower DC/DC 5V Converter	8-Dip	4.75	78.75	250.04
LT1303CS8-ND	9210B-ND	**Micropower DC/DC Converter**	SO-8	4.75	78.75	250.04
LT1303CS8-5-ND	9210B-ND	**Micropower DC/DC 5V Converter**	SO-8	4.75	78.75	250.04
LT1312CS8-ND	9210B-ND	**Single PCMCIA VPP Driver/Regulator**	SO-8	3.75	62.50	214.95
LT1313CS-ND	9210B-ND	**Dual PCMCIA VPP Driver/Regulator**	SO-16	5.63	93.75	319.95
LT1319CS-ND	9257B-ND	**Infrared Receiver Building Block**	SO-16	7.25	120.75	394.98
LT1330CG-ND	9210B-ND	**5V RS232 Transceiver w/3V Logic Interface**	28 SSOP	8.13	135.50	425.10
LT1330CNW-ND	9210B-ND	5V RS232 Transceiver w/3V Logic Interface	28-Dip	7.38	123.00	395.01
LT1330CSW-ND	9210B-ND	**5V RS232 Transceiver w/3V Logic Interface**	SO-28	7.38	123.00	395.01
LT1331CNW-ND	9210B-ND	5V/3V RS232 Transceiver w/1 Receiver Active in SD	28-Dip	7.38	123.00	395.01
LT1331CSW-ND	9210B-ND	**5V/3V RS232 Transceiver w/1 Receiver Active in SD**	SO-28	7.38	123.00	395.01
LT1341CG-ND	9210B-ND	**5V RS232 3 Driver/5 Receiver with 1 Receiver Active In/Shu**	28 SSOP	8.13	135.50	425.10
LT1341CNW-ND	9210B-ND	5V RS232 Transceiver w/1 Receiver Active in SD	28-Dip	7.38	123.00	395.01
LT1341CSW-ND	9210B-ND	**5V RS232 Transceiver w/1 Receiver Active in SD**	SO-28	7.38	123.00	395.01
LT1342CGW-ND	9210B-ND	**RS232 3 Driver/5 Receiver with 3V Logic**	28 SSOP	7.75	129.25	420.05
LT1342CNW-ND	9210B-ND	RS232 3 Driver/5 Receiver with 3V Logic	28-Dip	7.13	118.75	385.04
LT1342CSW-ND	9210B-ND	**RS232 3 Driver/5 Receiver with 3V Logic**	SO-28	7.13	118.75	385.04
LT1354CN8-ND	9210B-ND	1mA, 12MHz 400V/µSEC Op Amp	8-Dip	4.25	70.75	234.94
LT1354CS8-ND	9210B-ND	**1mA, 12MHz 400V/µSEC Op Amp**	SO-8	4.75	79.25	259.92
LT1355CN8-ND	9210B-ND	Dual Low Power 12MHz 400V/µSec Op Amp	8-Dip	6.30	116.75	395.00
LT1355CS8-ND	9210B-ND	**Dual Low Power 12MHz 400V/µSec Op Amp**	SO-8	7.20	133.25	432.00
LT1356CN-ND	9210B-ND	Quad Low Power 12MHz 400V/µSec Op Amp	14-Dip	10.58	195.75	670.00
LT1356CS-ND	9210B-ND	**Quad Low Power 12MHz 400V/µSec Op Amp**	SO-16	11.36	210.42	717.89
LT1357CN8-ND	9210B-ND	2mA, 25MHz 600V/µSEC Op Amp	8-Dip	4.63	77.00	254.93
LT1357CS8-ND	9175B-ND	**2mA, 25MHz 600V/µSEC Op Amp**	SO-8	5.13	85.50	280.03
LT1358CN8-ND	9210B-ND	Dual 2mA, 25MHz 600V/µSec Op Amp	8-Dip	7.25	120.75	410.06
LT1358CS8-ND	9210B-ND	**Dual 2mA, 25MHz 600V/µSec Op Amp**	SO-8	8.25	137.50	464.97
LT1359CN-ND	9210B-ND	Quad 2mA, 25MHz 600V/µSec Op Amp	14-Dip	12.00	200.00	680.16
LT1359CS-ND	9210B-ND	**Quad 2mA, 25MHz 600V/µSec Op Amp**	SO-16	11.59	214.50	734.91
LT1360CN8-ND	9210B-ND	Low Power 50MHz 800V/µSec Op Amp	8-Dip	4.13	68.75	225.06
LT1360CS8-ND	9210B-ND	**Low Power 50MHz 800V/µSec Op Amp**	SO-8	4.63	77.00	249.94
LT1361CN8-ND	9210B-ND	50MHz Dual Op Amp	8-Dip	6.38	106.25	350.12
LT1361CS8-ND	9210B-ND	**50MHz Dual Op Amp**	SO-8	6.75	112.50	365.04
LT1362CN-ND	9210B-ND	Quad 50MHz Op Amp	14-Dip	11.25	187.50	615.15
LT1362CS-ND	9210B-ND	**Quad 50MHz Op Amp**	SO-14	11.75	195.75	644.84
LT1363CN8-ND	9210B-ND	Low Power 70MHz 1000V/µSec Op Amp	8-Dip	4.50	75.00	244.98
LT1363CS8-ND	9210B-ND	**6mA, 70MHz 1000V/µSec Op Amp**	SO-8	5.00	83.25	270.00
LT1364CN8-ND	9210B-ND	70MHz Dual Op Amp	8-Dip	6.88	114.50	380.05
LT1364CS8-ND	9210B-ND	**70MHz Dual Op Amp**	SO-8	7.25	120.75	394.98
LT1365CN-ND	9210B-ND	Quad 70MHz Op Amp	14-Dip	12.13	202.00	664.94
LT1365CS-ND	9210B-ND	**Quad 70MHz Op Amp**	SO-14	11.36	210.50	694.88
LT1366CN8-ND	9266B-ND	Dual Precision Rail-Rail Input/Output Op Amp	8-Dip	6.50	108.25	374.92
LT1366CS8-ND	9266B-ND	**Dual Precision Rail-Rail Input/Output Op Amp**	SO-8	6.75	112.50	375.00
LT1367CS-ND	9257B-ND	**Quad Precision Rail-Rail Input/Output Op Amp**	SO-16	11.50	191.25	635.00
LT1368CN8-ND	9257B-ND	Rail to Rail Op Amp	8-Dip	6.50	107.50	375.00
LT1368CS8-ND	9257B-ND	**Rail to Rail Op Amp**	SO-8	6.75	112.50	375.00
LT1372CN8-ND	9257B-ND	500 kHz, 1.5A, Step Up Switching Reg	8-Dip	6.50	108.75	350.00
LT1372CS8-ND	9257B-ND	**500 kHz, 1.5A, Step Up Switch Reg**	SO-8	6.75	112.50	385.00
LT1373CN8-ND	9257B-ND	250kHZ Switching Regulator	8-Dip	6.50	107.50	370.00
LT1373CS8-ND	9257B-ND	**250kHz Switching Regulator**	SO-8	6.75	112.50	385.00
LT1376CN8-ND	9257B-ND	500kHz 1 5A Stepdown Switching Reg.	8-Dip	6 50	108.75	370.00
LT1376CN8-5-ND	9257B-ND	5V. 500kHz. 1.5A S/D Switching Reg	8-Dip	6.50	108.75	360.00
LT1376CS8-ND	9257B-ND	**500kHz 1.5A Stepdown Switching Reg.**	SO-8	6.75	112.50	385.00
LT1376CS8-5-ND	9257B-ND	**5V, 500kHz, 1.5A S/D Switching Reg.**	SO-8	6.75	112.50	375.00
LT1381CS-ND	9210B-ND	**RS232 2 Drivers/ 2 Receivers**	SO-16	3.50	58.25	200.00
LT1413CN8-ND	9210B-ND	Dual +5V Supply Precision Op Amp	8-Dip	3.75	62.50	205.05
LT1413S8-ND	9210B-ND	**Dual +5V Supply Precision Op Amp**	SO-8	4.00	66.75	230.08
LT1431CN8-ND	9176B-ND	Programmable Reference	8-Dip	2.25	37.50	125.01
LT1431CS8-ND	9176B-ND	**Programmable Reference**	SO-8	3.13	52.00	180.00
LT1432CN8-ND	9176B-ND	High Efficiency 5V Controller	8-Dip	4.38	73.00	235.03
LT1432CS8-ND	9176B-ND	**High Efficiency 5V Controller**	SO-8	5.00	83.25	265.00
LT1457CN8-ND	9210B-ND	Dual JFet Input Op Amp	8-Dip	4.50	75.00	239.94
LT1457S8-ND	9210B-ND	**Dual Precison JFET Input Op Amp**	SO-8	4.75	79.25	255.00
LT1521CS8-ND	9257B-ND	**300mA Low Dropout Voltage Reg.**	SO-8	4.13	68.75	250.00
LT1521CS8-3-ND	9257B-ND	**+3V Low Dropout Micropower Voltage Regulator, 300mA**	SO-8	4.13	68.75	250.00
LT1521CS8-3.3-ND	9257B-ND	**+3.3V Low Dropout Micropower Voltage Regulator, 300mA**	SO-8	4.13	68.75	250.00
LT1521CS8-5-ND	9257B-ND	**+5V Low Dropout Micropower Voltage Regulator, 300mA**	SO-8	4.13	68.75	250.00
LT1521CST-3-ND	9257B-ND	**+3V Low Dropout Micropower Voltage Regulator, 300mA**	SOT-223	3.88	63.75	225.00
LT1521CST-3.3-ND	9257B-ND	**+3.3V Low Dropout Micropower Voltage Regulator, 300mA**	SOT-223	3.88	63.75	225.00
LT1521CST-5-ND	9257B-ND	**+5V Low Dropout Micropower Voltage Regulator, 300mA**	SOT-223	3.88	63.75	225.00
LT1528CT-ND	9257B-ND	3A Ultra Low Dropout MPU Reg.	TO-220-5	6.50	108.75	375.00
LT1529CT-ND	9257B-ND	3A Low Dropout Micropower Voltage Regulator with SD	TO-220-5	6.50	108.75	370.00
LT1529CT-5-ND	9257B-ND	+5V Low Dropout Micropower Voltage Regulator 3A	TO-220-5	6.50	108.75	370.00
LT1572CS-ND	9257B-ND	**100kHz 1.25A Switching Regulator**	SO-16	7.50	125.00	405.00
LT1580CT-ND	9257B-ND	7A Low Dropout HS Volt. Reg.	TO-220-5	11.25	162.50	615.00
LT1584CT-ND	9257B-ND	Adj. Low Dropout High Speed 7A Linear Reg.	TO-220	10.63	177.00	605.20
LT1584CT-3.3-ND	9257B-ND	3.3V Low Dropout HS 7A Linear Reg	TO-220	10.63	177.00	605.00
LT1585CM-ND	9210B-ND	**Adj. Low Dropout High Speed 4A Linear Reg.**	3 DD	7.75	129.25	429.97
LT1585CM-3.3-ND	9210B-ND	**3.3V Low Dropout High Speed 4A Linear Reg.**	3 DD	7.75	129.25	429.97
LT1585CM-3.6-ND	9210B-ND	**3.6V Low Dropout High Speed 4A Linear Reg.**	3 DD	7.75	129.25	429.97
LT1585CT-ND	9210B-ND	Adj. Low Dropout High Speed 4A Linear Reg.	TO-220	7.13	118.75	400.14
LT1585CT-3.3-ND	9210B-ND	3.3V Low Dropout High Speed 4A Linear Reg.	TO-220	7.13	118.75	400.14
LT1585CT-3.6-ND	9210B-ND	3.6V Low Dropout High Speed 4A Linear Reg.	TO-220	7.13	118.75	400.14
LT1587CT-ND	9257B-ND	Adj. Low Dropout High Speed 3A Linear Rey	TO-220	5.88	98.00	335.11
LT1587CT-3.3-ND	9257B-ND	3.3V Low Dropout High Speed 3A Linear Reg.	TO-220	5.88	98.00	335.11
LTC485CN8-ND	9176B-ND	Low Power, RS485 TX/RX	8-Dip	2.50	41.75	135.00
LTC485CS8-ND	9176B-ND	**Low Power RS485 TX/RX**	SO-8	3.13	52.00	170.00
LTC486CN-ND	9176B-ND	Low Power Quad RS485 Driver	16-Dip	6.50	108.25	369 98
LTC486CSW-ND	9176B-ND	**Low Power Quad RS485 Driver**	SOL-16	7.50	125.00	425.10
LTC487CN-ND	9176B-ND	Low Power Quad RS485 Driver	16-Dip	6.50	108.25	369.98
LTC487CSW-ND	9176B-ND	**Low Power Quad RS485 Driver**	SOL-16	7.50	125.00	425.10
LTC488CN-ND	9210B-ND	Quad Low Power RS485 Receiver	16-Dip	6.50	108.25	369.98
LTC488CSW-ND	9210B-ND	**Quad Low Power RS485 Receiver**	SOL-16	7.50	125.00	425.10
LTC489CN-ND	9210B-ND	Quad Low Power RS485 Receiver	16-Dip	6.50	108.25	369.98
LTC489CSW-ND	9210B-ND	**Quad Low Power RS485 Receiver**	SOL-16	7.50	125.00	425.10
LTC490CN8-ND	9176B-ND	Low Power RS485 TX/RX	8-Dip	4.38	73.00	250.08
LTC490CS8-ND	9176B-ND	**Low Power RS485 TX/RX**	SO-8	5.38	89.50	305.09
LTC491CN-ND	9176B-ND	Low Power RS485 TX/RX	14-Dip	4.88	81.25	280.02
LTC491CS-ND	9176B-ND	**Low Power RS485 TX/RX**	SO-14	5.88	98.00	325.01
LTC660CN8-ND	9257B-ND	100mA Switched Capacitor Converter	8-Dip	5.00	83.25	285.00
LTC660CS8-ND	9257B-ND	**100mA Switched Capacitor Converter**	SO-8	5.50	91.75	314.00
LTC690CN8-ND	9176B-ND	µP Reset Circuit and WDT	8-Dip	6.25	104.25	350.00
LTC690CS8-ND	9176B-ND	**MPU Supervisor Reset Circuit and WDT**	SO-8	6.88	114.50	375.10
LTC691CN-ND	9176B-ND	MPU Supervisor Reset Circuit and WDT with Ram Protect	16-Dip	6.88	114.50	380.05
LTC691CSW-ND	9176B-ND	**MPU Supervisor Reset Circuit and WDT with Ram Protect**	SOL-16	7.50	125.00	414.90
LTC692CN8-ND	9210B-ND	MPU Reset Circuit & WDT	8-Dip	6.25	104.25	350.00
LTC692CS8-ND	9210B-ND	**MPU Reset Circuit & WDT**	SO-8	6.88	114.50	375.00
LTC693CN-ND	9210B-ND	MPU Reset Circuit & WDT w/RAM Protect	16-Dip	6.88	114.50	380.00
LTC693CSW-ND	9210B-ND	**MPU Reset Circuit & WDT w/RAM Protect**	SO-16	7.50	125.00	415.00
LTC694CN8-ND	9176B-ND	MPU Supervisor Reset Circuit and WDT	8-Dip	6.25	104.25	350.00
LTC694CN8-3.3-ND	9210B-ND	3.3V MPU Supervisoı Reset Circuit and WDT	8-Dip	6.75	112.50	379.89
LTC694CS8-ND	9210B-ND	**MPU Supervisor Reset Circuit and WDT**	SO-8	6.88	114.50	375.10
LTC694CS8-3.3-ND	9210B-ND	**3.3V Supervisor Reset Circuit and WDT**	SO-8	7.50	125.00	420.00
LTC695CN-ND	9176B-ND	MPU Supervisor Reset Circuit and WDT with Ram Protect	16-Dip	6.88	114.50	380.05
LTC695CN-3.3-ND	9210B-ND	3.3V MPU Supervisor Reset Circuit and WDT with Ram Protect	16-Dip	7.38	123.00	415.07
LTC695CSW-ND	9176B-ND	**MPU Supervisor Reset Circuit and WDT with Ram Protect**	SOL-16	7.50	125.00	414.90
LTC695CSW-3.3-ND	9210B-ND	**3.3V MPU Supervisor Reset Circuit and WDT with Ram Protect**	SOL-16	8.13	135.50	455.00
LTC699CN8-ND	9176B-ND	MPU Supervisor Reset Circuit and WDT	8-Dip	4.63	77.00	247.00
LTC699CS8-ND	9176B-ND	**MPU Supervisor Reset Circuit and WDT**	SO-8	5.00	83.25	267.00
LTC1040CN-ND	9175B-ND	Dual Micropower Comparator	18-Dip	3.88	64.50	220.00
LTC1040CSW-ND	9175B-ND	**Dual Micropower Comparator**	SO-18	4.63	77.00	285.00
LTC1041CN8-ND	9175B-ND	Bang-Bang Controller	8-Dip	3.38	56.25	190.00
LTC1041CS8-ND	9175B-ND	**Bang-Bang Controller**	SO-8	4.13	68.75	250.00
LTC1042CN8-ND	9175B-ND	Window Comparator	8-Dip	3.38	56.25	189.95
LTC1043CN-ND	9175B-ND	Dual CMOS Switch Building Block, Front End	18-Dip	5.13	85.50	295.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LTC1044CN8-ND	9175B-ND	Switched Cap Voltage Converter	8-Dip	3.13	51.25	175.00
LTC1044CS8-ND	**9175B-ND**	**Switched Cap Voltage Converter**	**SO-8**	**4.13**	**68.75**	**234.96**
LTC1045CN-ND	9175B-ND	Universal Level Translator	20-Dip	5.25	87.50	295.00
LTC1046CN8-ND	9176B-ND	Switched Cap Volt Converter 50mA	8-Dip	4.00	66.75	224.96
LTC1046CS8-ND	**9176B-ND**	**Switched Cap Volt Converter 50mA**	**SO-8**	**5.25**	**87.50**	**300.09**
LTC1047CN8-ND	9176B-ND	Dual Ultra Low Power Chopper Stabilized Op Amp	8-Dip	9.00	150.00	510.12
LTC1047CSW-ND	**9176B-ND**	**Dual Ultra Low Power Chopper Stabilized Op Amp**	**SOL-16**	**10.25**	**170.75**	**544.89**
LTC1049CN8-ND	9176B-ND	Ultra Low Power Chop Stabilized Op Amp	8-Dip	4.00	66.75	224.96
LTC1049CS8-ND	**9176B-ND**	**Ultra Low Power Chopper Stabilized Op Amp**	**SO-8**	**5.00**	**83.25**	**280.00**
LTC1050CN8-ND	9175B-ND	Chopper Stabilized O.A. w/ Internal Caps	8-Dip	4.00	66.75	224.96
LTC1050CS8-ND	**9175B-ND**	**Chopper Stabilized Op Amp w/Internal Caps**	**SO-8**	**5.00**	**83.25**	**280.00**
LTC1051CN8-ND	9176B-ND	Dual Chopper Stabilized Op Amp	8-Dip	7.50	125.00	425.10
LTC1051CSW-ND	**9176B-ND**	**Dual Chopper Stabilized Op Amp**	**SOL-16**	**9.00**	**150.00**	**495.00**
LTC1052CN-ND	9175B-ND	Low Noise Chopper Stabilized Op Amp	14-Dip	8.13	135.50	465.08
LTC1052CN8-ND	9175B-ND	Low Noise Chopper Stabilized Op Amp	8-Dip	7.50	125.00	430.00
LTC1053CN-ND	9176B-ND	Quad Chopper Stabilized Op Amp	14-Dip	12.15	225.00	779.76
LTC1053CSW-ND	**9176B-ND**	**Quad Chopper Stabilized Op Amp**	**SO-18**	**16.13**	**268.75**	**885.00**
LTC1059CN-ND	9175B-ND	Switched Capacitor Filter	14-Dip	5.63	93.75	325.00
LTC1059CS-ND	**9175B-ND**	**Switched Capacitor Filter**	**SO-14**	**6.25**	**104.25**	**340.00**
LTC1060CN-ND	9175B-ND	Dual Switch Capacitor Filter	20-Dip	6.88	114.50	389.95
LTC1060CSW-ND	**9175B-ND**	**Dual Switched Capacitor Filter**	**SO-20**	**7.50**	**125.00**	**425.10**
LTC1061ACN-ND	9175B-ND	Triple Switch Capacitor Filter	20-Dip	25.00	416.75	1450.00
LTC1061CN-ND	9175B-ND	Triple Switch Capacitor Filter	20-Dip	12.38	229.25	760.10
LTC1061CSW-ND	**9175B-ND**	**Triple Switch Capacitor Filter**	**SOL-16**	**12.94**	**239.50**	**825.13**
LTC1062CN8-ND	9210B-ND	5th Order Lowpass Filter	8-Dip	6.13	102.00	330.02
LTC1062CSW-ND	**9210B-ND**	**5th Order Lowpass Filter**	**SOL-16**	**6.25**	**104.25**	**355.00**
LTC1063CN8-ND	9210B-ND	Clk Tunable Lowpass Butterworth Filter	8-Dip	10.00	166.75	575.20
LTC1063CSW-ND	**9210B-ND**	**Clk Tunable Lowpass Butterworth Filter**	**SOL-16**	**10.75**	**179.25**	**614.90**
LTC1064-1CN-ND	9175B-ND	Clk Tunable 8th Order Lowpass Sweepl. Elip. Filter	14-Dip	20.25	375.00	1289.70
LTC1064-1CSW-ND	**9175B-ND**	**8th Order Clock Sweepable Elliptic Low Pass Filter**	**SO-16**	**27.50**	**458.25**	**1550.00**
LTC1064-2CN-ND	9176B-ND	8th Order High Frequency Butterworth Filter	14-Dip	18.00	333.25	1124 80
LTC1064-2CSW-ND	**9176B-ND**	**8th Order High Frequency Butterworth Lowpass Filter**	**SO-16**	**27.50**	**458.25**	**1550.00**
LTC1064-3CN-ND	9176B-ND	8th Order High Frequency Linear Phase LP Filter	14-Dip	15.75	291.75	994.70
LTC1064-3CSW-ND	**9176B-ND**	**100kHz Clk Sw. Linear Phase Filter**	**SO-16**	**20.00**	**333.25**	**1130.00**
LTC1064-4CN-ND	9176B-ND	8th Order Clock Sweepable Cauer Filter	14-Dip	22.50	416.75	1420.00
LTC1064-4CSW-ND	**9176B-ND**	**8th Order Clock Sweepable Cauer Lowpass Filter**	**SO-16**	**31.25**	**520.75**	**1765.00**
LTC1064-7CN-ND	9210B-ND	100kHz Phase Corrected Lowpass Filter	14-Dip	18.00	333.25	1124.80
LTC1064-7CSW-ND	**9210B-ND**	**8th Order Lowpass Filter**	**SO-16**	**27.50**	**458.25**	**1550.00**
LTC1064CN-ND	9175B-ND	Quad 140kHz Switched Cap Filter	24-Dip	13.50	250.00	840.00
LTC1064CSW-ND	**9175B-ND**	**Quad 80kHz Sweepable Capacitor Filter**	**SO-24**	**16.20**	**300.00**	**954.72**
LTC1065CN8-ND	9210B-ND	Low Offset Clk Sweep Bessel Filter	8-Dip	10.00	166 75	575.20
LTC1065CSW-ND	**9210B-ND**	**Low Offset Clk Sweep Bessel Filter**	**SOL-16**	**10.75**	**179.25**	**614.90**
LTC1066-1CSW-ND	**9210B-ND**	**14 Bit DC Accurate 8th Order LP Filter**	**SOL-16**	**26.00**	**541.75**	**1749.80**
LTC1096CS8-ND	**9210B-ND**	**8-Bit, Micro Power, Sampling Serial, ADC**	**SO-8**	**5.50**	**91.75**	**289.96**
LTC1098CN8-ND	9210B-ND	8-Bit, Micropower, Sampling 2-Ch Mux ADC	8-Dip	5.50	91 75	289 96
LTC1098CS8-ND	**9210B-ND**	**8-Bit, Micro Power, Sampling, 2-Ch Mux ADC**	**SO-8**	**5.50**	**91.75**	**289.96**
LTC1099CN-ND	9175B-ND	Hi Speed 8 Bit High Speed ADC with Sample and Hold	20-Dip	14.88	248.00	825.00
LTC1099CSW-ND	**9175B-ND**	**Hi Speed 8 Bit High Speed ADC with Sample and Hold**	**SO-20**	**19.38**	**323.00**	**1070.00**
LTC1100CN8-ND	9176B-ND	Precision Ultra Low Drift Instr Amp	8-Dip	11.25	187.50	645.00
LTC1100CSW-ND	**9176B-ND**	**Precision Ultra Low Drift Instr Amp**	**SO-20**	**13.13**	**218.75**	**740.00**
LTC1142CG-ND	**9210B-ND**	**Dual Step Down Switching Reg.**	**28-SSOP**	**11.25**	**187.50**	**600.00**
LTC1142HVCG-ND	**9210B-ND**	**Dual High Voltage Step Down Switch Reg.**	**28-SSOP**	**11.75**	**195.75**	**627.00**
LTC1143CSW-ND	**9210B-ND**	**Dual High Efficiency Switching Regulator Controller**	**SO-16**	**8.13**	**135.50**	**434.85**
LTC1144CN8-ND	9210B-ND	Switched Cap Volt Converter 20V	8-Dip	4.50	75.00	250.02
LTC1144CS8-ND	**9210B-ND**	**Switched Cap Volt Converter 20V**	**SO-8**	**4.63**	**77.00**	**254.93**
LTC1145ACN-ND	9210B-ND	Low Power Digital Isolator	18-Dip	6.50	108.25	349.96
LTC1145CN-ND	9210B-ND	Low Power Digital Isolator	18-Dip	6.13	102.00	330.02
LTC1147CN8-3.3-ND	9210B-ND	3.3V High Efficiency Stepdown Regulator	8-Dip	5.13	85.50	280.03
LTC1147CN8-5-ND	9210B-ND	5V High Efficiency Stepdown Regulator	8-Dip	5.13	85.50	280.03
LTC1147CS8-3.3-ND	**9210B-ND**	**3.3V High Efficiency Stepdown Regulator**	**SO-8**	**5.38**	**89.50**	**294.98**
LTC1147CS8-5-ND	**9210B-ND**	**5V High Efficiency Stepdown Regulator**	**SO-8**	**5.38**	**89.50**	**294.98**
LTC1147LCS8-ND	**9210B-ND**	**Adjustable Low Volt High Effic Step Down Regulator**	**SO-8**	**6.00**	**100.00**	**345.00**
LTC1148CN-ND	9210B-ND	High Efficiency Sync Step Down Switching Reg.	14-Dip	7.88	131.25	450.14
LTC1148CS-ND	**9210B-ND**	**High Efficiency Sync Step Down Switching Reg.**	**SO-14**	**8.13**	**135.50**	**459.88**
LTC1148CS-3.3-ND	**9210B-ND**	**High Efficiency Sync Step Down 3.3V, Switching Regulator**	**SO-14**	**8.13**	**135.50**	**459.88**
LTC1148CS-5-ND	**9210B-ND**	**High Efficiency Sync Step Down 5V Switching Reg.**	**SO-14**	**8.13**	**135.50**	**459.88**
LTC1148HVCN-ND	9210B-ND	Hi Efficiency Step Down Switching Reg.	14-Dip	8.25	137.50	469.92
LTC1148HVCS-ND	**9210B-ND**	**Hi Efficiency Step Down Switching Reg.**	**SO-14**	**8.50**	**141.75**	**480.08**
LTC1148LCS-3.3-ND	**9210B-ND**	**3.3V LV. High Effic. Sync. Step Down Switching Reg.**	**SO-14**	**8.75**	**145.75**	**490.00**
LTC1149CN-ND	9210B-ND	High Efficiency Sync Step Down Switching Reg.	16-Dip	9.63	160.50	550.17
LTC1149CN-3.3-ND	9210B-ND	3.3V High Efficiency Sync. Stepdown Switching Regulator	16-Dip	9.63	160.50	550.17
LTC1149CN-5-ND	9210B-ND	5V High Efficiency Sync Stepdown Switching Regulator	16-Dip	9.63	160.50	550.17
LTC1149CS-ND	**9210B-ND**	**High Efficiency Sync Step Down Switching Regulator**	**SO-16**	**10.00**	**166.75**	**570.00**
LTC1149CS-3.3-ND	**9210B-ND**	**3.3V High Efficiency Sync Step Down Switching Regulator**	**SO-16**	**10.00**	**166.75**	**570.00**
LTC1149CS-5-ND	**9210B-ND**	**5V High Efficiency Sync Step /Down Switching Regulator**	**SO-16**	**10.00**	**166.75**	**570.00**
LTC1150CN8-ND	9176B-ND	High Voltage Stabilizer Op Amp w/Int Caps	8-Dip	6.88	114.50	385.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LTC1150CS8-ND	**9176B-ND**	**High Voltage Stabilizer Op Amp w/Int Caps**	**SO-8**	**8.13**	**135.50**	**455.00**
LTC1151CN8-ND	9210B-ND	Dual + or -15V Zero-Drift Op Amp	8-Dip	10.75	179.25	595.12
LTC1151CSW-ND	**9210B-ND**	**Dual + or -15V Zero-Drift Op Amp**	**SOL-16**	**12.50**	**208.25**	**695.00**
LTC1152CN8-ND	9210B-ND	Rail to Rail Input/Output Zero Drift Op Amp	8-Dip	6.00	100.00	324.96
LTC1152CS8-ND	**9210B-ND**	**Rail to Rail Input/Output Zero Drift Op Amp**	**SO-8**	**6.50**	**108.25**	**349.96**
LTC1153CN8-ND	9210B-ND	Electronic Circuit Breaker	8-Dip	3.75	62.50	210.00
LTC1153CS8-ND	**9210B-ND**	**Electronic Circuit Breaker**	**SO-8**	**4.00**	**66.75**	**225.00**
LTC1154CN8-ND	9210B-ND	Single Highside Mosfet Switch Driver	8-Dip	3.25	54.25	184.99
LTC1154CS8-ND	**9210B-ND**	**Single Highside Mosfet Switch, Driver**	**SO-8**	**3.50**	**58.25**	**200.06**
LTC1155CN8-ND	9176B-ND	Dual Highside Switch Driver	8-Dip	5.25	87.50	300.09
LTC1155CS8-ND	**9176B-ND**	**Dual Highside Switch Driver**	**SO-8**	**5.63**	**93.75**	**319.95**
LTC1156CSW-ND	**9176B-ND**	**Quad Highside Switch Driver**	**SOL-16**	**9.38**	**156.25**	**535.13**
LTC1156CN-ND	9176B-ND	Quad Highside Switch Driver	16-Dip	8.75	145.75	494.90
LTC1157CN8-ND	9210B-ND	Dual 3.3V Highside Switch Driver	8-Dip	4.50	75.00	250.02
LTC1157CS8-ND	**9210B-ND**	**Dual 3.3V Highside Switch Driver**	**SO-8**	**4.75**	**79.25**	**265.05**
LTC1159CG-ND	**9210B-ND**	**High Efficiency Sync. Step Down SW Reg.**	**28 SSOP**	**10.00**	**166.75**	**570.00**
LTC1159CG-3.3-ND	**9210B-ND**	**3.3V High Effic. Sync. Step Down SW Reg.**	**28 SSOP**	**10.00**	**166.75**	**570.00**
LTC1159CS-ND	**9210B-ND**	**High Efficiency Sync. Step Down SW Reg.**	**SO-16**	**9.00**	**150.00**	**489.96**
LTC1159CS-3.3-ND	**9210B-ND**	**3.3V High Effic. Sync. Step Down SW Reg.**	**SO-16**	**9.00**	**150.00**	**489.96**
LTC1163CN8-ND	9257B-ND	Triple High Side Switch Driver	8-Dip	5.00	83.25	280.00
LTC1163CS8-ND	**9257B-ND**	**Triple High Side Switch Driver**	**SO-8**	**5.25**	**87.50**	**290.00**
LTC1164-5CN-ND	9210B-ND	Low Power Clk Sweepable Butterworth Filter	14-Dip	18.00	333.25	1124.80
LTC1164-5CSW-ND	**9210B-ND**	**Low Power Clk Sweepable Butterworth Filter**	**SO-16**	**27.50**	**458.25**	**1550.00**
LTC1164-6CN-ND	9210B-ND	Low Power 8th order Elliptic Low Pass Filter	14-Dip	20.25	375.00	1289 70
LTC1164-6CSW-ND	**9210B-ND**	**Low Power Clk Sweepable Cauer Filter**	**SO-16**	**27.50**	**458.25**	**1550.00**
LTC1164-7CN-ND	9210B-ND	Low Power Clk Sweepable Linear Phase	14-Dip	18.00	333.25	1124.80
LTC1164-7CSW-ND	**9210B-ND**	**Low Power Clk Sweepable Linear Phase Filter**	**SO-16**	**27.50**	**458.25**	**1550.00**
LTC1164-8CN-ND	9257B-ND	Ultra Selective Elliptic Band Pass Filter	14-Dip	30.00	500.10	1725.00
LTC1164-8CSW-ND	**9257B-ND**	**Ultra Selective Elliptic Band Pass Filter**	**SO-14**	**32.50**	**541.75**	**1850.00**
LTC1164CN-ND	9176B-ND	Quad 20kHz Low Power Switching Cap Filter	24-Dip	13.50	250.00	840.00
LTC1164CSW-ND	**9176B-ND**	**Quad 20 kHz Low Power Switch Capacitor Filter**	**SO-24**	**16.20**	**300.00**	**954.72**
LTC1165CN8-ND	9210B-ND	Triple High Side Switch Driver	8-Dip	5.00	83.25	280.00
LTC1165CS8-ND	**9210B-ND**	**Triple High Side Switch Driver**	**SO-8**	**5.25**	**87.50**	**290.01**
LTC1174CN8-ND	9210B-ND	Adj. Micro Power Stepdown DC/DC Converter	8-Dip	6.50	108.25	360.10
LTC1174CN8-3.3-ND	9210B-ND	3.3V Micro Power Stepdown DC/DC Converter	8-Dip	6.50	108.25	360.10
LTC1174CN8-5-ND	9210B-ND	5V Micro Power Stepdown DC/DC Converter	8-Dip	6.50	108.25	360.10
LTC1174CS8-ND	**9210B-ND**	**Adj. Micro Power Stepdown DC/DC Converter**	**SO-8**	**6.88**	**114.50**	**380.05**
LTC1174CS8-3.3-ND	**9210B-ND**	**Adj. Micro Power Stepdown DC/DC Converter**	**SO-8**	**6.88**	**114.50**	**380.05**
LTC1174CS8-5-ND	**9210B-ND**	**Adj. Micro Power Stepdown DC/DC Converter**	**SO-8**	**6.88**	**114.50**	**380.05**
LTC1174HVCN8-ND	9210B-ND	Micropower DC/DC Converter (4-18V)	8-Dip	7.50	125.00	410.10
LTC1174HVCS8-ND	**9210B-ND**	**Micropower DC/DC Converter (4-18V)**	**SO-8**	**7.88**	**131.25**	**424.94**
LTC1196-1ACS8-ND	**9210B-ND**	**8 Bit, 600ns, 1MHz, Sampling ADC**	**SO-8**	**7.63**	**127.00**	**435.00**
LTC1196-1BCS8-ND	**9210B-ND**	**8 Bit, 600ns, 1MHz, Sampling ADC**	**SO-8**	**6.25**	**104.25**	**360.00**
LTC1196-2ACS8-ND	**9210B-ND**	**8 Bit, 710ns, 800 kHz, Sampling ADC**	**SO-8**	**5.50**	**91.75**	**315.00**
LTC1196-2BCS8-ND	**9210B-ND**	**8 Bit, 710ns, 800 kHz, Sampling ADC**	**SO-8**	**4.38**	**73.00**	**250.08**
LTC1198-1ACS8-ND	**9210B-ND**	**2Ch,8 Bit, 600ns, 750 kHz, Sampling ADC**	**SO-8**	**9.13**	**152.00**	**520.00**
LTC1198-1BCS8-ND	**9210B-ND**	**2 Channel, 8 Bit, 600ns, 750kHz, Sampling ADC**	**SO-8**	**7.50**	**125.00**	**429.90**
LTC1198-2ACS8-ND	**9210B-ND**	**2Ch,8 Bit, 710ns, 600 kHz, Sampling ADC**	**SO-8**	**6.63**	**110.50**	**380.00**
LTC1198-2BCS8-ND	**9210B-ND**	**2 Channel, 8-Bit, 710 ns, 600 kHz, Sampling ADC**	**SO-8**	**5.25**	**87.50**	**300.09**
LTC1235CN-ND	9176B-ND	µP Reset circuit and WDT w/ RAM Protector	16-Dip	5.50	114.50	357.50
LTC1235CSW-ND	**9176B-ND**	**Microp Supervisor Circuit w/Battery Backup & WDT**	**SOL-16**	**7.50**	**125.00**	**414.90**
LTC1250CN8-ND	9210B-ND	Very Low Noise Zero-Drift Bridge Amp	8-Dip	5.50	91.75	289.96
LTC1250CS8-ND	**9210B-ND**	**Very Low Noise Zero-Drift Bridge Amp**	**SO-8**	**6.25**	**104.25**	**330.00**
LTC1255CN8-ND	9210B-ND	Dual 24V Highside Switch Driver	8-Dip	5.25	87.50	300.09
LTC1255CS8-ND	**9210B-ND**	**Dual 24V Highside Switch Driver**	**SO-8**	**5.63**	**93.75**	**319.95**
LTC1257CN8-ND	9210B-ND	Micro Power 12 Bit Serial DAC	8-Dip	8.38	139.50	444.88
LTC1257CS8-ND	**9210B-ND**	**Micro Power 12 Bit Serial DAC**	**SO-8**	**8.88**	**148.00**	**474.99**
LTC1262CN8-ND	9210B-ND	12V Flash Memory Programming Supply	8-Dip	4.50	75.00	244.98
LTC1262CS8-ND	**9210B-ND**	**12V Flash Memory Programming Supply**	**SO-8**	**4.63**	**77.00**	**254.93**
LTC1264-7CN-ND	9210B-ND	250 kHz Phase Corrected Lowpass Filter	14-Dip	22.50	416.75	1420.00
LTC1264-7CSW-ND	**9210B-ND**	**250 kHz Phase Corrected Lowpass Filter**	**SO-16**	**31.25**	**520.75**	**1765.00**
LTC1264CN-ND	9210B-ND	High Speed Universal Filter	24-Dip	15.75	291.75	980.00
LTC1264CSW-ND	**9210B-ND**	**High Speed Universal Filter**	**SO-24**	**18.45**	**341.75**	**1089.78**
LTC1265CS-ND	**9257B-ND**	**High Efficiency Adj 1A Stepdown DC/DC Converter**	**SO-14**	**6.88**	**115.00**	**395.00**
LTC1266CS-ND	**9257B-ND**	**Synch. Switching Reg. Controller**	**SO-16**	**8.75**	**146.25**	**500.00**
LTC1272-3CCN-ND	9176B-ND	12 Bit, 3µS, High Speed Sampling A/D	24-Dip	18.56	343.75	1104.68
LTC1272-3CCSW-ND	**9176B-ND**	**12 Bit, 3µS, High Speed Sampling ADC**	**SO-24**	**22.75**	**379.25**	**1215.00**
LTC1272-5CCN-ND	9176B-ND	12 Bit, 5µS, High Speed Sampling A/D	24-Dip	20.70	383.25	1225.44
LTC1272-5CCSW-ND	**9176B-ND**	**12 Bit, 5µS, High Speed Sampling ADC**	**SO-24**	**24.00**	**400.00**	**1275.00**
LTC1272-8CCN-ND	9176B-ND	12 Bit, 8µS, High Speed Sampling A/D	24-Dip	13.50	250.00	799.80
LTC1272-8CCSW-ND	**9176B-ND**	**12 Bit, 8µS, High Speed Sampling ADC**	**SO-24**	**16.25**	**270.75**	**870.00**
LTC1273BCN-ND	9210B-ND	12 Bit 2.7µS High Speed Sampling A/D	24-Dip	21.15	391.75	1254.90
LTC1273BCSW-ND	**9210B-ND**	**12 Bit, 2.7µS, High Speed Sampling ADC**	**SO-24**	**25.88**	**431.25**	**1380.00**
LTC1274CSW-ND	**9257B-ND**	**12 Bit 10mW, 100ksps ADC**	**SO-24**	**14.88**	**247.50**	**825.00**
LTC1274ISW-ND	**9257B-ND**	**12 Bit 10mW, 100ksps ADC**	**SO-24**	**16.25**	**270.00**	**905.00**
LTC1275BCN-ND	9210B-ND	12 Bit 3µS High Speed Sampling A/D	24-Dip	19.80	366.75	1174.80
LTC1275BCSW-ND	**9210B-ND**	**12 Bit, 3µS, High Speed Sampling ADC**	**SO-24**	**24.25**	**404.25**	**1295.00**
LTC1276BCN-ND	9210B-ND	12 Bit 2.7µS High Speed Sampling A/D	24-Dip	19.80	366.75	1174.80
LTC1276BCSW-ND	**9210B-ND**	**12 Bit, 2.7µS, High Speed Sampling ADC**	**SO-24**	**24.25**	**404.25**	**1295.00**
LTC1277CSW-ND	**9257B-ND**	**12 Bit 10mW, 100ksps ADC**	**SO-24**	**15.63**	**260.00**	**870.00**
LTC1278-4CSW-ND	**9210B-ND**	**12 Bit ADC with Shut Down**	**SO-24**	**21.60**	**400.00**	**1285.44**
LTC1278-4ISW-ND	**9210B-ND**	**12 Bit ADC with Shut Down (High Temp)**	**SO-24**	**22.00**	**458.25**	**1469.60**
LTC1278-5CSW-ND	**9210B-ND**	**12 Bit ADC with Shut Down**	**SO-24**	**20.50**	**427.00**	**1370.43**
LTC1278-5ISW-ND	**9210B-ND**	**12 Bit ADC with Shut Down (High Temp)**	**SO-24**	**23.50**	**489.50**	**1569.80**
LTC1279CSW-ND	**9257B-ND**	**12 Bit, 2.5µS, High Speed Sampling A/D**	**SO-24**	**25.50**	**418.75**	**1455.00**
LTC1279ISW-ND	**9257B-ND**	**12 Bit, 2.5µS, High Speed Sampling A/D**	**SO-24**	**27.00**	**443.38**	**1545.00**
LTC1282BCN-ND	9210B-ND	3V 12 Bit Parallel I/O Sampling A/D	20-Dip	21.00	437.50	1399.65
LTC1282BCSW-ND	**9210B-ND**	**3V, 12 Bit, Parallel I/O, Samp. ADC**	**SO-24**	**28.13**	**468.75**	**1475.00**
LTC1283CN-ND	9210B-ND	3V 10-Bit 8 Channel Mux S/H Full Duplex I/O A/D	20-Dip	18.11	335.50	1139.88

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LTC1286CN8-ND	9210B-ND	Micropower 12 Bit ADC	8-Dip	9.88	164.50	524.96
LTC1286CS8-ND	9210B-ND	Micropower 12 Bit ADC	SO-8	10.63	177.00	564.83
LTC1286IN8-ND	9210B-ND	Micropower 12 Bit ADC	8-Dip	12.38	206.25	654.89
LTC1287CCN8-ND	9176B-ND	3V 12-Bit Single Input w/ S/H A/D	8-Dip	25.90	539.50	1727.00
LTC1288CN8-ND	9210B-ND	3V Micropower Sampling 12 Bit ADC SRL I/O	8-Dip	11.88	198.00	649.80
LTC1288CS8-ND	9210B-ND	3V Micropower Sampling 12 Bit ADC SRL I/O	SO-8	12.50	208.25	[illegible]
LTC1289CCN-ND	9176B-ND	3V 12-Bit 8 Channel Mux S/H Full Duplex I/O A/D	20-Dip	27.60	575.00	1835.40
LTC1289CCSW-ND	9176B-ND	3V, 12-Bit ADC 8-Ch Mux, S/H Full Duplex I/O	SO-20	41.38	689.50	2205.01
LTC1290CCN-ND	9176B-ND	12 Bit Serial I/O ADC w/ 8 Channel Mux	20-Dip	24.00	500.00	1594.80
LTC1290CCSW-ND	9176B-ND	12 Bit ADC with 8 Channel Multiplexer	SO-20	28.80	600.00	1915.20
LTC1290CIN-ND	9176B-ND	12 Bit ADC with 8 Channel Multiplexer	20-Dip	33.90	706.25	2335.71
LTC1290CISW-ND	9176B-ND	12 Bit ADC with 8 Channel Multiplexer	SO-20	33.90	706.25	2335.71
LTC1290DCN-ND	9176B-ND	12-Bit Serial I/O ADC with 8 Channel Mux	20-Dip	12.50	208.25	670 00
LTC1290DCSW-ND	9176B-ND	12 Bit Serial I/O ADC w/ 8 Ch Mux	SO-20	21.75	362.50	1135.00
LTC1291CCN8-ND	9210B-ND	IC 12 Bit Serial I/O 2 Channel Input ADC	8-Dip	22.50	468.75	1500.00
LTC1291DCN8-ND	9210B-ND	12 Bit Serial I/O 2 Channel Input ADC	8-Dip	18.13	302.00	950.00
LTC1292CCN8-ND	9210B-ND	12 Bit Serial I/O Differential Input ADC	8-Dip	22.50	468.75	1500.00
LTC1292DCN8-ND	9210B-ND	12 Bit Serial I/O Differential Input ADC	8-Dip	18.13	302.00	950.00
LTC1293CCN-ND	9176B-ND	12 Bit Serial I/O ADC with 6 Channel Mux	16-Dip	24.00	500.00	1594.80
LTC1293DCN-ND	9176B-ND	12 Bit Serial I/O ADC with 6 Ch Mux	16-Dip	18.13	302.00	950.00
LTC1294CCN-ND	9176B-ND	12 Bit Serial I/O ADC with 8 Channel Mux	20-Dip	25.31	468.75	1518.75
LTC1294DCN-ND	9176B-ND	12 Bit Serial I/O ADC w/8 Ch Mux	20-Dip	18.13	302.00	950.00
LTC1296BCN-ND	9176B-ND	12 Bit Serial I/O ADC with 8 Channel Mux with Shut Down	20-Dip	24.38	406.25	1300.00
LTC1296BCSW-ND	9176B-ND	12 Bit Serial I/O ADC with 8 Channel Mux with Shut Down	SO-20	25.00	416.75	1333.00
LTC1296CCN-ND	9176B-ND	12-Bit Serial I/O ADC with 8 Channel Mux	20-Dip	15.64	289.50	925.74
LTC1296CCSW-ND	9176B-ND	12 Bit Serial I/O ADC with 8 Channel Mux with Shut Down	SO-20	17.88	298.00	953.00
LTC1296DCN-ND	9176B-ND	12 Bit Serial I/O ADC with 8 Channel Mux with Shut Down	20-Dip	15.88	264.50	846.00
LTC1296DCSW-ND	9176B-ND	12 Bit Serial I/O ADC with 8 Channel Mux with Shut Down	SO-20	16.25	270.75	866.00
LTC1297CCN8-ND	9210B-ND	12 Bit Serial ADC with Auto Shut Down	8-Dip	27.00	562.50	1800.00
LTC1297DCN8-ND	9210B-ND	12 Bit Serial ADC W/ Auto Shut Down	8-Dip	21.75	362.50	1140.00
LTC1298CN8-ND	9210B-ND	12 Bit Serial A/D Converter 2 Channel	8-Dip	9.88	164.50	524.96
LTC1298CS8-ND	9210B-ND	12 Bit Serial A/D Converter 2 Channel	SO-8	10.63	177.00	564.83
LTC1298IN8-ND	9210B-ND	12 Bit Serial A/D Converter 2 Channel	8-Dip	12.38	206.25	654.89
LTC1314CS-ND	9257B-ND	Single & Dual PCMCIA Switching Matrices	SO-14	4.38	73.00	235.03
LTC1315CG-ND	9175B-ND	Single & Dual PCMCIA Switch Matrices	SSOP-24	6.25	104.25	335.00
LTC1318CN-ND	9210B-ND	Single 5V Power RS232/RS422 Transceiver	24-Dip	9.13	152.00	489.83
LTC1318CSW-ND	9210B-ND	Single 5V Power RS232/RS422 Transceiver	SO-24	9.13	152.00	489.83
LTC1320CSW-ND	9210B-ND	Line Transceiver for "APPLETALK®"	SOL-16	6.88	114.50	389.95
LTC1321CN-ND	9210B-ND	Low Power RS485/RS232 Driver/Receiver	24-Dip	8.75	145.75	465.15
LTC1321CSW-ND	9210B-ND	Low Power RS485/RS232 Driver/Receiver	SO-24	8.75	145.75	465.15
LTC1322CN-ND	9210B-ND	Low Power RS485/RS232 Driver/Receiver	24-Dip	10.00	166.75	535.20
LTC1322CSW-ND	9210B-ND	Low Power RS485/RS232 Driver/Receiver	SO-24	10.00	166.75	535.20
LTC1323CS16-ND	9210B-ND	+5V Transceiver for "APPLETALK®"	SOL-16	8.38	139.50	444.88
LTC1325CN-ND	9210B-ND	Battery Management Circuit	18-Dip	12.38	229.25	733.00
LTC1325CSW-ND	9210B-ND	Battery Management Circuit	SOL-16	12.38	229.25	733.00
LTC1327CG-ND	9210B-ND	3V Low Power Transceiver EIA562 3 Driver/5 Receiver	28 SSOP	9.50	158.25	500.08
LTC1327CNW-ND	9210B-ND	3V Low Power Transceiver EIA562 3 Driver/5 Receiver	28-Dip	8.75	145.75	470.05
LTC1327CSW-ND	9210B-ND	3V Low Power Transceiver EIA562 3 Driver/5 Receiver	SO-28	8.75	145.75	470.05
LTC1337CNW-ND	9210B-ND	5V Low Power RS232 3 Driver/5 Receiver Transceiver	28-Dip	8.75	145.75	470.00
LTC1337CSW-ND	9210B-ND	5V Low Power RS232 3 Driver/5 Receiver Transceiver	SO-28	8.75	145.75	470.00
LTC1338CG-ND	9210B-ND	5V Low Power RS232 5 Driver/3 Receiver	28 SSOP	10.13	168.75	564.98
LTC1338CNW-ND	9210B-ND	5V Low Power RS232 5 Driver/3 Rec.	28-Dip	9.38	156.25	525.00
LTC1338CSW-ND	9210B-ND	5V Low Power RS232 5 Driver/3 Rec.	SOL-16	9.38	156.25	525.00
LTC1345CNW-ND	9257B-ND	Single Supply V.35 Diff. Transceiver w/SD	28-Dip	13.88	231.25	740.00
LTC1345CSW-ND	9257B-ND	Single Supply V.35 Diff. Transceiver w/SD	SO-28	14.38	239.50	765.00
LTC1346ACSW-ND	9257B-ND	10 Mbps DCE/DTE V.35 Transceiver	SO-24	12.38	206.25	710.00
LTC1347CG-ND	9210B-ND	5V RS232 Micro Power 3 Driver/5 Rec.	28 SSOP	9.50	158.25	500.08
LTC1347CNW-ND	9210B-ND	5V RS232Micro Power 3 Driver/5 Rec.	28-Dip	8.75	145.75	470.05
LTC1347CSW-ND	9210B-ND	5V RS232 Micro Power 3 Driver/5 Rec.	SO-28	8.75	145.75	470.05
LTC1348CSW-ND	9210B-ND	3.3V True RS232 3 Drivers/5 Receivers	SO-28	8.13	135.50	450.13
LTC1349CG-ND	9210B-ND	5V Low Power RS232 3 Driver/ 5 Receiver and Active Shut Down	28 SSOP	9.50	158.25	500.08
LTC1349CNW-ND	9210B-ND	5V Low Power RS232 3 Dx/5 Rx w/2Rx Active	28-Dip	8.75	145.75	470.00
LTC1349CSW-ND	9210B-ND	5V Low Power RS232 3 Driver/ 5 Receiver and Active Shut Down	SO-28	8.75	145.75	470.05
LTC1350CG-ND	9210B-ND	3V LP EIA562 3 Driver/ 5 Receiver with 2 Receiver Active	28 SSOP	9.50	158.25	500.08
LTC1350CNW-ND	9210B-ND	3V LP EIA562 3 Driver/5 Receiver with 2 Receiver Active	28-Dip	8.75	145.75	470.05
LTC1350CSW-ND	9210B-ND	3V Low Power EIA562 3 Driver/ 5 Receiver with 2 Receivers Active	SO-28	8.75	145.75	470.05
LTC1382CN-ND	9210B-ND	5V RS232 Micro Power 2 Driver/2 Rec.	18-Dip	6.50	108.25	340.00
LTC1382CSW-ND	9210B-ND	5V RS232 Micro Power 2 Driver/2 Rec.	SO-18	6.50	108.25	340.00
LTC1383CN-ND	9210B-ND	5V RS232 Micro Power 2 Driver/2 Rec.	16-Dip	5.63	93.75	299.93
LTC1383CSW-ND	9210B-ND	5V RS232 Micro Power 2 Driver/2 Rec.	SOL-16	5.63	93.75	299.93
LTC1384CN-ND	9210B-ND	5V Micro Power RS232 2 Driver/2 Receiver with 2 Receiver Active	18-Dip	6.50	108.25	340.00
LTC1384CSW-ND	9210B-ND	5V Micro Pwr 2Dx/2Rx RS232 w/2 Rx KeepAlive	SO-18	6.50	108.25	340.00
LTC1385CN-ND	9210B-ND	3.3V Low Power EIA/TIA 562 Transceiver	18-Dip	6.50	108.25	340.00
LTC1385CSW-ND	9210B-ND	3V Micro PWR 2Dx/2Rx RS232 w/2 Rx KeepAlive	SO-18	6.50	108.25	340.00
LTC1386CS-ND	9210B-ND	3.3V Low Power RS232 Driver/Receiver	SOL-16	5.63	93.75	299.93
LTC1390CN-ND	9210B-ND	8 to 1 Serial Multiplexer	16-Dip	4.38	73.00	235.03
LTC1390CS-ND	9210B-ND	8 to 1 Serial Multiplexer	SO-16	4.63	77.00	244.94
LTC1392CN8-ND	9257B-ND	Micro Power Data Acquisition System	8-Dip	7.50	125.00	410.00
LTC1392CS8-ND	9257B-ND	Micro Power Data Acquisition System	SO-8	7.63	127.50	420.00
LTC1392IN8-ND	9257B-ND	Micro Power Data Acquisition System	8-Dip	8.88	147.50	485.00
LTC1410CSW-ND	9257B-ND	1.25 Msps 12-Bit A to D Conv.	SO-28	44.88	747.50	2400.00
LTC1410IS-ND	9257B-ND	1.25 Msps 12-Bit A to D Conv.	SO-28	52.50	875.00	2799.99
LTC1451CN8-ND	9257B-ND	12 Bit, Vout DAC with Vref	8-Dip	8.63	143.75	493.00
LTC1451CS8-ND	9257B-ND	12 Bit, Vout DAC with Vref	SO-8	9.13	152.00	521.00

Digi-Key Part No.	Data Book (Sold Sep.)	Description	Pkg.	Pricing★ 1	25	100
LTC1451IN8-ND	9257B-ND	12 Bit, Vout DAC with Vref High Temp	8-Dip	9.38	156.25	536.00
LTC1451IS8-ND	9257B-ND	12 Bit, Vout DAC with Vref High Temp	SO-8	9.88	164.50	564.00
LTC1452CN8-ND	9257B-ND	12 Bit, Multiplying, Voltage Output DAC	8-Dip	7.63	126.25	435.00
LTC1452CS8-ND	9257B-ND	12 Bit, Multiplying, Voltage Output DAC	SO-8	8.13	135.00	465.00
LTC1452IN8-ND	9257B-ND	12 Bit, Multiplying, Voltage Out DAC Hi Temp	8-Dip	8.38	138.75	480.00
LTC1452IS8-ND	9257B-ND	12 Bit, Multiplying, Voltage Out DAC Hi Temp	SO-8	[illegible]	147.50	510.00
LTC1453CN8-ND	9257B-ND	12 Bit, Complete, Voltage Output DAC	8-Dip	8.38	140.00	480.00
LTC1453CS8-ND	9257B-ND	12 Bit, Complete, Voltage Output DAC	SO-8	8.88	148.75	510.00
LTC1453IN8-ND	9257B-ND	12 Bit, Complete, Voltage Output DAC	8-Dip	9.13	152.50	520.00
LTC1453IS8-ND	9257B-ND	12 Bit, Complete, Volt. Output DAC	SO-8	9.63	162.50	550.00
LTC1470CS8-ND	9257B-ND	Single PCMCIA Protected Vcc Switch	SO-8	4.50	75.00	257.00
LTC1471CS-ND	9257B-ND	Dual PCMCIA Protected Vcc Switch	SO-16	7.50	125.00	429.00
LTC1472CS-ND	9257B-ND	Single PCMCIA Protected Vpp/Vcc Switch	SO-16	6.25	104.25	357.00
LTC1477CS8-ND	9257B-ND	Protected High-Side Switch	SO-8	6.25	103.75	350.00
LTC1478CS-ND	9257B-ND	Dual Protected High-Side Switch	SO-16	10.00	166.25	555.00
LTC1480CN8-ND	9257B-ND	3.3V RS485 Half-Duplex w/SD	8-Dip	4.75	78.75	265.00
LTC1480CS8-ND	9257B-ND	3.3V RS485 Half-Duplex w/SD	SO-8	5.13	85.00	275.00
LTC1481CN8-ND	9210B-ND	Ultra Low Power 1/2 Duplex RS485 Transceiver	8-Dip	2.75	45.75	145.00
LTC1481CS8-ND	9210B-ND	Ultra Low Power 1/2 Duplex RS485 Transceiver	SO-8	3.38	56.25	180.00
LTC1483CN8-ND	9210B-ND	Ultra Low Power Low EMI RS485 Transceiver	8-Dip	2.75	45.75	145.00
LTC1483CS8-ND	9210B-ND	Ultra Low Power Low EMI RS485 Transceiver	SO-8	3.38	56.25	180.00
LTC1485CN8-ND	9210B-ND	High Speed RS485 TX/RX	8-Dip	3.00	50.00	170.04
LTC1487CN8-ND	9257B-ND	Low EMI 1/2 Duplex RS485 Transceiver w/ High Imped.	8-Dip	2.75	45.75	183.00
LTC1487CS8-ND	9257B-ND	Low EMI 1/2 Duplex RS485 Transceiver w/ High Imped.	SO-8	3.38	56.25	180.00
LTC1574CS-ND	9257B-ND	Adjustable CMOS Stepdown, DC/DC Converter	SO-16	8.50	141.75	486.00
LTC1574CS-3.3-ND	9257B-ND	3.3V CMOS Stepdown, DC/DC Converter	SO-16	8.50	141.75	486.00
LTC1574CS-5-ND	9257B-ND	5V CMOS Stepdown, DC/DC Converter	SO-16	8.50	141.75	486.00
LTC7541ABN-ND	9257B-ND	12-Bit D/A Converter Parallel Input	18-Dip	11.25	187.50	625.00
LTC7541ABSW-ND	9257B-ND	12-Bit D/A Converter Parallel Input	SO-18	11.25	187.50	625.00
LTC7541AJN-ND	9257B-ND	12 Bit Parallel, Multipling DAC	18-Dip	6.63	110.50	365.00
LTC7541AJSW-ND	9257B-ND	12 Bit Parallel, Multipling DAC	SO-18	6.63	110.50	365.00
LTC7541AKN-ND	9257B-ND	12 Bit Parallel, Multipling DAC	18-Dip	9.00	150.00	495.00
LTC7541AKSW-ND	9257B-ND	12 Bit Parallel, Multipling DAC	SO-18	9.00	150.00	495.00
LTC7543GKN-ND	9257B-ND	12 Bit Serial, Multipling DAC	16-Dip	13.13	218.75	725.00
LTC7543GKSW-ND	9257B-ND	12 Bit Serial, Multipling DAC	SO-16	13.13	218.75	725.00
LTC7543KN-ND	9257B-ND	12 Bit Serial, MDAC	16-Dip	12.63	210.50	700.00
LTC7543KSW-ND	9257B-ND	12 Bit Serial, Multipling DAC	SO-16	12.63	210.50	700.00
LTC8043EN8-ND	9257B-ND	12 Bit Serial, Multipling DAC	8-Dip	9 13	152.00	500.00
LTC8043ES8-ND	9257B-ND	12 Bit Serial Multipling DAC	SO-8	9.13	152.00	500.00
LTC8043FN8-ND	9257B-ND	12 Bit Serial, Multipling DAC	8-Dip	8.75	145.75	480.00
LTC8043FS8-ND	9257B-ND	12 Bit Serial, Multipling DAC	SO-8	8.75	145.75	480.00
LTC8143EN-ND	9257B-ND	12 Bit Serial, Multipling DAC	16-Dip	13.13	218.75	725.00
LTC8143ESW-ND	9257B-ND	12 Bit Serial, Multipling DAC	SO-16	13.13	218.75	725.00
LTC8143FN-ND	9257B-ND	12 Bit Serial, Multipling DAC	16-Dip	12.63	210.50	700.00
LTC8143FSW-ND	9257B-ND	12 Bit Serial, Multipling DAC	SO-16	12.63	210.50	700.00
LTK001ACN8-ND	9175B-ND	Thermocouple Compensator IC & Amplifier (.5 Deg Celcius Error)	8-Dip	18.88	314.50	1085.00
LTK001CN8-ND	9175B-ND	Thermocouple Compensator IC & Amplifier (2 Deg Celcius Error)	8-Dip	9.88	164.50	575.00
LTKA00CN8-ND	9175B-ND	Thermocouple Amplifier ("0" Polarity)	8-Dip	5.63	93.75	315.00
LTKA01CN8-ND	9175B-ND	Thermocouple Amplifier ("1" Polarity)	8-Dip	5.63	93.75	315.00
LTZ1000ACH-ND	9175B-ND	Ultra Precision Reference	8-MC	81.75	1362.50	4669.99
LTZ1000CH-ND	9175B-ND	Ultra Precision Reference	8-MC	64.25	1071.25	3670.01
9175B-ND		Linear Technology Databook		9.95	—	—
9176B-ND		Linear Technology Databook Supplement		9.95	—	—
9210B-ND		Linear Technology Databook Volume 3		9.95	—	—
9257B-ND		Linear Technology Data Book, Volume 4		10.00	—	—
9177B-ND		Linear Technology Applications Databook		19.95	—	—
9258B-ND		Linear Technology Applications Data Book, Volume 2		10.00	—	—

★ *Call for better pricing on larger quantities!*

Panasonic® LINEAR SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
AN7809-ND	9 Volt 1.0 Amp Pos. Volt Reg	TO-220	.67	15.06	44.62
AN78L12-ND	12 Volt 100mA Volt Reg	TO-92	.38	8.63	25.58
AN78M09-ND	9 Volt 500mA Volt Reg	TO-220	.67	15.06	44.62
AN79L06-ND	6 Volt 100mA Neg Volt Reg	TO-92	.38	8.63	25.58

★ *Call for better pricing on larger quantities!*

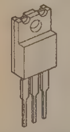
JRC / NJR Corporation VOLTAGE REGULATORS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
NJM78L02A-ND	2.6V 100mA Pos. Volt Reg.	TO-92	.39	7.25	26.00
NJM78L05A-ND	5V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L06A-ND	6V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L08A-ND	8V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L09A-ND	9V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L12A-ND	12V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L15A-ND	15V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L18A-ND	18V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L20A-ND	20V 100mA Pos. Volt Reg	TO-92	.39	7.25	26.00
NJM78L24A-ND	24V 100mA Pos. Volt Reg	TO-92	39	7.25	26.00
NJM78L02UA-ND	2.6V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L05UA-ND	5V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L06UA-ND	6V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L08UA-ND	8V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L09UA-ND	9V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L12UA-ND	12V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L15UA-ND	15V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L18UA-ND	18V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L20UA-ND	20V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00
NJM78L24UA-ND	24V 100mA Pos. Volt Reg.	SOT-89	.48	9.00	32.00

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
NJM78M05FA-ND	5V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M06FA-ND	6V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M08FA-ND	8V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M09FA-ND	9V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M12FA-ND	12 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M15FA-ND	15V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M18FA-ND	18V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M20FA-ND	20V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM78M24FA-ND	24V 500mA Pos. Volt Reg. with Isolated Tab	TO-220F	.54	10.25	36.00
NJM7805FA-ND	5V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7806FA-ND	6V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7808FA-ND	8V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7809FA-ND	9V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7812FA-ND	12V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7815FA-ND	15V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7818FA-ND	18V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7820FA-ND	20V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM7824FA-ND	24V 1 Amp Pos. Volt Reg. with Isolated Tab	TO-220F	.88	18.72	66.27
NJM79L05A-ND	5V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L06A-ND	6V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L08A-ND	8V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L09A-ND	9V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L12A-ND	12V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L15A-ND	15V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L18A-ND	18V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L24A-ND	24V 100mA Neg. Volt Reg.	TO-92	.42	8.00	28.00
NJM79L05UA-ND	**5V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L06UA-ND	**6V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L08UA-ND	**8V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L09UA-ND	**9V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L12UA-ND	**12V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L15UA-ND	**15V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L18UA-ND	**18V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79L24UA-ND	**24V 100mA Neg. Volt Reg.**	**SOT-89**	**.51**	**9.50**	**34.00**
NJM79M05FA-ND	5V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M06FA-ND	6V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M08FA-ND	8V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M09FA-ND	9V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M12FA-ND	12V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M15FA-ND	15V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M18FA-ND	18V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM79M24FA-ND	24V 500mA Neg. Volt Reg. with Isolated Tab	TO-220F	.69	13.00	46.00
NJM7905FA-ND	5V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7906FA-ND	6V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7908FA-ND	8V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7909FA-ND	9V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7912FA-ND	12V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7915FA-ND	15V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7918FA-ND	18V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM7924FA-ND	24V 1 Amp Neg. Volt Reg. with Isolated Tab	TO-220F	.81	15.25	54.00
NJM317F-ND	Adjustable 1.5 Amp Volt. Reg. with Isolated Tab	TO-220F	.84	15.75	56.00
NJM431D-ND	Adjustable Precision Shunt Reg.	8-Dip	.42	8.00	28.00
NJM431E-ND	**Adjustable Precision Shunt Reg**	**SO-8**	**.48**	**8.50**	**30.00**
NJM431L-ND	Adjustable Precision Shunt Reg	TO-92	.45	8.50	30.00
NJM2352D-ND	Low Power Switching Reg. with Low Battery Detect	8-Dip	.78	14.75	52.00
NJM2355D-ND	Dual Output High Voltage Switching Regulator	18-Dip	4.41	82.76	294.00
NJM2360D-ND	DC/DC Converter Control IC	8-Dip	1.29	24.25	86.00

★ *Call for better pricing on larger quantities!*

TO-220F Full Molded Three Terminal Voltage Regulator



Full Molded Package, TO-220F was developed for high and medium power 3 pin linear voltage regulators. It is interchangeable with conventional TO-220, with the difference of radiation fin encapsulated completely by resin, offering the following benefits: • Ease of electrical isolation from nearby devices • Allowing higher density PCB layout • Increased humidity resistance compared to TO-220. • Enhanced manufacturability due to built-in electrical insulation from heat sink. *TO-220F has tinned leads for improved solderability.*

JRC / NJR Corporation

SPECIALIZED IC's

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
NJM2211D-ND	FSK Demodulator/Tone Decoder	14-Dip	1.59	29.75	106.00
NJM2211M-ND	**FSK Demodulator/Tone Decoder**	**SO-14**	**1.59**	**29.75**	**106.00**
NJM4151D-ND	V to F/F to V Converter	8-Dip	1.92	35.74	127.00
NJU3712D-ND	8 Bit Serial to Parallel Output Expander, 25mA	16-Dip	2.43	45.74	163.00
NJU3712M-ND	**8-Bit Serial to Parallel Output Expander, 25mA**	**SO-16**	**2.49**	**46.50**	**165.00**
NJU3716L-ND	16-Bit Serial to Parallel Output Expander, 25mA	24-SDip	2.70	50.76	180.00
NJU3716M-ND	**16-Bit Serial to Parallel Output Expander, 25mA**	**SO-24**	**2.37**	**44.50**	**158.00**
NJU3718L-ND	20-Bit Serial to Parallel Output Expander, 25mA	28-SDip	2.31	43.25	154.00
NJU3718G-ND	**20-Bit Serial to Parallel Output Expander, 25mA**	**SO-28**	**2.43**	**45.74**	**163.00**
NJU6355ED-ND	Serial I/O Real Time Clock This serial I/O Real Time Clock is suitable for a 4 bit microprocessor. It contains counter, shift register, voltage regulator, voltage detector and interface controller. It requires a 32.768KHZ crystal and 4 pins of microprocessor which can receive the data at any time when the microprocessor requires. The operating voltage is as wide as 2.4V to 5.0V.	8-Dip	1.68	31.50	112.00
NJU7660D-ND	DC/DC Voltage Converter	8-Dip	1.17	22.00	78.00
NJU7662D-ND	DC/DC Voltage Converter	8-Dip	1.50	28.25	100.00
NJU9201BD-ND	3 1/2 Digit DVM For LCD Displays	40-Dip	4.29	80.51	286.00
NJU9201BM-ND	**3 1/2 Digit DVM For LCD Displays**	**SO-42**	**8.58**	**161.02**	**572.00**
NJU9202BD-ND	3 1/2 Digit DVM for LED Displays	40-Dip	4.68	87.75	312.00
NJU9202BM-ND	**3 1/2 Digit DVM for LED Displays**	**SO-42**	**9.57**	**179.52**	**638.00**
NJU9203BD-ND	3 1/2 Digit DVM for LCD Displays w/Display Hold	40-Dip	4.53	85.58	304.01
NJU9203BM-ND	**3 1/2 Digit DVM for LCD Displays w/Display Hold**	**SO-42**	**9.36**	**175.50**	**624.00**
NJU9204BD-ND	3 1/2 Digit DVM for LED Displays w/Display Hold	40-Dip	4.53	85.01	302.00
NJU9204BM-ND	**3 1/2 Digit DVM for LED Displays w/Display Hold**	**SO-42**	**9.36**	**175.50**	**624.00**
9200B-ND	NJR CMOS Data Book		19.95	—	—
9201B-ND	NJR Regulator and Bipolar Data Book		14.95	—	—

★ *Call for better pricing on larger quantities!*

SMOS SYSTEMS

CMOS VOLTAGE REGULATORS/DETECTORS

Description	Pkg.	Digi-Key Part No.	Pricing★ 5	25	Tape and Reel Part No.	Pricing★ 1000
CMOS Volt Det (CMOS output) 2.15V SMD	**SOT-89**	**SM1004CT-ND**	**5.80**	**25.38**	**SM1004TR-ND**	**725.00**
CMOS Volt Det (CMOS output) 3.00V SMD	**SOT-89**	**SM1005CT-ND**	**5.80**	**25.38**	—	—
CMOS Voltage Regulator +3V out SMD	**SOT-89**	**SM1008CT-ND**	**5.80**	**25.38**	—	—
CMOS Voltage Regulator −5V out SMD	**SOT-89**	**SM1009CT-ND**	**5.80**	**25.38**	—	—
CMOS Voltage Regulator −3V out SMD	**SOT-89**	**SM1010CT-ND**	**5.80**	**25.38**	—	—

★ *Call for better pricing on larger quantities!*

MEMORY

DRAM Controllers

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
	National Semiconductor				
MM74C910N-ND	256 Bit (64x4) Ram Tri-State	18-Dip	16.65	232.50	740.00
MM82PC12NI-ND	8-Bit I/O Port	24-Dip	22.50	270.00	790.00
DP8409AN-2-ND	**Multi Mod DRAM Controller**	**68-PLCC**	**50.00**	**835.00**	**2670.00**
DP8417N-70-ND	256K DRAM Controller	48-Dip	90.00	1287.50	3790.01
DP8419N-70-ND	256K DRAM Controller	48-Dip	90.00	1287.50	3790.01
DP8419N-80-ND	256K DRAM Controller	48-Dip	70.00	1002.50	2950.00
DP8419V-80-ND	**256K DRAM Controller**	**68-PLCC**	**70.00**	**1002.50**	**2950.00**
DP8420AV-20-ND	**256K DRAM Programmer Controller**	**68-PLCC**	**36.50**	**522.50**	**1539.99**
DP8420AV-25-ND	**256K DRAM Programmer Controller**	**68-PLCC**	**45.00**	**645.00**	**1900.01**
DP8421AV-20-ND	**1meg Programmer DRAM Controller**	**68-PLCC**	**31.25**	**447.50**	**1320.00**
DP8421AV-25-ND	**1meg Programmer DRAM Controller**	**68-PLCC**	**37.50**	**537.50**	**1580.00**
DP8422ATV-25-ND	**4meg Programmer DRAM Controller**	**84-PLCC**	**123.75**	**1775.00**	**5250.02**
DP8422AV-20-ND	**4meg Programmer DRAM Controller**	**84-PLCC**	**37.50**	**537.50**	**1580.00**
DP8422AV-25-ND	**4meg Programmer DRAM Controller**	**84-PLCC**	**45.00**	**645.00**	**1900.01**
DP8428D-70-ND	1meg High Speed DRAM Controller/Driver	52-Dip	140.00	2012.50	5899.99
DP8428V-70-ND	**1meg High Speed DRAM Controller/Driver**	**68-PLCC**	**112.50**	**1612.50**	**4739.99**
DP8429D-70-ND	1meg High Speed DRAM Controller/Driver	52-Dip	140.00	2012.50	5899.99
DP8429D-80-ND	1meg High Speed DRAM Controller/Driver	52-Dip	140.00	2012.50	5899.99
DP8429TD-70-ND	1meg High Speed DRAM Controller/Driver	52-Dip	157.50	2262.50	6650.03
DP8429V-70-ND	**1meg High Speed DRAM Controller/Driver**	**68-PLCC**	**112.50**	**1612.50**	**4739.99**
DP8429V-80-ND	**1meg High Speed DRAM Controller/Driver**	**68-PLCC**	**112.50**	**1612.50**	**4739.99**

EPROMS (Erasable)

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
	Microchip Technology				
27C512-12/J-ND	512K (64Kx8) Cmos Eprom 120ns	28-Dip	10.92	215.90	812.80
27C512-15/J-ND	512K (64Kx8) Cmos Eprom 150ns	28-Dip	10.71	211.65	796.80
	National Semiconductor				
9170B-ND	1992 Memory Databook		13.99	—	—

For PC EPROM Programmer, See "Test Equipment" in Product Index

Low Voltage EPROMS Erasable

Microchip Technology

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
27LV64-20/J-ND	64K (8Kx8) Cmos 3V EPROM 200ns	28-CDip	6.15	121.55	443.30

EPROMS OTP (One Time Programmable)

Microchip Technology

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
27C64-12/P-ND	64K (8Kx8) Cmos Eprom, 120ns OTP	28-Dip	2.88	57.00	208.00
27C64-15/P-ND	64K (8Kx8) Cmos Eprom, 150ns OTP	28-Dip	2.84	56.00	204.00
27C128-12/P-ND	128K (16Kx8) Cmos Eprom, 120ns OTP	28-Dip	3.16	62.25	227.00
27C128-15/P-ND	128K (16Kx8) Cmos Eprom, 150ns OTP	28-Dip	3.10	61.25	223.00
27C256-12/P-ND	256K (32Kx8) Cmos Eprom, 120ns OTP	28-Dip	3.05	60.50	220.00
27C256-15/P-ND	256K (32Kx8) Cmos Eprom, 150ns OTP	28-Dip	3.01	59.25	216.00

For PC EPROM Programmer, See "Test Equipment" in Product Index

National Semiconductor

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
NMC27C64N200-ND	64K (8Kx8) Cmos Eprom, 200ns OTP	28-Dip	6.00	83.75	310.00
NMC27C64N250-ND	64K (8Kx8) OTP 250ns	28-Dip	6.00	83.75	310.00
NMC87C257V150-ND	**256K (32Kx8) Eprom w/ adr Latch**	**32-PLCC**	**10.50**	**146.56**	**542.50**
NMC87C257V200-ND	**256K (32Kx8) Eprom w/ adr Latch**	**32-PLCC**	**10.50**	**146.56**	**542.50**
NM27LC512V150-ND	**512K (64Kx8) Low Voltage OTP 150ns**	**32-PLCC**	**12.75**	**177.97**	**658.75**
NM27LC512V200-ND	**512K (64Kx8) Low Voltage OTP 200ns**	**32-PLCC**	**12.15**	**169.59**	**627.75**
NM27LV512T250-ND	512K (64Kx8) Low Voltage OTP 250ns	32 TSOP	13.80	192.63	713.00
NM27C010T90-ND	1meg (128Kx8) OTP 90ns	32 TSOP	9.90	138.19	511.50
NM27C010T120-ND	1meg (128Kx8) OTP 120ns	32 TSOP	9.00	125.63	465.00
NM27C128N120-ND	1meg (128Kx8) OTP 120ns	28-Dip	6.30	87.94	325.50
NM27C010T150-ND	1meg (128Kx8) OTP 150ns	32 TSOP	9.00	125.63	465.00
NM27C010T200-ND	1meg (128Kx8) OTP 200ns	32 TSOP	9.00	125.63	465.00
NM27C010V200-ND	**1meg (128Kx8) OTP 200ns**	**32-PLCC**	**12.75**	**177.97**	**658.75**
NM27LV010T250-ND	1meg (128Kx8) Low Voltage OTP 250ns	32 TSOP	15.75	219.84	813.75
NM27C040V200-ND	**4meg (512Kx8) OTP 200ns**	**32-PLCC**	**23.40**	**326.63**	**1209.00**

EPROMS OTP Extended Temperature (-40° to +85°C)

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
NMC87C257VE150-ND	**256K (32Kx8) Eprom w/ adr Latch**	**32-PLCC**	**11.55**	**161.22**	**596.75**
NMC87C257VE200-ND	**256K (32Kx8) Eprom w/ adr Latch**	**32-PLCC**	**11.55**	**161.22**	**596.75**
NM27C010VE200-ND	**1meg (128Kx8) OTP**	**32-PLCC**	**12.60**	**175.88**	**651.00**

EPROMS Surface Mount OTP (One Time Programmable)

Microchip Technology

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
27C64-12/L-ND	**64K (8Kx8) Cmos EPROM 120ns**	**32-PLCC**	**2.88**	**57.00**	**208.00**
27C64-12/SO-ND	**64K (8Kx8) Cmos EPROM 120ns**	**SO-28**	**3.03**	**60.00**	**219.00**
27C128-12/L-ND	**128K (16Kx8) Cmos EPROM 120ns**	**32-PLCC**	**3.16**	**62.25**	**227.00**
27C128-12/SO-ND	**128K (16Kx8) Cmos EPROM 120ns**	**SO-28**	**3.31**	**65.50**	**238.00**
27C256-12/L-ND	**256K (32Kx8) Cmos EPROM 120ns**	**32-PLCC**	**3.05**	**60.50**	**220.00**
27C256-12/SO-ND	**256K (32Kx8) Cmos EPROM 120ns**	**SO-28**	**3.20**	**63.50**	**232.00**

Low Voltage EPROMS (One Time Programmable)

Microchip Technology

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
27LV64-20/P-ND	64K (8Kx8) Cmos EPROM 3V 200ns	28-Dip	3.25	64.25	234.00
27LV64-20/SO-ND	64K (8Kx8) Cmos EPROM 3V 200ns	SO-28	3.40	67.25	246.00
27LV256-20/P-ND	256K (32Kx8) Cmos EPROM 3V 200ns	28-Dip	3.44	68.00	248.00
27LV256-20/SO-ND	256K (32Kx8) Cmos EPROM 3V 200ns	SO-28	3.61	71.25	260.00
27LV512-20/P-ND	512K (64Kx8) Cmos EPROM 3V 200ns	28-Dip	6.82	134.73	491.35
27LV512-20/SO-ND	512K (64Kx8) Cmos EPROM 3V 200ns	SO-28	7.16	141.53	516.15

EPROMS One Time Programmable (Electrically Improved)

Microchip Technology

27C512A-90/P-ND	512K (64Kx8) Cmos EPROM OTP 90ns	28-Dip	5.59	110.75	403.00
27C512A-90/SO-ND	512K (64Kx8) Cmos EPROM OTP 90ns	SO-28	5.87	116.25	424.00
27C512A-12/P-ND	512K (64Kx8) Cmos EPROM OTP 120ns	28-Dip	4.60	90.75	331.00
27C512A-12/SO-ND	512K (64Kx8) Cmos EPROM OTP 120ns	SO-28	4.82	95.25	348.00
27C512A-15/P-ND	512K (64Kx8) Cmos EPROM OTP 150ns	28-Dip	4.52	89.25	325.00
27C512A-15/SO-ND	512K (64Kx8) Cmos EPROM OTP 150ns	SO-28	4.73	93.50	341.00

EEPROMS

Microchip Technology

28C16A-20/P-ND	16K (2Kx8) Cmos Elect. Eras. Prom	24-Dip	3.89	76.75	280.00
28C16A-20/L-ND	16K (2Kx8) Cmos Elect. Eras. Prom	32-PLCC	3.91	77.50	283.00
28C64A-20/P-ND	64K (8Kx8) Cmos Elect. Eras. Prom	28-Dip	5.85	99.50	363.00
28C64A-20/L-ND	64K (8Kx8) Cmos Elect. Eras. Prom	32-PLCC	5.10	100.50	367.00

SERIAL EEPROMS

Microchip Technology

2 Wire Interface

24LC01B/P-ND	1K (128x8) Cmos Serial EEprom 2.5V	8-Dip	.60	11.75	43.00
24LC01B-I/P-ND	1K (128x8) Cmos Serial EEprom Ind Temp 2.5V	8-Dip	.69	13.50	49.00
24LC01B/SN-ND	1K (128x8) Cmos Serial EEprom 2.5V	SO-8	.60	11.75	43.00
24LC01B-I/SN-ND	1K (128x8) Cmos Serial EEprom Ind Temp 2.5V	SO-8	.69	13.50	49.00
24LC02B/P-ND	2K (256x8) Cmos Serial EEprom 2.5V	8-Dip	.77	15.00	55.00
24LC02B/SN-ND	2K (256x8) Cmos Serial EEprom 2.5V	SO-8	.77	15.00	55.00
24LC04B/P-ND	4K (512x8) Cmos Serial EEprom 2.5V	8-Dip	.92	18.50	67.00
24LC04B-I/P-ND	4K (512x8) Cmos Serial EEprom Ind Temp 2.5V	8-Dip	1.05	21.00	76.00
24LC04B/SN-ND	4K (512x8)Cmos Serial EEprom 2.5V	SO-8	.92	18.50	67.00
24LC04B-I/SN-ND	4K (512x8) Cmos Serial EEprom Ind Temp 2.5V	SO-8	1.05	21.00	76.00
24LC08B/P-ND	8K (1Kx8) Cmos Serial EEprom 2.5V	8-Dip	1.25	24.50	89.00
24LC08B/SN-ND	8K (1Kx8) Cmos Serial EEprom 2.5V	SO-8	1.25	24.50	89.00
24LC16B/P-ND	16K (2Kx8) Cmos Serial EEprom 2.5V	8 Dip	1.44	28.25	103.00
24LC16B-I/P-ND	16K (2Kx8) Cmos Serial EEprom Ind Temp 2.5V	8-Dip	1.63	32.25	118.00
24LC16B/SN-ND	16K (2Kx8) Cmos Serial EEprom 2.5V	SO-8	1.44	28.25	103.00
24LC16B-I/SN-ND	16K (2Kx8) Cmos Serial EEprom Ind Temp 2.5V	SO-8	1.63	32.25	118.00
24LC21/P-ND	1K Dual Mode DDC™/DDC2™ for monitor	8-Dip	1.20	23.50	86.00
24LC21/SN-ND	1K Dual Mode DDC™/DDC2™ for monitor	SO-8	1.20	23.50	86.00
24LC21-I/P-ND	1K Dual Mode DDC™/DDC2™ for monitor	8-Dip	1.35	27.00	98.00
24LC21-I/SN-ND	1K Dual Mode DDC™/DDC2™ for monitor	SO-8	1.35	27.00	98.00
24C04A/P-ND	4K (512 x 8) Cmos Cascadable Serial EEprom 5V	8-Dip	1.23	24.00	88.00
24C32/P-ND	32K (4K x 8) Serial EEprom 5V	8-Dip	2.99	59.00	215.00
24C32/SM-ND	32K (4K x 8) Serial EEprom 5V	SO-8	2.99	59.00	215.00
24LC32/P-ND	32K (4K x 8) Serial EEprom 2.5V	8-Dip	3.29	64.75	237.00
24LC32-I/P-ND	32K (4K x 8) Serial EEprom Ind Temp 2.5V	8-Dip	3.74	74.00	270.00
24LC32/SM-ND	32K (4K x 8) Serial EEprom 2.5V	SO-8	3.29	65.00	237.00
24LC32-I/SM-ND	32K (4K x 8) Serial EEprom Ind Temp 2.5V	SO-8	3.74	74.00	270.00
24C65/P-ND	64K (8K x 8) Smart Serial EEprom 5V	8-Dip	3.33	66.00	241.00
24C65/SM-ND	64K (8K x 8) Smart Serial EEprom 5V	SO-8	3.33	66.00	241.00
24LC65/P-ND	64K (8K x 8) Smart Serial EEprom 2.5V	8-Dip	3.68	72.75	265.00
24LC65-I/P-ND	64K (8K x 8) Serial EEprom Ind Temp 2.5V	8-Dip	4.19	82.75	302.00
24LC65/SM-ND	64K (8K x 8) Smart Serial EEprom 2.5V	SO-8	3.68	72.75	265.00
24LC65-I/SM-ND	64K (8K x 8) Serial EEprom Ind Temp 2.5V	SO-8	4.19	83.00	303.00
24AA65/P-ND	64K (8K x 8) Smart Serial EEprom 1.8V	8-Dip	4.41	87.25	318.00
24AA65/SM-ND	64K (8K x 8) Smart Serial EEprom 1.8V	SO-8	4.41	87.25	318.00
24LC164/P-ND	16K (2Kx8) Cascadable Cmos 2.5V	8-Dip	1.57	31.25	114.00
24LC164/SN-ND	16K (2Kx8) Cascadable Cmos 2.5V	SO-8	1.57	31.25	114.00
24LC164-I/P-ND	16K (2Kx8) Cascadable Cmos Ind Temp 2.5V	8-Dip	1.81	35.50	129.00
24LC164-I/SN-ND	16K (2Kx8) Cascadable Cmos Ind Temp 2.5V	SO-8	1.81	35.50	129.00
24LC174/P-ND	16K (2Kx8) Cascadable w/ Sec 2.5V	8-Dip	1.66	32.75	119.00
24LC174/SN-ND	16K (2Kx8) Cascadable w/ Sec 2.5V	SO-8	1.66	32.75	119.00
24LC174-I/P-ND	16K (2Kx8) Cascadable Ind Temp w/ Sec 2.5V	8-Dip	1.89	37.25	136.00
24LC174-I/SN-ND	16K (2Kx8) Cascadable Ind Temp w/ Sec 2.5V	SO-8	1.89	37.25	136.00

3 Wire Interface

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
93AA46/P-ND	1K (128x8 or 64x16) Cmos Serial EEprom 1.8V	8-Dip	.71	14.25	52.00
93AA46/SN-ND	1K (128x8 or 64x16) Cmos Serial EEprom 1.8V	SO-8	.71	14.25	52.00
93AA56/P-ND	2K (256x8 or 128x16) Cmos Serial EEprom 1.8V	8-Dip	.92	18.00	66.00
93AA56/SN-ND	2K (256x8 or 128x16) Cmos Serial EEprom 1.8V	SO-8	.92	18.00	66.00
93AA66/P-ND	4K (512x8 or 256x16) Cmos Serial EEprom 1.8V	8-Dip	1.12	22.00	81.00
93AA66/SN-ND	4K (512x8 or 256x16) Cmos Serial EEprom 1.8V	SO-8	1.12	22.00	81.00
93LC46/P-ND	1K (128x8 or 64x16) Cmos Serial EEprom 2.5V	8-Dip	.60	11.75	43.00
93LC46-I/P-ND	1K (128x8 or 64x16) Cmos Serial EEprom Ind Temp	8-Dip	.69	13.50	49.00
93LC46-I/SN-ND	1K (128x8 or 64x16) Cmos Serial EEprom Ind Temp	SO-8	.69	13.50	49.00
93LC46/SN-ND	1K (128x8 or 64x16) Cmos Serial EEprom 2.5V	SO-8	.60	11.75	43.00
93LC56/P-ND	2K (256x8 or 128x16) Cmos Serial EEprom 2.5V	8-Dip	.77	15.00	55.00
93LC56/SN-ND	2K (256x8 or 128x16) Cmos Serial EEprom 2.5V	SO-8	.77	15.00	55.00
93LC66/P-ND	4K (512x8 or 256x16) Cmos Serial EEprom 2.5V	8-Dip	.92	18.50	67.00
93LC66/SN-ND	4K (512x8 or 256x16) Cmos Serial EEprom 2.5V	SO-8	.92	18.50	67.00
93C06/P-ND	256 Bit (16x16) Cmos Serial EEprom 5V	8 Dip	.99	19.25	71.00
93C06/SN-ND	256 Bit (16x16) Cmos Serial EEprom 5V	SO-8	.99	19.25	71.00
93C46/P-ND	1K (64X16) Cmos Serial EEprom 5V	8 Dip	.77	15.00	55.00
93C46-I/P-ND	1K (64x16) Cmos Serial EEprom Ind Temp	8-Dip	.86	17.25	63.00
93C46-I/SN-ND	1K (64x16) Cmos Serial EEprom Ind Temp	SO-8	.86	17.25	63.00
93C46/SN-ND	1K (64X16) Cmos Serial EEprom 5V	SO-8	.77	15.00	55.00

National Semiconductor

2 Wire Interface

NM24C02LM8-ND	2K Serial EEPROM Bit	SO-8	1.95	27.22	86.45
NM24C02LN-ND	2K Serial EEPROM Bit	8-Dip	1.95	27.22	86.45
NM24C02M8-ND	2K Serial EEPROM Bit	SO-8	1.80	25.13	79.80
NM24C02N-ND	2K Serial EEPROM Bit	8-Dip	1.80	25.13	79.80
NM24C03LM8-ND	2K Serial EEPROM w/ Security	SO-8	2.55	35.59	113.05
NM24C03M8-ND	2K Serial EEPROM w/ Security	SO-8	2.40	33.50	106.40
NM24C03N-ND	2K Serial EEPROM w/ Security	8-Dip	2.40	33.50	106.40
NM24C04LM8-ND	4K Serial EEPROM Bit	SO-8	2.55	35.59	113.05
NM24C04LN-ND	4K Serial EEPROM Bit	8-Dip	2.55	35.59	113.05
NM24C04M8-ND	4K Serial EEPROM Bit	SO-8	2.40	33.50	106.40
NM24C04N-ND	4K Serial EEPROM Bit	8-Dip	2.40	33.50	106.40
NM24C08LN-ND	8K Serial EEPROM Bit	8-Dip	2.85	39.78	126.35
NM24C08M-ND	8K Serial EEPROM Bit	SO-14	2.85	39.78	126.35
NM24C08N-ND	8K Serial EEPROM Bit	8-Dip	2.70	37.69	119.70
NM24C09N-ND	8K Serial EEPROM Bit w/ Security	8-Dip	2.85	39.78	126.35
NM24C16M-ND	16K Serial EEPROM Bit	SO-14	3.90	54.44	172.90
NM24C16N-ND	16K Serial EEPROM Bit	8-Dip	3.75	52.34	166.25
NM25C04M8-ND	4K Bit Serial Periphal Interface EEPROM	SO-8	2.40	33.50	106.40

3 Wire Interface

NM93C06LM8-ND	256 Bit Serial EEPROM 2.5V	SO-8	1.35	18.84	59.85
NM93C06LN-ND	256 Bit Serial EEPROM 2.5V	8-Dip	1.35	18.84	59.85
NM93C06M8-ND	256 Bit Serial CMOS EEPROM	SO-8	1.20	16.75	53.20
NM93C13M8-ND	256 Bit Serial EEPROM	SO-8	.96	13.40	42.56
NM93C13N-ND	256 Bit Serial EEPROM	8-Dip	.96	13.40	42.56
NM93C14M8-ND	1K Bit Serial EEPROM	SO-8	1.05	14.66	46.55
NM93C14N-ND	1K Bit Serial EEPROM	8-Dip	1.05	14.66	46.55
NM93C46AN-ND	1K Bit Serial EEPROM	8-Dip	1.65	23.03	73.15
NM93C46LN-ND	1K Bit Serial EEPROM	8-Dip	1.50	20.94	66.50
NM93C46LZM8-ND	1K Serial EEPROM 2.5V	SO-8	1.80	25.13	79.80
NM93C46LZN-ND	1K Serial EEPROM 2.5V	8-Dip	1.80	25.13	79.80
NM93C46M8-ND	1K Serial CMOS EEPROM	SO-8	1.35	18.84	59.85
NM93C46M8X-ND	1K Serial CMOS EEPROM	SO-8	1667.50/2,500		
NM93CS46N-ND	1K Bit 5V EEPROM w/Security	8-Dip	1.50	20.94	66.50
NM93C56LM8-ND	2K Bit Serial EEPROM 2.5V	SO-8	1.95	27.22	86.45
NM93C56LN-ND	2k Bit Serial Eeprom 2.5V	8-Dip	1.95	27.22	86.45
NM93C56LZM8-ND	2K Serial EEPROM 0 pwr 2.5V	SO-8	2.25	31.41	99.75
NM93C56LZN-ND	2K Serial EEPROM 0 pwr 2.5V	SO-8	2.25	31.41	99.75
NM93C56M-ND	2k Bit Serial EEPROM	SO-14	1.95	27.22	86.45
NM93C56M8-ND	2K Bit Serial EEPROM	SO-8	1.80	25.13	79.80
NM93C66LN-ND	4K Bit Serial EEPROM 2.5V	8-Dip	2.55	35.59	113.05
NM93C66M-ND	4K Bit Serial EEPROM	SO-14	2.40	33.50	106.40
NM93C66M8-ND	4K Bit Serial EEPROM	SO-8	2.40	33.50	106.40
NM93C86AM8-ND	16Kx8 Serial EEPROM	SO-8	4.50	62.81	199.50
NM93C86AN-ND	16Kx8 Serial EEPROM	8-Dip	4.50	62.81	199.50
NM93CS06LM8-ND	256 Bit EEPROM w/ Security	SO-8	1.77	24.71	78.47
NM93CS06LN-ND	256 Bit Serial EEPROM 2.5V w/ Security	8-Dip	1.77	24.71	78.47
NM93CS06M-ND	256 Bit Serial EEPROM w/ Security	SO-14	1.65	23.03	73.15
NM93CS06M8-ND	256 Bit Serial EEPROM w/ Security	SO-8	2.10	29.31	93.10
NM93CS06N-ND	256 Bit Serial EEPROM w/ Security	8-Dip	2.10	29.31	93.10
NM93CS46LM8-ND	1K Bit Serial EEPROM 2.5V	SO-8	1.80	25.13	79.80
NM93CS46LN-ND	1K Bit Serial EEPROM 2.5V	8-Dip	1.80	25.13	79.80
NM93CS46M-ND	1K Bit Serial EEPROM w/ Security	SO-14	1.80	25.13	79.80
NM93CS46M8-ND	1K Bit Serial EEPROM w/ Security	SO-8	1.50	20.94	66.50
NM93CS56M-ND	2K Bit Serial EEPROM w/ Security	SO-14	3.30	46.06	146.30
NM93CS56M8-ND	2K Bit Serial EEPROM w/ Security	SO-8	2.10	29.31	93.10
NM93CS56N-ND	2K Bit Serial EEPROM w/ Security	8-Dip	2.10	29.31	93.10
NM93CS66M-ND	4K Serial EEPROM w/ Security	SO-14	3.60	50.25	159.60
NM93CS66N-ND	4K Serial EEPROM w/ Security	8-Dip	2.70	37.69	119.70
NM95C12M-ND	1K Serial EEPROM	SO-14	2.40	33.50	107.00
NM95C12N-ND	1K Serial EEPROM	14-Dip	2.40	33.50	107.00
9170B-ND	1992 Memory Databook		13.99	—	—

HIGH TEMPERATURE SERIAL EEPROMS

National Semiconductor

2 Wire Interface

NM24C02EM8-ND	2K Bit Serial EEPROM	SO-8	1.95	27.22	86.45
NM24C02EN-ND	2K Bit Serial EEPROM	8-Dip	1.95	27.22	86.45
NM24C02LEM8-ND	2K Bit Serial EEPROM Low Voltage	SO-8	2.10	29.31	93.10
NM24C02LEN-ND	2K Bit Serial EEPROM Low Voltage	8-Dip	2.10	29.31	93.10
NM24C03EM8-ND	2K Serial EEPROM w/ Security	SO-8	2.55	35.59	113.05
NM24C03EN-ND	2K Serial EEPROM w/ Security	8-Dip	2.55	35.59	113.05
NM24C04EM8-ND	4K Serial EEPROM Bit	SO-8	2.55	35.59	113.05
NM24C04EN-ND	4K Bit Serial EEPROM	8-Dip	2.55	35.59	113.05
NM24C04LEM8-ND	4K Bit Serial EEPROM Low Voltage	SO-8	2.70	37.69	119.70
NM24C04LEN-ND	4K Bit Serial EEPROM Low Voltage	8-Dip	2.70	37.69	119.70
NM24C16EM-ND	16K Bit Serial EEPROM	SO-14	3.90	54.44	172.90
NM24C16EN-ND	16K Bit Serial EEPROM	8-Dip	3.90	54.44	172.90

3 Wire Interface

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
NM93C06EM8-ND	256 Bit Serial EEPROM	SO-8	1.35	18.84	59.85
NM93C06EN-ND	256 Bit CMOS Serial EEPROM Extended Temperature	8-Dip	1.35	18.84	59.85
NM93C06LEM8-ND	256 Bit Serial EEPROM 2.5V	SO-8	1.50	20.94	66.50
NM93C06LEN-ND	256 Bit Serial EEPROM 2.5V	8-Dip	1.50	20.94	66.50
NM93C46EM-ND	1K Bit Serial EEPROM	SO-14	1.65	23.03	73.15
NM93C46EM8-ND	1K Bit Serial EEPROM	SO-8	1.50	20.94	66.50
NM93C46EN-ND	1K CMOS Serial EEPROM Extended Temperature	8-Dip	1.50	20.94	66.50
NM93C46LZEM8-ND	1K Serial EEPROM 2.5V	SO-8	1.95	27.22	86.45
NM93C56EM-ND	2K Serial EEPROM	SO-14	2.10	29.31	93.10
NM93C56EM8-ND	2K Serial EEPROM	SO-8	1.95	27.22	86.45
NM93C56EN-ND	2K Serial EEPROM	8-Dip	1.95	27.22	86.45
NM93C66EM8-ND	4K Bit Serial EEPROM	SO-8	2.55	35.59	113.05
NM93C66EN-ND	4K Bit Serial EEPROM	8-Dip	2.55	35.59	113.05
NM93CS06EM8-ND	256 Bit EEPROM w/ Security	SO-8	1.77	24.71	78.47
NM93CS06EN-ND	256 Bit Serial EEPROM w/ Security	8-Dip	1.77	24.71	78.47
NM93CS06LEM8-ND	256 Bit EEPROM 2.5V w/ Security	SO-8	1.92	26.80	85.12
NM93CS06LEN-ND	256 Bit EEPROM 2.5V w/ Security	8-Dip	1.92	26.80	85.12
NM93CS46EM-ND	1K Bit Serial EEPROM	SO-14	1.95	27.22	86.45
NM93CS46EN-ND	1K Bit Serial EEPROM	8-Dip	1.80	25.13	79.80
NM93CS46LEN-ND	1K Bit Serial EEPROM 2.5V	8-Dip	1.95	27.22	86.45
NM93CS66EN-ND	4K Serial EEPROM w/ Security	8-Dip	3.63	50.67	160.93
NM95C12EM-ND	1K Serial EEPROM High Temperature	SO-14	2.55	35.50	114.00

Specialized IC's

National Semiconductor

Digi-Key Part No.	Description	Pkg.	1	25	100
29F52SC-ND	8-Bit Regulator Transceiver	SO-24	6.88	114.74	378.13
29F52SPC-ND	8-Bit Regulator Transceiver	24-Dip	6.88	114.74	378.13
HPC36003V20-ND	High Performance MCU 20MHz	68-PLCC	31.25	447.50	1320.00
HPC36003V30-ND	High Performance MCU 30MHz	68-PLCC	33.75	485.00	1420.00
HPC46003V20-ND	High Performance MCU 20MHz	68-PLCC	29.25	420.00	1240.00
HPC46003V30-ND	High Performance MCU 30MHz	68-PLCC	32.00	460.00	1350.00

Microprocessor Chips

National Semiconductor

Digi-Key Part No.	Description	Pkg.	1	25	100
COP498N-ND	Low Power CMOS Ram and Timer	14-Dip	5.38	120.94	322.50
DM8334N-ND	8 Bit Addressable Latch	16-Dip	3.15	37.50	138.42
DP8228N-ND	System Controller and Bus Driver	28-Dip	11.38	135.42	499.85
DP8300N-ND	Octal Bus Transceiver	24-Dip	10.50	125.00	461.40
DP8303AN-ND	8 Bit Bidirectional Transceiver	20-Dip	2.38	28.33	90.44
DP8304BN-ND	8 Bit Bidirectional Buffer	20-Dip	3.33	39.58	126.35
DP8307AN-ND	8 Bit Bidirectional Transceiver	20-Dip	6.44	76.67	244.72
DP8308N-ND	8 Bit Bidirectional Transceiver	20-Dip	6.13	72.92	232.75
DP8310N-ND	Octal Latched Peripheral Driver	20-Dip	10.12	132.50	387.00
DP8311N-ND	Octal Latched Peripheral Driver	20-Dip	11.00	143.75	421.00
DP8409AN-ND	Multi-Mode Dynamic Ram Controller/Driver	48-Dip	37.50	627.50	2000.00
NSC800N-1-ND	8 Bit CMOS 1.0 MHz CPU	40-Dip	17.50	252.50	740.00

★ Call for better pricing on larger quantities!

UARTS

National Semiconductor

Digi-Key Part No.	Description	Pkg.	1	25	100
PC8477BV-1-ND	Advanced Floppy Disk Controller	68-PLCC	17.10	238.75	760.00
PC16550DN-ND	UART	40-Dip	10.50	125.00	399.00
PC16550DV-ND	UART	44-PLCC	10.50	125.00	399.00
PC16552DV-ND	Dual UART	44-PLCC	15.00	180.00	530.00

NEC MICROPROCESSOR CHIPS

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
V30-ND	UPD70116C8(8MHz) Turbo charge your 8088/8086 computer with NEC's V20 and V30. Direct replacements for the 8088 (V20) and 8086 (V30), with the streamlined architecture, systems can run 30% faster.	40-Dip	14.96	332.50	1064.00

★ Call for better pricing on larger quantities!

National Semiconductor A/D & D/A CONVERTERS

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
ADC0800PCD-ND	8-Bit A/D Converter	18-Dip	36.75	377.50	1110.00
ADC0801LCN-ND	8-Bit µP Compatible A/D Converters	20-Dip	15.75	354.38	866.25
ADC0802LCN-ND	8-Bit µP Compatible A/D Converters	20-Dip	10.40	234.00	572.00
ADC0803LCN-ND	8-Bit A/D Converter 1/2 LSB	20-Dip	8.63	194.06	474.38
ADC0804LCJ-ND	8-Bit A/D Converter	20-CDip	6.15	138.38	338.25
ADC0804LCN-ND	8-Bit A/D Converter 1 LSB	20-Dip	3.25	73.13	178.75
ADC0804LCWM-ND	8-Bit A/D Converter	SO-20	3.25	73.13	178.75
ADC0805LCN-ND	8-Bit A/D Converter 1 LSB	20-Dip	5.18	116.44	284.63
ADC0808CCJ-ND	8-Bit A/D µP Compat. Conv. 8-Ch. Multiplexer	28-CDip	8.60	193.50	473.00
ADC0808CCN-ND	8-Bit A/D µP Compat Conv. 8 Ch. Multiplexer	28-Dip	6.60	148.50	363.00
ADC0808CCV-ND	8-Bit A/D Converter 8-Ch Multiplexer	28-PLCC	7.28	163.69	400.13
ADC0809CCN-ND	8-Bit A/D Converter w/8 Ch. Mux	28-Dip	4.53	101.81	248.88
ADC0809CCV-ND	8-Bit A/D Converter w/8 Ch. Mux	28-PLCC	6.50	146.25	357.50
ADC0816CCN-ND	8-Bit A/D Converter w/16 Ch. Multiplexer	40-Dip	25.43	405.00	1190.00
ADC0816CJ-ND	8-Bit A/D Converter w/16 Ch. Multiplexer	40-CDip	79.00	1132.50	3329.98
ADC0817CCN-ND	8-Bit A/D Converter w/16 Ch. Mux	40-Dip	18.90	226.25	665.00
ADC0819BCN-ND	8-Bit Serial I/O A/D Converter w/19 Ch. Mux	28-Dip	11.65	262.13	640.75
ADC0819BCV-ND	8-Bit 16us Serial A/D 19-Channel	28-PLCC	13.00	292.50	715.00
ADC0819CCV-ND	8-Bit 16us Serial A/D 19-Channel	28-PLCC	8.60	193.50	473.00
ADC0819CIN-ND	8-Bit Serial A/D w/19 Channel Mux	28-Dip	9.20	207.00	506.00
ADC0820BCN-ND	8-Bit A/D High Speed	20-Dip	19.88	447.19	1093.13
ADC0820CCN-ND	8-Bit High Speed Mpu. Comp. A/D	20-Dip	11.80	265.50	649.00
ADC0831BCN-ND	8-Bit Serial I/O A/D Conv w/lMultiplex Options	8-Dip	4.83	108.56	265.38
ADC0831CCN-ND	8-Bit Serial I/O A/D Conv w/Multiplex	8-Dip	3.23	72.56	177.38
ADC0831CCWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-14	3.73	83.81	204.88
ADC0831CIWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-14	4.20	94.50	231.00
ADC0832BCN-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	8-Dip	5.65	127.13	310.75
ADC0832CCWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-14	3.75	84.38	206.25
ADC0832CIWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-14	4.90	110.25	269.50
ADC0833BCN-ND	8-Bit I/O A/D Conv w/4-Channel Multiplex	14-Dip	10.00	143.75	421.00
ADC0834BCN-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	14-Dip	5.00	112.50	275.00
ADC0834CCJ-ND	8 Bit Serial I/O A/D Converter W/ Mux Options	14-CDip	13.63	306.56	749.38
ADC0834CCWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-14	6.10	87.50	257.00
ADC0834CIWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-14	7.23	103.50	304.00
ADC0838BCJ-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	20-CDip	7.83	176.06	430.38
ADC0838BCN-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	20-Dip	6.00	135.00	330.00
ADC0838CCN-ND	8-Bit Serial I/O A/D Conv w/Multiplex	20-Dip	4.00	90.00	220.00
ADC0838CCV-ND	8 Bit Serial I/O A/D Converter w/ Mux Options	20-PLCC	4.40	99.00	242.00
ADC0838CCWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-20	5.85	83.75	247.00
ADC0838CIWM-ND	8-Bit Serial I/O A/D Conv w/Multiplex Options	SO-20	6.85	98.07	289.00
ADC0841BCN-ND	8-Bit µP Compatible A/D Converter	20-Dip	9.95	142.50	419.00
ADC0844BCJ-ND	8-Bit A/D Mpu Compatible 4-Channel	20-CDip	22.13	317.50	935.00
ADC0844BCN-ND	8-Bit A/D Mpu Compatible 4-Channel	20-Dip	11.08	158.75	466.00
ADC0844CCJ-ND	8-Bit A/D Mpu Compatible 4-Channel	20-CDip	14.75	211.25	625.00
ADC0844CCN-ND	8-Bit A/D Mpu Compatible 4-Channel	20-Dip	6.68	95 50	281.00
ADC0848BCJ-ND	8-Bit µP Compatible A/D Conv w/ Multiplex Options	24-CDip	23.00	330.00	970.00
ADC0848BCV-ND	8-Bit µP Compatible A/D Conv w/ Multiplex Options	28-PLCC	12.63	181.25	535.00
ADC0848BCN-ND	8-Bit µP Compatible A/D Conv w/ Multiplex Options	24-Dip	11.50	165.00	484.00
ADC0848CCN-ND	8-Bit µP Compatible A/D Conv w/ Multiplex Options	24-Dip	6.93	99.25	292.00
ADC0848CCV-ND	8-Bit µP Compatible A/D Conv w/ Multiplex Options	28-PLCC	8.45	121.00	356.00
ADC0851BIN-ND	8-Bit Analog Data Acquisition & Monitoring System	16-Dip	17.25	247.50	730.00
ADC0851BIV-ND	8-Bit Analog Data Acquisition & Monitoring	18-PLCC	17.25	247.50	730.00
ADC0851CIN-ND	8-Bit Analog Data Acquisition & Monitoring System	16-Dip	11.55	166.25	486.00
ADC0852CCN-ND	Multiplexed Comparator w/8 Bit Ref Divider	8-Dip	5.45	78.00	230.00
ADC0854BCN-ND	Multiplexed Comparator w/8 Bit Ref Divider	14-Dip	9.38	135.00	395.00
ADC0854CCN-ND	Multiplexed Comparator w/8 Bit Ref Divider	14-Dip	5.88	84.25	248.00
ADC0858BIN-ND	8-Bit Analog Data Acquisition & Monitoring System	20-Dip	20.50	295.00	865.00
ADC0858BIV-ND	8-Bit Analog Data Acquisition & Monitoring System	20-PLCC	20.50	295.00	865.00
ADC0858CIN-ND	8-Bit A/D 8-Channel Multiplexer	20-Dip	13.75	197.50	580.00
ADC0858CIV-ND	8-Bit A/D 8-Channel Multiplexer	20-PLCC	13.75	197.50	580.00
ADC1001CCJ-ND	10-Bit A/D Microproc. Compatible	20-CDip	33.00	592.50	1740.01
ADC1001CCJ-1-ND	10-Bit A/D 1 LSB	20-CDip	24.80	445.00	1310.00
ADC1005BCJ-ND	10-Bit µP Compatible A/D Converter	20-CDip	39.80	772.52	2850.00
ADC1005BCJ-1-ND	10-Bit A/D 1/2 LSB	20-CDip	22.20	397.50	1170.00
ADC1005CCJ-1-ND	10-Bit A/D 1 LSB	20-CDip	16.20	290.00	855.00
ADC1031BIN-ND	10-Bit A/D Serial I/O	8-Dip	17.38	248.75	735.00
ADC1031CIN-ND	10-Bit A/D Serial I/O	8-Dip	9.20	207.00	506.00
ADC1034BIN-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	16-Dip	18.25	262.50	770.00
ADC1034BIWM-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	SO-16	18.25	262.50	770.00
ADC1034CIN-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	16-Dip	9.58	215.44	536.20
ADC1034CIWM-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	SO-16	9.58	215.44	536.20
ADC1038BIWM-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	SO-20	19.00	272.50	800.00
ADC1038CIN-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	20-Dip	10.00	225.00	560.00
ADC1038CIWM-ND	10-Bit Serial I/O A/D Conv w/Analog Mux	SO-20	10.00	225.00	560.00
ADC1061CIJ-ND	10-Bit Hi Speed µP Compat A/D Conv w/Track	20-CDip	16.63	374.06	914.38
ADC1061CIN-ND	10-Bit Hi Speed µP Compat A/D Conv w/Track	20-Dip	12.88	289.69	708.13
ADC1061CIWM-ND	10-Bit Hi Speed µP Compat A/D Conv w/Track	SO-20	12.88	289.69	708.13
ADC1205CCJ-ND	12-Bit Plus Sign Mpu Comp. A/D	24-CDip	55.00	985.00	2900.01
ADC1205CCJ-1-ND	12-Bit A/D Plus Sign	24-CDip	40.60	727.50	2140.01
ADC1241BIJ-ND	Self Calibrating 12-Bit Plus Sign UP Compatible A/D	28-CDip	21.60	449.98	1436.40
ADC1241CIJ-ND	12-Bit A/D w/Sample and Hold Sign	28-CDip	17.88	402.19	983.13
ADC1251BIJ-ND	Self Calibrat 12-Bit Plus Sign µP Compat A/D	24-CDip	74.00	1541.61	4921.00
ADC1251CIJ-ND	Self Calibrat 12-Bit Plus Sign µP Compat A/D	24-CDip	16.90	352.07	1123.85
ADC08031BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	8-Dip	7.38	165.94	405.63
ADC08031BIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	SO-14	7.38	165.94	405.63
ADC08031CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	8-Dip	4.93	110.81	270.88
ADC08032BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	8-Dip	7.65	172.13	420.75
ADC08032BIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	SO-14	7.65	172.13	420.75
ADC08032CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	8-Dip	5.08	114.19	279.13
ADC08032CIWM-ND	8-Bit A/D + t/h 2-Channel	SO-14	5.08	114.19	279.13
ADC08034BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	14-Dip	8.33	187.31	457.88
ADC08034CIWM-ND	8-Bit Serial A/D 4-Channel	SO-14	5.55	124.88	305.25
ADC08034BIWM-ND	8-Bit Serial A/D 4-Channel	SO-14	8.33	187.31	457.88
ADC08034CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	8-Dip	5.55	124.88	305.25
ADC08038BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	20-Dip	9.18	206.44	504.63
ADC08038BIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	SO-20	9.18	206.44	504.63
ADC08038CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplexer	20-Dip	6.10	137.25	335.50
ADC08038CIWM-ND	8-Bit Serial A/D 8-Channel	SO-20	6.10	137.25	335.50
ADC08038CMJ-ND	8-Bit Serial A/D 8-Channel High Temp.	20-CDip	15.88	357.19	873.13
ADC08061BIN-ND	500 ns A/D Conv with S/H Function & Input Multiplexer	20-Dip	14.13	317.81	776.88
ADC08061BIWM-ND	500 ns A/D Conv with S/H Function & Input Multiplex	SO-20	14.13	317.81	776.88
ADC08061CIN-ND	500 ns A/D Conv with S/H Function & Input Multiplexer	20-Dip	9.38	210.94	515.63
ADC08061CIWM-ND	500 ns A/D Conv with S/H Function & Input Multiplex	SO-20	9.38	210.94	515.63
ADC08131BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	14-Dip	8.33	187.31	457.88
ADC08131CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	14-Dip	5.55	124.88	305.25
ADC08134BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	14-Dip	9.18	206.44	504.63
ADC08134BIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	SO-14	9.18	206.44	504.63
ADC08134CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	14-Dip	6.10	137.25	335.50
ADC08134CIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	SO-14	6.10	137.25	335.50
ADC08138BIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	20-Dip	10.18	228.94	559.63
ADC08138BIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	SO-20	10.18	228.94	559.63
ADC08138CIN-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	20-Dip	6.78	152.44	372.63
ADC08138CIWM-ND	8-Bit Hi Speed Serial I/O A/D Conv w/Multiplex Option	SO-20	6.78	152.44	372.63
ADC08161BIN-ND	500 ns Conv with S/H Function, 2.5 Bandgap Ref	20-Dip	15.50	348.75	852.50
ADC08161BIWM-ND	500 ns Conv with S/H Function, 2.5 Bandgap Ref	SO-20	15.50	348.75	852.50
ADC08161CIN-ND	500 ns Conv with S/H Function, 2.5 Bandgap Ref	20-Dip	10.33	232.31	567.88
ADC08161CIWM-ND	500 ns Conv with S/H Function, 2.5 Bandgap Ref	20-Dip	10.33	232.31	567.88
ADC08231BIN-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	14-Dip	10.40	234.00	572.00
ADC08231BIWM-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	SO-14	10.40	234.00	572.00
ADC08231CIN-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	14-Dip	6.95	156.38	382.25
ADC08231CIWM-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	SO-14	6.95	156.38	382.25
ADC08234BIN-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	14-Dip	11.18	251.44	614.63
ADC08234BIWM-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	SO-14	11.18	251.44	614.63
ADC08234CIN-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	14-Dip	7.45	167.63	409.75
ADC08234CIWM-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	SO-14	7.45	167.63	409.75

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
ADC08238BIN-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	20-Dip	12.23	275.06	672.38
ADC08238BIWM-ND	**8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref**	SO-20	12.23	275.06	672.38
ADC08238CIN-ND	8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref	20-Dip	8.13	182.81	446.88
ADC08238CIWM-ND	**8-Bit 2µS Serial I/O A/D Conv w/Multiplexer Ref**	SO-20	8.13	182.81	446.88
ADC10061BIJ-ND	10-Bit 600 ns A/D Converter w/Input Mux	20-CDip	34.40	716.38	2287.60
ADC10061BIWM-ND	**10-Bit 600 ns A/D Converter w/Input Mux**	SO-20	26.40	549.78	1755.60
ADC10061CIJ-ND	10-Bit 600 ns A/D Converter w/Input Mux	20-CDip	14.80	308.21	984.20
ADC10061CIN-ND	10-Bit 600 ns A/D Converter w/Input Mux	20-Dip	14.13	317.81	776.88
ADC10061CIWM-ND	**10-Bit 600 ns A/D Converter w/Input Mux**	SO-20	14.13	317.81	776.88
ADC10062CIN-ND	10-Bit A/D 2-Channel t&h 600ns	24-Dip	14.75	331.88	811.25
ADC10064BIWM-ND	**10-Bit 600 ns A/D Converter w/Input Mux**	SO-28	27.80	578.94	1848.70
ADC10064CIJ-ND	10-Bit 600 ns A/D Converter w/Input Mux	28-CDip	15.60	324.87	1037.40
ADC10064CIN-ND	10-Bit 600 ns A/D Converter w/Input Mux	28-Dip	15.38	345.94	845.63
ADC10064CIWM-ND	**10-Bit 600 ns A/D Converter w/Input Mux**	SO-28	15.38	345.94	845.63
ADC10154BIN-ND	10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track	24-Dip	16.20	337.37	1077.30
ADC10154CIN-ND	10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track	24-Dip	13.50	303.75	742.50
ADC10154BIWM-ND	**10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track**	SO-20	16.20	337.37	1077.30
ADC10154CIWM-ND	**10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track**	SO-24	13.50	303.75	742.50
ADC10158BIWM-ND	**10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track**	SO-28	13.50	303.75	742.50
ADC10158CIN-ND	**10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track**	28-Dip	14.25	320.63	783.75
ADC10158CIWM-ND	**10-Bit Plus Sign 4µS ADC with 4 OR 8 Channel Multiplexer, Track**	SO-28	14.25	320.63	783.75
ADC10461CIN-ND	10-Bit 600 ns A/D Converter w/Input Mux	20-Dip	13.38	300.94	735.63
ADC10462CIN-ND	10-Bit 600 ns A/D Converter w/Input Mux	24-Dip	13.88	312.19	763.13
ADC10462CIWM-ND	**10-Bit 600 ns A/D Converter w/Input Mux**	SO-24	13.88	312.19	763.13
ADC10464CIN-ND	10-Bit 600 ns A/D Converter w/Input Mux	28-Dip	14.50	326.25	797.50
ADC10464CIWM-ND	**10-Bit 600 ns A/D Converter w/Input Mux**	SO-28	14.50	326.25	797.50
ADC10662CIN-ND	10-Bit 360 ns A/D Converter w/Input Mux	24-Dip	32.00	720.00	1760.00
ADC10662CIWM-ND	**10-Bit 360 ns A/D Converter w/Input Mux**	SO-24	25.60	533.12	1702.40
ADC10664CIN-ND	10-Bit 360 ns A/D Converter w/Input Mux	28-Dip	26.60	553.95	1768.90
ADC10664CIWM-ND	**10-Bit 360 ns A/D Converter w/Input Mux**	SO-28	26.60	553.95	1768.90
ADC12041CIMSA-ND	**12-Bit ADC Plus Sign 3.6us**	28 SSOP	18.75	270.00	790.00
ADC12041CIV-ND	**12-Bit ADC Plus Sign 3.6us**	28-PLCC	17.75	255.60	749.97
ADC12048CIV-ND	**12-Bit Plus Sign 3.6us ADC w/ 8 Channel Mux**	44-PLCC	19.13	275.00	804.93
ADC12048CIVF-ND	**12-Bit Plus Sign 3.6us ADC w/ 8 Channel Mux**	44 PQFP	20.00	287.50	845.00
ADC12048EVAL-ND	ADC 12048 Evaluation Kit		330.00	6874.73	21945.00
ADC12062CIV-ND	**12 Bit 1 MHZ 75 mW ADC W/ Input Mux & S&H**	44-PLCC	37.60	783.02	2500.40
ADC12130CIN-ND	Self-calibrating 12-Bit A/D Plus Sign Serial I/O	16-Dip	7.86	163.74	522.69
ADC12130CIWM-ND	**Self-calibrating 12-Bit A/D Plus Sign Serial I/O**	SO-16	7.86	163.74	522.69
ADC12132CIMSA-ND	**Self-calibrating 12-Bit A/D Plus Sign Serial I/O**	20 SSOP	8.08	168.33	537.32
ADC12138CIMSA-ND	**Self-calibrating 12-Bit A/D Plus Sign Serial I/O**	SO-28	8.76	182.49	582.54
ADC12138CIN-ND	Self-calibrating 12-Bit A/D Plus Sign Serial I/O	28-Dip	8.54	177.91	567.91
ADC12138CIWM-ND	**Self-calibrating 12-Bit A/D Plus Sign Serial I/O**	SO-28	8.54	177.91	567.91
ADC12441CIJ-ND	Dynam Tested Self Calibrating 12 Bit Plus Sign A/D Converter	28-CDip	17.00	382.50	935.00
ADC12451CIJ-ND	Dynam Tested Self Calibrating 12 Bit Plus Sign A/D Converter	24-CDip	16.90	352.07	1123.85
ADC16071CIWM-ND	**16-Bit ADC Delta-Sigma 192 ks/s**	SO-24	42.25	605.00	1779.99
ADC16471CIWM-ND	**16-Bit ADC Delta-Sigma 192 ks/s**	SO-24	43.75	627.50	1850.00
DAC0800LCJ-ND	8-Bit D/A Converter	16-CDip	3.22	38.33	122.36
DAC0800LCM-ND	**8-Bit D/A Converter**	SO-16	2.66	31.67	101.08
DAC0800LCN-ND	8-Bit D/A Conv. 0.19% Lin.	16-Dip	2.66	31.67	101.08
DAC0801LCM-ND	**8-Bit D/A Converter**	SO-16	2.45	29.17	93.10
DAC0801LCN-ND	8-Bit D/A Conv. 0.39% Lin.	16-Dip	2.45	29.17	93.10
DAC0802LCJ-ND	8-Bit D/A Converter	16-CDip	4.55	54.16	172.90
DAC0802LCM-ND	**8-Bit D/A Converter**	SO-16	4.30	61.75	181.00
DAC0802LCN-ND	8-Bit Digital-To-Analog Converters	16-Dip	3.50	41.67	133.00
DAC0806LCJ-ND	8-Bit D/A Converter	16-CDip	2.45	29.17	93.10
DAC0806LCM-ND	**8-Bit D/A Converter**	SO-16	2.17	25.83	82.46
DAC0806LCN-ND	8-Bit D/A Conv. 0.78% Lin.	16-Dip	2.17	25.83	82.46
DAC0807LCJ-ND	8-Bit D/A Converter	16-CDip	2.66	31.67	101.08
DAC0807LCM-ND	**8-Bit D/A Converter**	SO-16	2.38	28.33	90.44
DAC0807LCN-ND	8-Bit D/A Conv. 0.39% Lin.	16-Dip	2.28	27.08	86.45
DAC0808LCM-ND	**8-Bit D/A Converter**	SO-16	2.56	30.42	97.09
DAC0808LCN-ND	8-Bit D/A Conv. 0.19% Lin.	16-Dip	2.38	28.33	90.44
DAC0830LCJ-ND	8-Bit µP Compat Double Buffered D/A Conv	20-CDip	11.90	171.25	505.00
DAC0830LCN-ND	8-Bit MP Comp. D/A Conv. 0.05% Lin.	20-Dip	10.05	145.00	423.00
DAC0830LCWM-ND	8-Bit µP Compat Double Buffered D/A Conv	SO-20	13.13	188.75	555.50
DAC0831LCN-ND	8-Bit Double Buffered D/A	20-Dip	5.78	82.75	243.00
DAC0832LCJ-ND	8-Bit MP Comp. D/A .2% Lin	20-CDip	9.53	137.50	401.00
DAC0832LCN-ND	8-Bit MP Comp. D/A Conv. 0.20% Lin.	20-Dip	5.15	73.75	217.00
DAC0832LCWM-ND	**8-Bit Micro/Compatible D/A**	SO-20	6.68	95.50	281.00
DAC0854BIN-ND	Quad 8-Bit Volt Output Serial D/A Conv	20-Dip	21.40	385.00	1129.99
DAC0854BIWM-ND	**Quad 8-Bit Volt Output Serial D/A Conv**	SO-20	21.60	387.50	1140.00
DAC0854CIJ-ND	Quad 8-Bit Volt Output Serial D/A Conv.	20-CDip	15.70	282.50	830.00
DAC0854CIN-ND	Quad 8-Bit Volt Output Serial D/A Conv	20-Dip	14.30	257.50	755.00
DAC0854CIWM-ND	**Quad 8-Bit Volt Output Serial D/A Conv**	SO-20	14.20	255.00	750.00
DAC1006LCN-ND	10-Bit Mpu. Comp. Double Buffered Left Adjust Data 0.05% Lin.	20-Dip	15.51	184.58	589.19
DAC1007LCN-ND	Mpu 10-Bit dac Double Buffer	20-Dip	12.25	145.83	465.50
DAC1008LCN-ND	8-Bit Mpu. Comp. Double Buffered Left Adjust Data 0.2% Lin.	20-Dip	10.22	121.66	388.36
DAC1020LCV-ND	**10-Bit D/A 4 Quad Multiplexer**	20-PLCC	13.13	156.24	498.75
DAC1021LCN-ND	10-Bit Binary Multiplying D/A Converter	16-Dip	10.26	122.08	389.69
DAC1208LCJ-ND	12-Bit Double Buffered D/A	24-CDip	26.08	310.40	990.85
DAC1210LCJ-ND	12-Bit Mpu. Comp. Double D/A 0.05% Lin.	24-CDip	18.20	216.66	691.60
DAC1218LCJ-ND	12-Bit D/A Converter	18-CDip	26.08	310.40	990.85
DAC1220LCN-ND	12-Bit Binary Multiplying D/A 0.05% Lin.	18-Dip	15.79	187.91	599.83
DAC1222LCN-ND	12-Bit Binary Multiplying D/A 0.2% Lin.	18-Dip	10.33	122.91	392.35
DAC1230LCJ-ND	Mpu. Comp. Double Buffered D/A 0.012% Lin.	20-CDip	26.08	310.40	990.85
DAC1231LCJ-ND	12-Bit Mp Comp Double Buffered D/A .024%	20-CDip	22.23	264.57	844.55
DAC1232LCJ-ND	12-Bit Double Buffered D/A	20-CDip	18.20	216.66	691.60
DAC1232LCJ-1-ND	12-Bit Mpu Compatible D/A	20-CDip	15.75	187.49	598.50

★ Call for better pricing on larger quantities!

EPSON AMERICA, INC.

REAL TIMECLOCK MODULES

Digi-Key Part No.	Description
SE3211-ND SE3212-ND	**Features:** The built-in 32.768kHz standard-clock quartz oscillator eliminates the need for regulation and facilitates rationalization. Installation is made easily by the DIP-16PIN design. • Built-in quartz oscillator makes regulation unnecessary and allows for easy design. • Incorporates a built-in time counter (hr., min., sec.) and date counter (yr., month, date and day of the week). • Standard signal output can be set at 1024Hz, 1 second, 1 min. and 1 hr. • Counter start, stop and reset functions included • A 4-bit bi-directional bus line is employed for data, which is written to and read from memory. • PIN and function are compatible with the MSM58321RS. **Specifications: Supply Voltage:** 4.5 ~ 5.5V. **Data-Holding Voltage:** 2.2 ~5.5V. **Operating Temperature:** −10 ~ +70°C. **Frequency Tolerance:** A: ±10; B: ±50. **L. Current:** 1.6mA. **Start Up Time:** 1.5 sec.
SE3231-ND SE3232-ND SE3241-ND SE3242-ND	**Features:** • The built-in quartz crystal makes board design easy. • Direct bus-compatibility (120 nsec access time). • Interrupt masking. • 30 seconds error adjustment function. • 18 pin dual in line plastic package (RTC-72421). • 24 pin SOP plastic package (RTC-72423). • Capable of withstanding reflow temperatures of 260°C or 20 seconds (RTC-72423) **Specifications: Power Supply** VDD: In operating temperature: 4.5 ~ 5.5V. **Data-Holding** VDH: In operating temperature: 2.0 ~ 5.5V. **Operating Temperature** tOPR: −40~+85°C. **Frequency Tolerance:** 72421A: ±10; 72421B: ±50; 72423A: ±20; 72423B: ±50.

Frequency Tolerance	Package	Digi-Key Part No.	Pricing 1	25	100	1000	Epson Part Number
±10 ppm	16-Dip	SE3211-ND	9.45	196.88	630.00	4725.00	RTC-58321A
±50 ppm	16-Dip	SE3212-ND	8.40	175.00	560.00	4200.00	RTC-58321B
±10 ppm	18-Dip	SE3231-ND	8.10	168.75	540.00	4050.00	RTC-72421A
±50 ppm	18-Dip	SE3232-ND	7.50	156.25	500.00	3750.00	RTC-72421B
±20 ppm	24-SOP	SE3241-ND	9.00	187.50	600.00	4500.00	RTC-72423A
±50 ppm	24-SOP	SE3242-ND	7.95	165.63	530.00	3975.00	RTC-72423B

National Semiconductor

CGS CLOCK DRIVER SERIES

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
CGS64B303M-ND	**Octal Divide-by-2 Skew Clock Driver**	SO-16	13.65	162.49	518.70
CGS64B303N-ND	Octal Divide-by-2 Skew Clock Driver	16-Dip	13.65	162.49	518.70
CGS64B303V-ND	**Octal Divide-by-2 Skew Clock Driver**	28-PLCC	13.65	162.49	518.70
CGS64B304M-ND	**Octal Divide-by-2 Skew Clock Driver**	SO-16	13.65	162.49	518.70
CGS64B304N-ND	Octal Divide-by-2 Skew Clock Driver	16-Dip	13.65	162.49	518.70
CGS64B304V-ND	**Octal Divide-by-2 Skew Clock Driver**	28-PLCC	13.65	162.49	518.70
CGS64B305M-ND	**Octal Divide-by-2 Skew Clock Driver**	SO-16	13.65	162.49	518.70
CGS64B305N-ND	Octal Divide-by-2 Skew Clock Driver	16-Dip	13.65	162.49	518.70
CGS64B305V-ND	**Octal Divide-by-2 Skew Clock Driver**	28-PLCC	13.65	162.49	518.70
CGS64B2528N-ND	1 to 10 min Skew Clock Driver	20-Dip	11.25	188.75	600.00
CGS64B2528V-ND	**1 to 10 min Skew Clock Driver**	28-PLCC	11.25	188.75	600.00
CGS64B2528WM-ND	**1 to 10 min Skew Clock Driver**	SO-20	11.25	188.75	600.00
CGS702V-ND	**Low Skew 1 to 9 Clock General**	28-PLCC	10.50	125.00	399.00
9264B-ND	1995 Clock Generation & Support (CGS) Design Data Book ***NEW!***		7.30	—	—

★ Call for better pricing on larger quantities!

MICROCHIP

CMOS LCD DRIVERS

The AY0438 is a CMOS LSI circuit that drives a liquid crystal display, usually under microprocessor control. The part acts as a smart peripheral that drives up to 32 LCD segments. It needs only three control lines due to its serial input construction. It latches the data to be displayed and relieves the microprocessor from the task of generating the required waveforms. • Drives up to 32 LCD segments of arbitrary configuration • CMOS, NMOS, & TTL compatible inputs • Cascadable • On-chip oscillator • Requires only three control lines • Can be used to drive relays, solenoids, print head drives, etc.

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
AY0438/L-ND	**32-Segment CMOS LCD Driver**	44-PLCC	5.48	118.00	393.00
AY0438/P-ND	32-Segment CMOS LCD Diver	40-Dip	4.00	83.25	278.00

★ Call for better pricing on larger quantities!

National Semiconductor

INTERFACE CHIPS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
DP7310J-ND	Octal Latch Peripheral Driver	20-CDip	23.63	242.50	710.00
DP83256VF-ND	**FDDI Layer Controller**	160PQFP	80.00	1434.78	4208.68
DP83257VF-ND	**FDDI Layer Controller**	160PQFP	90.00	1887.50	5999.99
DP83261AVF-ND	**BMAC Device**	132PQFP	58.50	1194.38	4589.99
DP83265AVF-ND	**BSI Device**	160PQFP	103.50	2113.13	8150.00
DP83265VF-ND	**BSI Device**	160PQFP	103.50	2113.13	8150.00
DP83266VF-ND	**Media Accessable Controller Interface**	160PQFP	171.00	3491.25	13499.99
DP8344BV-ND	**Communication Processor**	84-PLCC	89.25	1062.46	3391.50
DP8390DN-ND	NIC (Network Interface Controllel)	48-Dip	30.63	364.57	1163.75
DP8390DV-ND	**NIC (Network Interface Controller)**	68-PLCC	30.63	364.57	1163.75
DP8391AN-ND	Serial Network Interface	24-Dip	31.50	374.99	1197.00
DP8391AV-ND	**Serial Network Interface**	24-PLCC	31.50	374.99	1197.00
DP8392CN-ND	Coax Transceiver Interface	16-Dip	12.60	149.99	478.80
DP8392CN-1-ND	Coax Transceiver Interface	16-Dip	34.13	406.23	1296.75
DP8392CV-ND	**Coax Transceiver Interface**	28-PLCC	12.60	149.99	478.80
DP83901AV-ND	**Serial Network Interface Controller**	68-PLCC	32.38	385.40	1230.25
DP83902AV-ND	**Serial Network Interface Controller tp**	84-PLCC	34.13	406.23	1296.75
DP83902AVJG-ND	**Serial Network Interface Controller tp**	100-PLCC	36.75	437.48	1396.50
DP83902AVLJ-ND	**Serial Network Interface Controller tp**	100PQFP	34.13	406.23	1296.75
DP83905AVQB-ND	**At Local Area Network Twisted Pair Interface Controller**	160PQFP	39.55	470.81	1502.90
DP83910AN-ND	CMOS Serial Network Interface	24-Dip	50.05	595.81	1901.90
DP83910AV-ND	**CMOS Serial Network Interface**	28-PLCC	50.05	595.81	1901.90
DP83916VF-ND	**Sonic -16**	132-PLCC	87.50	1041.63	3325.00
DP83932BVF-ND	**System Oriented Network Interface Ctlr**	132-PLCC	123.55	1470.77	4694.90
DP83932BVF-25-ND	**System Oriented Network Interface Ctlr**	132-PLCC	122.50	1458.28	4655.00
DP83934AVQB-ND	**Sonic w/ Twisted Pair Interface**	160-PLCC	132.30	1574.94	5027.40
DP83955AV-ND	**Repeater Interface Controlle**	100PQFP	44.25	740.00	2359.99
DP83956AVLJ-ND	**Repeater Interface Controlle**	100PQFP	44.25	740.00	2359.99
DP8402AD-ND	32-Bit Error Detection & Correction Circuit	48-Dip	62.00	1075.00	3159.99
DP8473AV-ND	**Floppy Disc Controller plus 2**	52-PLCC	17.50	208.33	665.00
DP8520AV-25-ND	**256K VRAM Controller 25Mhz**	68-PLCC	33.75	485.00	1420.00
DP8521AV-25-ND	**1meg VRAM Controller 25Mhz**	68-PLCC	37.50	537.50	1580.00
DP8522AV-25-ND	**4meg VRAM Controller 25Mhz**	68-PLCC	75.00	1075.00	3159.99
DP8570AN-ND	Timer Clock Peripheral	28-Dip	28.00	502.50	1480.00
DP8570AV-ND	**Timer Clock Peripheral**	28-PLCC	28.00	502.50	1480.00

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
DP8571AN-ND	Timer Clock Peripheral	24-Dip	26.60	477.50	1400.00
DP8572AN-ND	Real Time Clock w/Ram	24-Dip	20.00	360.00	1060.00
DP8572AV-ND	**Real Time Clock**	28-PLCC	20.00	360.00	1060.00
DP8573AN-ND	Real Time Clock	24-Dip	18.00	322.50	950.00
DP8573AV-ND	**Real Time Clock**	28-PLCC	14.00	252.50	740.00
DS14C232CM-ND	**EIA232 Dual Driver/Receiver Low Pwr**	SO-16	6.65	79.16	252.70
DS14C232CWM-ND	**EIA232 Dual Driver/Receiver Low Pw**	SO-16	6.65	79.16	252.70
DS14C232TM-ND	**EIA232 Dual Driver/Receiver Low Pwr**	SO-16	8.23	97.91	312.55
DS14C232TN-ND	EIA232 Dual Driver/Receiver Low Pwr	16-Dip	7.88	93.75	299.25
DS14C232TWM-ND	**EIA232 Dual Driver/Receiver Low Pwr**	SO-16	8.23	97.91	312.55
DS14C88M-ND	**Quad CMOS Line Driver**	SO-14	1.93	22.92	73.15
DS14C88MX-ND	**Quad CMOS Line Driver**	SO-14		1832.50/2,500	
DS14C88N-ND	Quad CMOS Line Driver	14-Dip	1.93	22.92	73.15
DS14C88TM-ND	**Quad CMOS Line Driver**	SO-14	2.52	30.00	95.76
DS14C88TN-ND	Quad CMOS Line Driver	14-Dip	2.52	30.00	95.76
DS14C89AM-ND	**Quad CMOS Line Receiver**	SO-14	1.93	22.92	73.15
DS14C89AN-ND	Quad CMOS Line Receiver	14-Dip	1.93	22.92	73.15
DS14C89ATM-ND	**Quad CMOS Line Receiver**	SO-14	2.52	30.00	95.76
DS14C89ATN-ND	Quad CMOS Line Receiver	14-Dip	2.52	30.00	95.76
DS14C232CN-ND	LP EIA 232 Dr Rec	16-Dip	3.50	41.67	133.00
DS16F95J-ND	RS-485/RS22 Differential Bus	8-Dip	18.00	285.00	835.00
DS26C31TM-ND	**CMOS Quad TRI-STATE Differential Line Driver**	SO-16	[illegible]	41.67	133.00
DS26C31TN-ND	CMOS Quad Rs-422 Line Driver	16-Dip	3.50	41.67	133.00
DS26C32ATM-ND	**CMOS Quad RS-422 Receiver**	SO-16	3.50	41.67	133.00
DS26C32ATN-ND	Quad Differential Line Receiver	16-Dip	3.50	41.67	133.00
DS26F31CJ-ND	Quad High Speed Differential Line Driver	16-Dip	6.88	98.50	290.00
DS26F31MJ-ND	Quad RS-422 Driver	16-CDip	17.50	252.50	740.00
DS26F32CJ-ND	Quad High Speed Diff Line Rec	16-Dip	6.88	98.50	290.00
DS26F32MJ-ND	RS-422 mil Temperature	16-CDip	17.50	252.50	740.00
DS26LS31CJ-ND	Quad Differential Line Driver	16-CDip	2.80	33.33	106.40
DS26LS31CM-ND	**Quad High Speed Differential Line Driver**	SO-16	2.10	25.00	79.80
DS26LS31CN-ND	Quad High Speed Differential	16-Dip	1.54	18.33	58.52
DS26LS31MJ-ND	Quad Differential Line Driver	16-CDip	12.25	145.83	465.50
DS26LS32ACM-ND	**Quad Differential Line Receiver**	SO-16	2.10	25.00	79.80
DS26LS32ACN-ND	Quad Differential Line Receiver	16-Dip	1.58	18.75	59.85
DS26LS32CN-ND	Quad Differential Line Receiver	16-Dip	1.58	18.75	59.85
DS26LS32MJ-ND	Quad RS422/423 Line Receiver	16-CDip	15.75	187.49	598.50
DS26LS33ACN-ND	Quad Differential Line Receiver	16-Dip	1.93	22.92	73.15
DS26LS33CN-ND	Quad Differential Line Receiver	16-Dip	1.93	22.92	73.15
DS34C86TM-ND	**Quad CMOS Differential Line Receiver**	SO-16	3.75	53.75	158.00
DS34C86TN-ND	Quad CMOS Differential Line Receiver	16-Dip	3.50	50.25	148.00
DS34C87TM-ND	**CMOS Quad TRI-STATE Differential Line Driver**	SO-16	3.75	53.75	[illegible]
DS34C87TN-ND	CMOS Quad TRI-STATE Differential Line Driver	16-Dip	3.50	50.25	148.00
DS36C278TM-ND	**Multipoint EIA Low Power Transceiver *NEW!***	SO-8	2.83	47.08	150.29
DS36C278TN-ND	Multipoint EIA Low Power Transceiver ***NEW!***	8-Dip	3.96	47.08	150.29
DS36F95J-ND	High Speed Multipoint RS485/422 Transceiver	8-Dip	8.13	116.25	342.00
DS78C20J-ND	Dual RS422/423 Line Receiv	14-CDip	23.25	367.50	1080.00
DS88C20N-ND	Dual CMOS Compatible Differential Receiver	14-Dip	9.63	98.50	290.00
DS88C120N-ND	RS422/423 Line Transceiver	16-Dip	7.88	80.50	237.00
DS88LS120N-ND	RS422/423 Line Receiver	16-Dip	7.35	75.25	221.00
DS96F172CJ-ND	RS485/422 Quad Differential Driver	16-Dip	8.13	116.25	342.00
DS96F172MJ-ND	Quad RS422/485 Line Driver	16-CDip	18.00	285.00	835.00
DS96F173CJ-ND	RS485/422 Quad Differential Receiver	16-Dip	8.13	116.25	342.00
DS96F173MJ-ND	Quad RS422/485 Line Receiver	16-CDip	18.00	285.00	835.00
DS96F174CJ-ND	RS485/422 Quad Driver	16-CDip	8.13	116.25	342.00
DS96F174MJ-ND	RS485/422 Quad Driver High Temp	16-CDip	18.00	285.00	835.00
DS96F175CJ-ND	Quad RS422/485 Line Driver	16-CDip	8.13	116.25	342.00
DS0026CJ-ND	Dual Mos Clock Driver 5Mhz	14-CDip	8.05	95.83	305.90
DS0026CN-ND	Dual Mos Clock Driver	8-Dip	4.20	50.00	159.60
DS0026H-ND	Dual Mos Clock Driver 5Mhz	8-PIN MC	31.50	374.99	1197.00
DS1488M-ND	**Quad Line Driver**	SO-14	1.05	12.50	39.90
DS1488N-ND	Quad Line Driver	14-Dip	1.05	12.50	39.90
DS1489AM-ND	**Quad Line Receiver**	SO-14	1.05	12.50	39.90
DS1489AN-ND	Quad Line Receiver	14-Dip	1.05	12.50	39.90
DS1489M-ND	**Quad Line Receiver**	SO-14	1.05	12.50	39.90
DS1691AJ-ND	RS422/423 Line Driver	16-CDip	16.65	262.50	775.00
DS1692J-ND	RS422/423 Line Driver	16-CDip	14.40	227.50	670.00
DS2001CJ-ND	High Current, High Volt Darlington Driver O.C.	16-CDip	2.28	27.08	86.45
DS2003CJ-ND	Darlington Driver	16-CDip	2.68	31.85	101.67
DS2003CM-ND	**High Current High Voltage Darlington Dvr W/ Intern Res**	SO-16	1.40	16.67	53.20
DS2003CN-ND	High Current, High Voltage Darlington Driver w/Internal Resistor/TTL & CMOS Comp.	16-Dip	1.40	16.67	53.20
DS2004CN-ND	Darlington Driver	16-CDip	1.40	16.67	53.20
DS3486M-ND	**Quad Differential Line Receiver**	SO-16	1.40	16.67	53.20
DS3486N-ND	Quad RS-422/423 Line Receiver	16-Dip	1.40	16.67	53.20
DS3487M-ND	**Quad Differential Line Driver**	SO-16	1.40	16.67	53.20
DS3487N-ND	4 Line Driver Tristate	16-Dip	1.40	16.67	53.20
DS3631N-ND	Cmos Dual Peripheral Driver	8-Dip	3.33	48.75	140.00
DS3632N-ND	Cmos Dual Peripheral Driver	8-Dip	3.68	43.75	139.65
DS3633N-ND	Cmos Dual Peripheral Driver	8-Dip	3.43	49.00	145.00
DS3634N-ND	Cmos Dual Peripheral Driver	8-Dip	2.18	31.25	91.50
DS3658N-ND	Quad High Low Current Peripheral Driver	16-Dip	9.10	108.33	345.80
DS3662N-ND	Quad High Speed Trapezoid Bus	16-Dip	8.23	97.91	312.55
DS3668N-ND	Quad Fault Protect Peripheral Driver	16-Dip	19.60	233.32	744.80
DS3680N-ND	Quad Negative Volt Relay Driver	14-Dip	4.55	54.16	172.90
DS3691M-ND	**RS422/423 Line Driver**	SO-16	4.90	58.33	186.20
DS3691N-ND	RS422/423 Line Driver	16-Dip	3.15	37.50	119.70
DS3692N-ND	Tristate Differential Line Driver	16-Dip	4.90	58.33	186.20
DS3695AM-ND	**RS485/422 Transceiver In-Temperature**	SO-8	2.34	43.75	140.00
DS3695ATM-ND	**RS485/422 Transceiver In-Temperature**	SO-8	3.34	52.50	200.00
DS3695N-ND	Multipoint RS-485/422 Transceiver	8-Dip	3.15	37.50	119.70
DS3695TN-ND	RS485/422 Transceiver ext Temperature	8-Dip	5.22	62.08	198.17
DS3696N-ND	RS485/422 Transceiver ext Temperature	8-Dip	3.68	43.75	139.65
DS3696TN-ND	RS485/422 Transceiver ext Temperature	8-Dip	5.22	62.08	198.17
DS3697N-ND	RS485/422 Repeater	20-Dip	3.68	43.75	139.65
DS8641N-ND	Quad Unified Bus Transceiver	16-Dip	3.15	37.50	119.70
DS36950V-ND	**RS485 Quad Differential Receiver**	20-PLCC	13.75	197.50	580.00
DS36954V-ND	**Quad Differential Bus Transceiver**	20-PLCC	13.75	197.50	580.00
DS3862N-ND	Octal High Speed Trapezoidal Transceiver	20-Dip	14.53	172.91	551.95
DS3875V-ND	**Future I+arbt Controller**	68-PLCC	102.00	1462.50	4299.99

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
DS3883AV-ND	**BTL 9-Bit Transceiver**	44-PLCC	16.88	242.50	710.00
DS3883AVF-ND	**BTL 9-Bit Transceiver**	44PQFP	12.53	300.00	880.00
DS3885V-ND	**BTL Arbitration Transceiver**	44-PLCC	36.25	520.00	1530.00
DS3885VF-ND	**BTL Arbitration Transceiver**	44PQFP	36.25	520.00	1530.00
DS3890N-ND	BTL Octal Trapezoidal Driver	20-Dip	18.75	270.00	789.75
DS3893AV-ND	**BTL Turbo Transceiver**	20-PLCC	12.25	145.83	465.50
DS3896M-ND	**BTL Trapezoidal Transceiver**	SO-20	14.00	166.66	532.00
DS3896N-ND	BTL Trapezoidal Transceiver	8-Dip	13.48	160.41	512.05
DS3897M-ND	**BTL Trapezoidal Transceiver**	SO-20	13.13	156.24	498.75
DS3897N-ND	BTL Trapezoidal Transceiver	8-Dip	12.43	147.91	472.15
DS8640N-ND	Quad 2-Input Receiver	14-Dip	1.89	22.50	71.82
DS8830N-ND	Dual Differential Line Driver	14-Dip	2.63	31.25	99.75
DS8834N-ND	Quad Tri-State Transceiver	16-Dip	2.63	31.25	99.75
DS8837M-ND	**Hex Unified Bus Transceiver**	SO-18	4.73	56.25	179.55
DS8837N-ND	Hex United Bus Receiver	16-Dip	3.50	41.67	133.00
DS8838M-ND	**Quad Unified Bus Transceiver**	SO-18	3.47	41.25	131.67
DS8838N-ND	Quad Unified Bus Transceiver	16-Dip	2.98	35.42	113.05
DS8921AM-ND	**RS422 Driver/Receiver Pair**	SO-8	5.08	60.41	192.85
DS8921AN-ND	RS422 Driver/Receiver Pair	8-Dip	3.33	39.58	126.35
DS8921ATJ-ND	RS422 Driver/Receiver Pair	8-CDip	7.88	93.75	299.25
DS8921ATM-ND	**Differential Line Driver/Receiver Pair**	SO-8	5.60	66.66	212.80
DS8921ATN-ND	Differential Line Driver/Receiver Pair	8-Dip	4.38	52.08	166.25
DS8921M-ND	**Differential Line Driver/Receiver Pair**	SO-8	2.45	29.17	93.10
DS8921N-ND	Differential Line Driver and Receiver Pair	8-Dip	2.10	25.00	79.80
DS8922AM-ND	**RS422 Dual Driver/Receiver Pair**	SO-16	6.13	72.91	232.75
DS8922AN-ND	RS422 Dual Differential Line Driver/Receiver	16-Dip	5.60	66.66	212.80
DS8922M-ND	**RS422 Dual Driver/Receiver Pair**	SO-16	3.68	43.75	139.65
DS8922N-ND	RS422 Dual Driver/Rec Pair	16-Dip	3.33	39.58	126.35
DS8923M-ND	**RS422 Dual Driver/Receiver Pair**	SO-16	3.68	43.75	139.65
DS8923AM-ND	**RS422 Dual Differential Line Driver/Receiver**	SO-16	6.13	72.91	232.75
DS8923AN-ND	RS422 Dual Differential Line Driver/Receiver	16-Dip	5.60	66.66	212.80
DS8923N-ND	RS422 Dual Differential Line Driver/Receiver	16-Dip	3.33	39.58	126.35
DS8935WM-ND	**Dual Driver/Triple Receiver for Local Talk**	SO-20	3.75	53.75	158.00
DS9636ACN-ND	RS423 Dual Prog SL4 LM	8-Dip	2.14	25.42	81.13
DS9636AMJ-ND	Dual RS423 Driver High Temperature	8-CDip	16.35	257.50	760.00
DS9637ACM-ND	**Dual RS423 Receiver**	SO-8	2.63	31.25	99.75
DS9637ACN-ND	Dual RS423 Receiver	8-Dip	2.45	29.17	93.10
DS9637AMJ-ND	Dual RS423 Receiver High Temperature	8-CDip	16.35	257.50	760.00
DS9638CJ-ND	RS422 Dual High Speed Differential Driver	8-CDip	21.00	249.99	798.00
DS9638CN-ND	RS422 Dual High Speed Differential Driver	8-Dip	2.28	27.08	86.45
DS9639ACN-ND	Dual Differential Line Receiver	8-Dip	2.38	28.33	90.44
DS75107AM-ND	**Dual Line Receiver**	SO-14	1.51	17.92	57.19
DS75107BN-ND	Dual Line Receiver	14-Dip	1.40	16.67	53.20
DS75108N-ND	Dual Line Receiver	14-Dip	1.51	17.92	57.19
DS75110AM-ND	**Dual Line Driver**	SO-14	1.23	14.58	46.55
DS75110AN-ND	Dual Line Driver	14-Dip	1.23	14.58	46.55
DS75113N-ND	Dual Differential Line Driver Tri-State	16-Dip	2.28	27.08	86.45
DS75114N-ND	Dual Differential Line Driver	16-Dip	2.59	30.83	98.42
DS75121N-ND	Dual Line Driver	16-Dip	2.80	33.33	106.40
DS75123N-ND	Dual Line Driver	16-Dip	2.80	33.33	106.40
DS75124N-ND	Triple Line Receiver	16-Dip	2.80	33.33	106.40
DS75150M-ND	**Dual Line Driver**	SO-8	1.40	16.67	53.20
DS75150N-ND	Dual Line Driver	8-Dip	1.40	16.67	53.20
DS75154M-ND	**Quad Line Receiver**	SO-16	1.75	20.83	66.50
DS75154N-ND	Quad Line Receiver	16-Dip	1.75	20.83	66.50
DS75160AN-ND	IEEE 488 GPIR Transceiver	20-Dip	7.88	93.75	299.25
DS75162AN-ND	IEEE-488 GPIB Transceiver	22-Dip	7.88	93.75	299.25
DS75176BM-ND	**Multipoint RS485/422 Transceiver**	SO-8	1.93	22.92	73.15
DS75176BN-ND	Multipoint RS485/422 Transceiver	8-Dip	1.93	22.92	73.15
DS75176BTM-ND	**Multipoint RS485 Transceiver**	SO-8	3.50	41.67	133.00
DS75176BTN-ND	Multipoint RS485 Transceiver	8-Dip	3.15	37.50	119.70
DS75361N-ND	Dual TTL-TO-MOS Driver	8-Dip	3.68	43.75	139.65
DS75365N-ND	Quad TTL-TO-MOS Driver	16-Dip	3.38	48.50	142.00
DS75451N-ND	Dual Peripheral Driver	8-Dip	.91	10.83	34.58
DS75451M-ND	**Dual Peripheral Driver**	SO-8	.91	10.83	34.58
DS75452M-ND	**Dual Peripheral Driver**	SO-8	.91	10.83	34.58
DS75453M-ND	**Dual Peripheral Driver**	SO-8	.91	10.83	34.58
DS75462N-ND	Dual Peripheral Driver	8-Dip	1.16	13.75	43.89
DS75463N-ND	Dual Peripheral Driver	8-Dip	1.09	12.92	41.23
DS96172CN-ND	Quad RS422/485 Line Driver	16-Dip	4.45	52.91	168.91
DS96173CN-ND	Quad EIA-422/485 Receiver	16-Dip	3.68	43.75	139.65
DS96174CN-ND	RS485/422 Quad Differential Driver	16-Dip	4.45	52.91	168.91
DS96175CN-ND	RS485/422 Quad Differential Receiver	16-Dip	4.38	52.08	166.25
DS96176CJ-ND	RS485 Transceiver	8-CDip	4.87	57.91	184.87
DS96176CN-ND	RS485 Transceiver	8-Dip	3.85	45.83	146.30
DS96177CN-ND	RS485/422 Differential Bus Repeater	8-Dip	2.98	35.42	113.05

★ Call for better pricing on larger quantities!

HARRIS

SPECIALIZED INTEGRATED CIRCUITS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
CD22402E-ND	CMOS LSI Sync Generator	24-Dip	11.25	234.38	618.75
ICL232CPE-ND	+ 5 Volt Powered Dual RS-232 Transmitter/Receiver A dual RS-232 transmitter/receiver interface circuit that meets all EIA RS-232C Specifications. It requires a single + 5V power supply, and features two onboard charge pump voltage converters which generate + 10V and —10 V supplies from the 5V supply. The drivers feature true TTL/CMOS input compatibility, slow-rate-limited output, and 300 ohms power-off source impedance. The receivers can handle up to ± 30 volts, and have a 3 to 7 kilohms input impedance. The receivers also have hysteresis to improve noise rejection.	16-Dip	2.88	64.69	189.75
ICL7106CPL-ND	3-1/2 Digit LCD A/D Converter	40-Dip	5.13	115.31	338.25
ICL7107CPL-ND	3-1/2 Digit LED A/D Converter	40-Dip	5.50	123.75	363.00

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
ICL7135CPI-ND	4-1/2 Digit BCD Output A/D. Converter A high precision (1 out of 20,000 count) 2 volt full scale A/D. converter. A minimum number of external components are required to operate as a meter or interface with a computer.	28-Dip	9.50	213.75	627.00
ICL7650SCPA-1-ND	Chopper-Stabilized Operational Amplifier A high-performance device which offers exceptionally low offset voltage and input-bias parameters combined with excellent bandwidth and speed characteristics.	8-Dip	3.00	67.50	198.00
ICL7660SCPA-ND	Super Voltage Converter Performs supply voltage conversion from positive to negative for an input range of 1.5V to 12V, resulting in complementary output voltages of —1.5V to —12V. Only 2 non-critical external capacitors are needed. Can be connected to function as a voltage doubler and will generate up to 22.8V with a 12V input, it can also be used as a voltage multiplier or voltage divider. Has 0°C to + 70° temp. range.	8-Dip	1.95	43.88	128.70
ICL7662CPA-ND	CMOS Voltage Converter A monolithic high-voltage CMOS power supply. Performs supply voltage conversion from positive to negative for an input range of + 4.5V to + 20V. Only 2 complementary output voltages of —4.5V to —20V. Only 2 non-critical external capacitors are needed. Has 0°C to + 70°C temp. range.	8-Dip	2.40	54.00	158.40
ICL7663SCPA-ND	CMOS Voltage Micropower Positive Volt Regulator Super Programmable Micropower Voltage Regulator is a low power, high efficiency positive voltage regulator which accepts 1.6V to 16V inputs and provides adjustable outputs from 1.3V to 16V at currents up to 40mA. Has 0°C to + 70° temperature range.	8-Dip	2.70	60.75	178.20
ICL7665SCPA-ND	Micropower Under/Over Voltage Detector CMOS Contains two individually programmable voltage detectors on a single chip. Requiring only 3μA typical for operation, the device is intended for battery-operated systems and instruments which require high or low voltage warnings, settable trip points, or fault monitoring and correction. Has 0°C to + 70°C temperature range.	8-Dip	3.00	67.50	198.00
ICL7667CPA-ND	Dual Power MOSFET Driver Designed to convert TTI level signals into high current outputs at voltages up to 15V. Its high speed and current output (200MA continuous) enable it to drive large capacitive loads with high slew rates and low propagation delays. Features fast rise and fall times, 30ns with 1000pF Load.	8-Dip	2.05	46.13	135.30
ICL8038CCPD-ND	Precision Waveform Generator/Voltage Controlled Oscillator A monolithic integrated circuit capable of producing high accuracy sine, square, triangular, sawtooth and pulse waveforms with a minimum of external components. The frequency (or repetition rate) can be selected externally from .001Hz to more than 300kHz using either resistors or capacitors, and frequency modulation and sweeping can be accomplished with an external voltage. Has 250ppm/°C typ. stability, 0°C to +70°C temp. range.	14-Dip	4.20	94.50	277.20
ICL8052CPD-ND	14/16 Binary A/D Converter	14-Dip	12.90	290.25	851.40
ICL8069CCZR-ND	Low Voltage Reference A 1.2V temperature compensated voltage reference. It uses the band-gap principle to achieve excellent stability and low noise at reverse currents down to 50μA. Applications include analog-to-digital converters, digital-to-analog converters, threshold detectors, and voltage regulators. Its low power consumption makes it especially suitable for battery operated equipment. Has 0°C to +70°C temp. range and 0.005%/°C max. temp. coeff. of V_{Ref}.	TO-92	2.03	45.56	133.65
ICM7216DIPI-ND	10MHz Frequency Counter Common Cathode They combine a high frequency oscillator, a decade timebase counter, an 8-decade data counter and latches, a 7-segment decoder, digit multiplexers and 8-segment and 8 digit drivers which directly drive large multiplexed LED displays. The counter inputs have a maximum frequency of 10MHz in frequency and unit counter modes and 2 MHz in the other modes. Both inputs are digital inputs.	28-Dip	28.10	632.25	1854.60
ICM7217AIPI-ND	4-Digit LED Display Programmable Decade Counter/9999 Common C	28-Dip	10.80	243.00	712.80
ICM7217BIJI-ND	4-Digit LED Display Programmable Timer/5959 Common A	28-Dip	12.35	277.88	815.10
ICM7217CIPI-ND	4-Digit LED Display Programmable Timer/5959 Common C	28-Dip	12.35	277.88	815.10
ICM7217IJI-ND	4-Digit LED Display Programmable Decade Counter/9999 Common A Four digit, presettable up/down counter, with an on-board presettable register continuously compared to the counter. It is intended for use in hardwired applications where thumbwheel switches are used for loading data, and simple SPDT switches are used for chip control. This version is for use in processor-based systems, where presetting and control functions are performed under processor control. This circuit provides multiplexed 7 segment LED display outputs, with common anode or common cathode configurations available.	28-Dip	12.35	277.88	815.10
ICM7218CIJI-ND	CMOS Universal 8-Digit LED Driver System (Common Anode)	28-Dip	7.25	163.13	478.50
ICM7218DIJI-ND	CMOS Universal 8-Digit LED Driver System (Common Cathode) The ICM7218 series of universal LED driver systems provide, in a single package, all the circuitry to interface most common microprocessors or digital systems and an LED display. Included on chip is an 8x8 static memory array providing storage for the displayed info, 2 types of 7 segment decoders, all the multiplex scan circuitry and the high power digit and segment drivers. The ICM7218C features 2 lines for control information (Write, Three Level Input; Hexa, Code B, Shutdown), 4 lines for Input Data and 3 lines for Data Addressing of each of eight data memory locations.	28-Dip	8.13	182.81	536.25
ICM7226AIJL-ND	10MHz Universal Counter Common Anode Can function as a frequency counter, period counter, frequency ratio ($f_A f_B$) counter, time interval counter or a totalizing counter. The devices require either a 10MHz or 1MHz crystal time base, or if desired an external timebase can also be used. For period and time interval, the 10MHz timebase gives a 0.1μsec resolution.	40-Dip	39.20	882.00	2587.20
ICM7555IPA-ND	CMOS Timer (555 Replacement)	8-Dip	.65	14.63	42.90
ICM7556IPD-ND	CMOS Timer (556 Replacement)	14-Dip	1.13	25.31	74.25
ICL7104-14CPL-ND	14 Bit Binary A/D Converter	40-Dip	50.23	1130.06	3314.85
ICL7104-16CPL-ND	16 Bit Binary A/D Converter When the ICL18052CPD is paired with the ICL7104-16CPL A/D converter, it completes the Intersil high performance A/D converter. This circuit has features such as three state latched outputs, UART handshaking, auto zero, auto polarity, over range, TTL compatible, onboard clock and medium quality reference.	40-Dip	50.00	1125.00	3300.00
ICL7139CPL-ND	3¾ Digit Auto. Range DMM	40-Dip	16.18	363.94	1067.55
ICL7673CPA-ND	Battery Back-Up Switch	8-Dip	1.40	31.50	92.40

★ ***Call for better pricing on larger quantities!***

HARRIS SEMICONDUCTOR — SPECIALIZED INTEGRATED CIRCUITS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100

BIMOS Operational Amplifiers

Digi-Key Part No.	Description	Pkg.	1	25	100
CA3100E-ND	Wide Band Op Amp	8-Dip	2.64	57.60	158.40
CA3130E-ND	MosFet In/CMOS Out - Single Supply	8-Dip	1.32	28.80	79.20
CA3140E-ND	MosFet In/Bipolar Out - 741 Replace	8-Dip	.74	16.20	44.55
CA3240E-ND	Dual 3140 - 747 Replacement	8-Dip	1.60	34.80	95.70
CA3160E-ND	CA3130 w/Internal Freq Compensation	8-Dip	1.05	22.80	62.70
CA3260E-ND	Dual CA3160	8-Dip	2.20	48.00	132.00

Data Conversion Circuits – A/D and D/A

Digi-Key Part No.	Description	Pkg.	1	25	100
CA3162E-ND	A/D For 3-Digit Readout	16-Dip	8.66	189.00	519.75
CA3306CE-ND	6-Bit "Flash" A/D	18-Dip	9.43	205.80	565.95
CA3310E-ND	10-Bit Successive Approx. A/D	24-Dip	14.38	313.80	862.95
CA3318CE-ND	8-Bit "Flash" A/D	24-Dip	34.10	744.00	2046.00
CA3338AE-ND	8-Bit "Flash" D/A	16-Dip	20.08	438.00	1204.50
CA3450E-ND	Video Line Drive/High Speed Op Amp	16-Dip	6.19	135.00	371.25

Radio/TV Circuits

Digi-Key Part No.	Description	Pkg.	1	25	100
CA3189E-ND	FM IF System	16-Dip	1.65	36.00	99.00

5 Volt Logic System OP Amps

Digi-Key Part No.	Description	Pkg.	1	25	100
CA5130E-ND	MosFet Input/C-MOS Output	8-Dip	1.65	36.00	99.00
CA5160E-ND	CA3130 w/Int Phase Compensation	8-Dip	1.38	30.00	82.50
CA5422E-ND	Dual Low Voltage Op Amp	14-Dip	3.30	72.00	198.00

Display Drivers

Digi-Key Part No.	Description	Pkg.	1	25	100
CA3081-ND	General Purpose High Current NPN Transistors, Common Emitter	16-Dip	.80	17.40	47.85
CA3082-ND	General Purpose High Current NPN Transistors, Common Collector	16-Dip	.85	18.60	51.15
CA3161E-ND	BCD-To-7 Segment Decoder/Driver	16-Dip	2.37	51.60	141.90

Special Functions

Digi-Key Part No.	Description	Pkg.	1	25	100
CA3018-ND	General Purpose Transistor Arrays – 2 Isolated Trans. + Darlington Pair	TO-5	3.91	85.20	234.30
CA3039-ND	Diode Array – 6 Matched Ultrafast & LIN Capacitance – Instant Recovery	TO-5	3.71	81.00	222.75
CA3059-ND	Zero Voltage Crossing Switch	14-Dip	1.51	33.00	90.75
CA3078E-ND	Micropower Op Amp (OTA), 700 NW	8-Dip	1.98	43.20	118.80
CA3078AE-ND	Improved Micropower Op Amp (OTA), 700 NW	8-Dip	3.58	78.00	214.50
CA3094E-ND	Programmable Power Switch/Amp	8-Dip	1.51	33.00	90.75
CA3096CE-ND	5 Independent Trans (3 NPN, 2 PNP)	16-Dip	1.65	36.00	99.00
CA3096AE-ND	Electrically Improved CA3096CE	16-Dip	4.73	103.20	283.80
CA3080E-ND	Programmable Op Amp – (OTA)	8-Dip	.83	18.00	49.50
CA3168-ND	2-Digit BCD To 7 Segment Decoder/Driver	24-Dip	8.25	180.00	495.00
CA3280E-ND	Dual CA 3080 – Gate Gain Blocks (OTA)	16-Dip	4.51	98.40	270.60
CA3227E-ND	High Frequency NPN Transistor Arrays	16-Dip	4.26	93.00	255.75
CA3290E-ND	CMOS Comp – Dual – MosFet In/Bipolar Out	8-Dip	1.02	22.20	61.05
CA3524E-ND	Regulating Pulse Width Modulator	16-Dip	.96	21.00	57.75

★ ***Call for better pricing on larger quantities!***

TelCom Semiconductor, Inc. — SEMICONDUCTORS

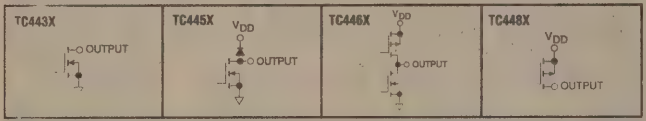
Telcom Part No.	Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
TC38C42CPA	10068-ND	Pulse Width Modulator Bimos Current Mode, 99% Duty, 14V	8-Dip	5.40	117.00	420.00
TC38C43CPA	10069-ND	Pulse Width Modulator Bimos Current Mode, 99% Duty, 8V	8-Dip	5.40	117.00	420.00
TC38C46CPE	10072-ND	Pulse Width Modulator CMOS Current Mode, Non-Inverting	16-Dip	10.65	207.68	745.50
TC38C47CPE	10073-ND	Pulse Width Modulator CMOS Current Mode, Inverting	16-Dip	5.40	117.00	420.00
TC429CPA	10080-ND	Fast CMOS Power Mosfet Driver	8-Dip	2.70	58.50	210.00
TC4202CPE	10121-ND	CMOS Analog Switch Form B Contacts	16-Dip	2.25	48.75	175.00

TC4421CPA	10082-ND	FET Driver 9A Peak W/ Inverter Output	8-Dip	5.06	109.69	393.75
TC4422CPA	10083-ND	FET Driver 9A Peak W/ Non-Inverter Output	8-Dip	5.06	109.69	393.75
TC4426CPA	10084-ND	Dual FET Driver 1.5A Peak W/ Inverter Output	8-Dip	1.73	37.54	134.75
TC4427CPA	10085-ND	Dual FET Driver 1.5A Peak W/ Non-Inverter Output	8-Dip	1.73	37.54	134.75
TC4428CPA	10086-ND	Dual FET Driver 1.5A Peak W/ Complement Output	8-Dip	1.73	37.54	134.75
TC9400CPD	10115-ND	Voltage to Frequency/Frequency to Voltage Converters, .05% Lin.	14-Dip	6.19	134.06	481.25
TC9401CPD	10116-ND	Voltage to Frequency/Frequency to Voltage Converters, .01% Lin.	14-Dip	11.05	239.36	859.25
TC9402CPD	10117-ND	Voltage to Frequency/Frequency to Voltage Converters, .25% Lin.	14-Dip	2.93	63.38	227.50
TC9420CPA	10123-ND	High Volt Auto Zero Chopper-Stabilized, OP Amps	8-Dip	6.64	143.81	516.25
TC9421CPD	10124-ND	High Volt Auto Zero Chopper-Stabilized, OP Amps	14-Dip	6.64	143.81	516.25
—	9122B-ND	Telcom Data Book 1995		9.95	—	—

Power Logic CMOS Quad Drivers

Features: Tough CMOS™ Construction • Latchproof! Withstands 500mA Inductive Kickback • 3 Input Logic Choices—AND/NAND/AND+Inv • 4 Output Structures—Pull-up/Pull-down/Totem Pole/Pull-down w/Clamp Diode • Inverting or Non-Inverting Outputs • Wide Operating Range 4.5 to 18V.

Applications: • General Purpose CMOS Logic Buffer • Driving all four MOSFETS in an H-Bridge • Direct Small MotorDriver/Stepper Motors • Relay or Peripheral Drivers • Dual Differential Output Power Drivers • CCD Driver • Pin-Switching Network Driver • LED Driver



Telcom Part No.	Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
TC4459CPD	10092-ND	Quad CMOS Logic Driver, AND/Inverter Gate W/Diode, Sinked Output	14-Dip	4.16	90.19	323.75
C4467CPD	10093-ND	Quad CMOS Logic Driver, NAND Gate, Sourced & Sinked Output	14-Dip	4.16	90.19	323.75
TC4468CPD	10094-ND	Quad CMOS Logic Driver, AND Gate, Sourced & Sinked Output	14-Dip	4.16	90.19	323.75
TC4469CPD	10095-ND	Quad CMOS Logic Driver, AND/Inverter Gate, Sourced & Sinked Output	14-Dip	4.16	90.19	323.75
TC4488CPD	10097-ND	Quad CMOS Logic Driver, AND Gate, Sourced Output	14-Dip	4.16	90.19	323.75
TC4489CPD	10098-ND	Quad CMOS Logic Driver, AND/Inverter Gate, Sourced Output	14-Dip	4.16	90.19	323.75
—	9122B-ND	Telcom Data Book 1995		9.95	—	—

★ *Call for better pricing on larger quantities!*

TelCom Semiconductor, Inc.

SPECIALIZED INTEGRATED CIRCUITS

Telcom Part No.	Digi-Key Part No.	Description	Pkg	Pricing★ 1	25	100
TC44VC2703EZB	10013-ND	Volt. Detector CMOS Output 2.7V	TO-92	1.19	25.84	92.75
TC44VC4303EZB	10008-ND	Volt. Detector CMOS Output 4.3V	TO-92	1.19	25.84	92.75
TC44VN2703EZB	10012-ND	Volt. Detector N-Channel Open Drain Output 2.7V	TO-92	1.19	25.84	92.75
TC44VN4303EZB	10003-ND	Volt. Detector N-Channel Open Drain Output 4.3V	TO-92	1.19	25.84	92.75
TC45ER3003EZB	10007-ND	Volt. Reg. 3V, 120mA	TO-92	1.40	30.23	108.50
TC45ER3303EZB	10006-ND	Volt. Reg. 3.3V, 120mA	TO-92	1.40	30.23	108.50
TC45ER5003EZB	10009-ND	Volt. Reg. 5V, 120mA	TO-92	1.40	30.23	108.50
TC46LR3003EZB	10011-ND	Volt. Reg. Low Drop Out 3V, 35mA	TO-92	1.10	23.89	85.75
TC46LR3303EZB	10010-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	TO-92	1.10	23.89	85.75
TC46LR5003EZB	10002-ND	Volt. Reg. Low Drop Out 5V	TO-92	1.10	23.89	85.75
TC54VC2702EZB	10021-ND	Volt. Detector CMOS Output 2.7V	TO-92	1.01	21.94	78.75
TC54VC2902EZB	10020-ND	Volt. Detector CMOS Output 2.9V	TO-92	1.01	21.94	78.75
TC54VC4302EZB	10014-ND	Volt. Detector CMOS Output 4.3V	TO-92	1.01	21.94	78.75
TC54VC4502EZB	10018-ND	Volt. Detector CMOS Output 4.5V	TO-92	1.01	21.94	78.75
TC54VN2702EZB	10005-ND	Volt. Detector N-Chan Open Drain 2.7V	TO-92	1.01	21.94	78.75
TC54VN2902EZB	10004-ND	Volt. Detector N-Chan Open Drain 2.9V	TO-92	1.01	21.94	78 75
TC54VN4302EZB	10019-ND	Volt. Detector N-Chan Open Drain 4.3V.	TO-92	1.01	21.94	78.75
TC54VN4502EZB	10016-ND	Volt. Detector N-Chan Open Drain 4.5V	TO-92	1.01	21.94	78.75
TC55RP3002EZB	10015-ND	Volt. Reg. Low Drop Out 3V, 250mA	TO-92	.99	21.45	77.00
TC55RP3302EZB	10017-ND	Volt. Reg. Low Drop Out 3.3V, 250mA	TO-92	.99	21.45	77.00
TC55RP5002EZB	10001-ND	Volt. Reg Low Drop Out 5V, 250mA	TO-92	.99	21.45	77.00

Surface Mount Product in Bulk

Telcom Part No.	Digi-Key Part No.	Description	Pkg	Cut Down Pricing★ 1	25	100
TC45ER3003EMB	1005201-ND	Volt. Reg. 3V, 120mA	SOT-89	1.40	30.23	108.50
TC45ER3303EMB	1004701-ND	Volt. Reg. 3.3V, 120mA	SOT-89	1.40	30.23	108.50
TC45ER5003EMB	1005401-ND	Volt. Reg. 5V, 120mA	SOT-89	1.40	30.23	108.50
TC46LR3003ECT	1005301-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-23-5	1.40	30.23	108.50
TC46LR3303ECT	1006201-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-23-5	1.40	30.23	108.50
TC46LR5003ECT	1006601-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-23-5	1.40	30.23	108.50
TC46LR3003EMB	1006501-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-89	1.10	23.89	85.75
TC46LR3303EMB	1006401-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-89	1.10	23.89	85.75
TC46LR5003EMB	1006301-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-89	1.10	23.89	85.75
TC47BR3003ECT	1006101-ND	Volt. Reg. Controller 3V	SOT-23-5	1.08	23.40	84.00
TC47BR3303ECT	1005601-ND	Volt. Reg. Controller 3.3V	SOT-23-5	1.08	23.40	84.00
TC47BR5003ECT	1003901-ND	Volt. Reg. Controller 5V	SOT-23-5	1.08	23.40	84.00
TC54VC2702ECB	1005901-ND	Volt. Detector CMOS Output 2.7V	SOT-23	1.10	23.89	85.75
TC54VC2902ECB	1005801-ND	Volt. Detector CMOS Output 2.9V	SOT-23	1.10	23.89	85.75
TC54VC4302ECB	1005701-ND	Volt. Detector CMOS Output 4.3V	SOT-23	1.10	23.89	85.75
TC54VC4502ECB	1005501-ND	Volt. Detector CMOS Output 4.5V	SOT-23	1.10	23.89	85.75
TC54VC2702EMB	1004001-ND	Volt. Detector CMOS Output 2.7V	SOT-89	1.10	23.89	85.75
TC54VC2902EMB	1003501-ND	Volt. Detector CMOS Output 2.9V	SOT-89	1.10	23.89	85.75
TC54VC4302EMB	1003801-ND	Volt. Detector CMOS Output 4.3V	SOT-89	1.10	23.89	85.75
TC54VC4502EMB	1002301-ND	Volt. Detector CMOS Output 4.5V	SOT-89	1.10	23.89	85.75
TC54VN2702ECB	1002401-ND	Volt. Detector N-Chan, Open Drain 2.7V	SOT-23	1.10	23.89	85.75
TC54VN2902ECB	1002501-ND	Volt. Detector N-Chan, Open Drain 2.9V	SOT-23	1.10	23.89	85.75
TC54VN4302ECB	1002201-ND	Volt. Detector N-Chan, Open Drain 4.3V	SOT-23	1.10	23.89	85.75
TC54VN4502ECB	1002701-ND	Volt. Detector N-Chan, Open Drain 4.5V	SOT-23	1.10	23.89	85.75
TC54VN2702EMB	1003401-ND	Volt. Detector N-Chan, Open Drain 2.7V	SOT-89	1.10	23.89	85.75
TC54VN2902EMB	1003701-ND	Volt. Detector N-Chan, Open Drain 2.9V	SOT-89	1.10	23.89	85.75
TC54VN4302EMB	1003601-ND	Volt. Detector N-Chan, Open Drain 4.3V	SOT-89	1.10	23.89	85.75
TC54VN4502EMB	1002601-ND	Volt. Detector N-Chan, Open Drain 4.5V	SOT-89	1.10	23.89	85.75
TC55RP3002ECB	1003201-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-23	1.15	24.86	89.25
TC55RP3302ECB	1003301-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-23	1.15	24.86	89.25
TC55RP5002ECB	1002801-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-23	1.15	24.86	89.25
TC55RP3002EMB	1003101-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-89	1.13	24.38	87.50
TC55RP3302EMB	1003001-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-89	1.13	24.38	87.50
TC55RP5002EMB	1002901-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-89	1.13	24.38	87.50
TC151B3027EOA	1006701-ND	Step Up/Down DC/DC PWM Converter 3V	SO-8	4.57	98.96	355.25
TC151B3329EOA	1006001-ND	Step Up/Down DC/DC PWM Converter 3.3V	SO-8	4.57	98.96	355.25
TC151B5045EOA	1005101-ND	Step Up/Down DC/DC PWM Converter 5V	SO-8	4.57	98.96	355.25
TC161B3027EOA	1005001-ND	Step Up/Down DC/DC Converter 3V	SO-8	4.57	98.96	355.25
TC161B3329EOA	1004901-ND	Step Up/Down DC/DC Converter 3.3V	SO-8	4.57	98.96	355.25
TC161B5045EOA	1004801-ND	Step Up/Down DC/DC Converter 5V	SO-8	4.57	98.96	355.25
TC173B3000EMT	1004601-ND	PWM Step Up Switching Reg. 3V	SOT-89-5	3.29	71.18	255.50
TC173B3300EMT	1004101-ND	PWM Step Up Switching Reg. 3.3V	SOT-89-5	3.29	71.18	255.50
TC173B5000EMT	1004501-ND	PWM Step Up Switching Reg. 5V	SOT-89-5	3.29	71.18	255.50
TC183B3000EMT	1004401-ND	PFM Step Up Switching Reg. 3V	SOT-89-5	3.29	71.18	255.50
TC183B3300EMT	1004301-ND	PFM Step Up Switching Reg. 3.3V	SOT-89-5	3.29	71.18	255.50
TC183B5000EMT	1004201-ND	PFM Step Up Switching Reg. 5V	SOT-89-5	3.29	71.18	255.50

Surface Mount Product on Tape and Reel

Telcom Part No.	Digi-Key Part No.	Description	Pkg.	Tape and Reel Pricing★ 1000	5000
TC45ER3003EMB713	1005202-ND	Volt. Regulator 3V, 120mA	SOT-89	806.00	744.00/M
TC45ER3303EMB713	1004702-ND	Volt. Regulator 3.3V, 120mA	SOT-89	806.00	744.00/M
TC45ER5003EMB713	1005402-ND	Volt. Regulator 5V, 120mA	SOT-89	806.00	744.00/M
TC46LR3003ECT713	1005302-ND	Volt. Reg. Low Drop Out 3V, 35mA.	SOT-23-5	806.00/M†	744.00/M‡
TC46LR3303ECT713	1006202-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-23-5	806.00/M†	744.00/M‡
TC46LR5003ECT713	1006602-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-23-5	806.00/M†	744.00/M‡
TC46LR3003EMB713	1006502-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-89	637.00	588.00/M
TC46LR3303EMB713	1006402-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-89	637.00	588.00/M
TC46LR5003EMB713	1006302-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-89	637.00	588.00/M
TC47BR3003ECT713	1006102-ND	Volt. Regulator Controller 3V	SOT-23-5	624.00/M†	576.00/M‡
TC47BR3303ECT713	1005602-ND	Volt. Regulator Controller 3.3V	SOT-23-5	624.00/M†	576.00/M‡
TC47BR5003ECT713	1003902-ND	Volt. Regulator Controller 5V	SOT-23-5	624.00/M†	576.00/M‡
TC54VC2702ECB713	1005902-ND	Volt. Detector CMOS Output 2.7V	SOT-23	637.00/M†	588.00/M‡
TC54VC2902ECB713	1005802-ND	Volt. Detector CMOS Output 2.9V	SOT-23	637.00/M†	588.00/M‡
TC54VC4302ECB713	1005702-ND	Volt. Detector CMOS Output 4.3V	SOT-23	637.00/M†	588.00/M‡
TC54VC4502ECB713	1005502-ND	Volt. Detector CMOS Output 4.5V	SOT-23	637.00/M†	588.00/M‡
TC54VC2702EMB713	1004002-ND	Volt. Detector CMOS Output 2.7V	SOT-89	637.00	588.00/M
TC54VC2902EMB713	1003502-ND	Volt. Detector CMOS Output 2.9V	SOT-89	637.00	588.00/M
TC54VC4302EMB713	1003802-ND	Volt. Detector CMOS Output 4.3V	SOT-89	637.00	588.00/M
TC54VC4502EMB713	1002302-ND	Volt. Detector CMOS Output 4.5V	SOT-89	637.00	588.00/M
TC54VN2702ECB713	1002402-ND	Volt. Detector N-Chan, Open Drain 2.7V	SOT-23	637.00/M†	588.00/M‡
TC54VN2902ECB713	1002502-ND	Volt. Detector N-Chan, Open Drain 2.9V	SOT-23	637.00/M†	588.00/M‡
TC54VN4302ECB713	1002202-ND	Volt. Detector N-Chan, Open Drain 4.3V	SOT-23	637.00/M†	588.00/M‡
TC54VN4502ECB713	1002702-ND	Volt. Detector N-Chan, Open Drain 4.5V	SOT-23	637.00/M†	588.00/M‡
TC54VN2702EMB713	1003402-ND	Volt. Detector N-Chan, Open Drain 2.7V	SOT-89	637.00	588.00/M
TC54VN2902EMB713	1003702-ND	Volt. Detector N-Chan, Open Drain 2.9V	SOT-89	637.00	588.00/M
TC54VN4302EMB713	1003602-ND	Volt. Detector N-Chan, Open Drain 4.3V	SOT-89	637.00	588.00/M
TC54VN4502EMB713	1002602-ND	Volt. Detector N-Chan, Open Drain 4.5V	SOT-89	637.00	588.00/M
TC55RP3002ECB713	1003202-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-23	663.00/M†	612.00/M‡
TC55RP3302ECB713	1003302-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-23	663.00/M†	612.00/M‡
TC55RP5002ECB713	1002802-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-23	663.00/M†	612.00/M‡
TC55RP3002EMB713	1003102-ND	Volt. Reg. Low Drop Out 3V, 35mA	SOT-89	650.00	600.00/M
TC55RP3302EMB713	1003002-ND	Volt. Reg. Low Drop Out 3.3V, 35mA	SOT-89	650.00	600.00/M
TC55RP5002EMB713	1002902-ND	Volt. Reg. Low Drop Out 5V, 55mA	SOT-89	650.00	600.00/M
TC151B3027EOA713	1006702-ND	Step Up/Down DC/DC PWM Converter 3V	SO-8	2639.00	2436.00/M
TC151B3329EOA713	1006002-ND	Step Up/Down DC/DC PWM Converter 3.3V	SO-8	2639.00	2436.00/M
TC151B5045EOA713	1005102-ND	Step Up/Down DC/DC PWM Converter 5V	SO-8	2639.00	2436.00/M
TC161B3027EOA713	1005002-ND	Step Up/Down DC/DC Converter 3V	SO-8	2639.00	2436.00/M
TC161B3329EOA713	1004902-ND	Step Up/Down DC/DC Converter 3.3V	SO-8	2639.00	2436.00/M
TC161B5045EOA713	1004802-ND	Step Up/Down DC/DC Converter 5V	SO-8	2639.00	2436.00/M
TC173B3000EMT713	1004602-ND	PWM Step Up Switching Reg. 3V	SOT-89-5	1898.00	1752.00/M
TC173B3300EMT713	1004102-ND	PWM Step Up Switching Reg. 3.3V	SOT-89-5	1898.00	1752.00/M
TC173B5000EMT713	1004502-ND	PWM Step Up Switching Reg. 5V	SOT-89-5	1898.00	1752.00/M
TC183B3000EMT713	1004402-ND	PFM Step Up Switching Reg. 3V	SOT-89-5	1898.00	1752.00/M
TC183B3300EMT713	1004302-ND	PFM Step Up Switching Reg. 3.3V	SOT-89-5	1898.00	1752.00/M
TC183B5000EMT713	1004202-ND	PFM Step Up Switching Reg. 5V	SOT-89-5	1898.00	1752.00/M
—	9122B-ND	Telcom Data Book 1995		9.95 each	

† Tape and Reel pricing is priced per 3,000. ‡ Tape and Reel pricing is priced per 6,000.

★ *Call for better pricing on larger quantities!*

TelCom Semiconductor, Inc.

SPECIALIZED INTEGRATED CIRCUITS

Telcom Part No.	Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
TC232CPE	10119-ND	+5 Volt Powered, Dual RS-232 Transmitter/Receiver The TC232 is a dual RS-232 transmitter/receiver that complies with EIA RS-232C guidelines and is ideal for all RS-232C communication links. This device has a 5V power supply and two charge pump voltage converters that produce ±10V power supplies.	16-Dip	2.25	48.75	175.00
TC620CCPA	10099-ND	Solid State Temperature Sensor (Non-Inverting)	8-Dip	4.05	87.75	315.00
TC621CCPA	10100-ND	Solid State Temperature Sensor (Inverting) The TC620 and TC621 are solid-state temperature switches designed to replace mechanical switches in temperature sensing and control applications. Ambient temperature is sensed and compared to programmable temperature mini-mums and maximums. Both devices provide a LOW LIMIT and HIGH LIMIT logical output as well as a CONTROL output. On the TC620, the LOW LIMIT is low when the measured temperature is below the low temperature set-point and the HIGH LIMIT is low when the measured temperature is below the high temperature set-point. The TC621 provides the same output functions except that the logical states are inverted. These outputs allow for easy "over" and "under" temperature detection.	8-Dip	4.05	87.75	315.00

Telcom Part No.	Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
TC675CPD	10078-ND	Fast NiCad/Ni-Hydride Battery Charger (Forced Trickle Charge)	14-Dip	5.63	121.88	437.50
TC676CPD	10079-ND	Fast NiCad/Ni-Hydride Battery Charger (Timer Reset Pin) The TC675 & TC676 are designed for use with both NiCad and Ni-Hydride batteries. These two devices meet the needs of the system designer whose battery charge applications require fast, reliable, and safe design. The many automatic, programmable and selectable features of these devices provide capabilities found only in more expensive implementations. This, combined with inherent device capability of use in both AC or DC power sources, provide a flexible cost-effective solution to battery recharge maintenance.	14-Dip	5.63	121.88	437.50
TC962CPA	10118-ND	High Current DC-to-DC Converter The TC962 is an advanced version of the industry standard 7662 high-voltage DC-to-DC converter. Using improved design techniques and CMOS construction, the TC962 can source as much as 80 mA versus the 7662's 20 mA capability. As an inverter, the TC962 can put out voltages as high as 18V and as low as 3V without the need for external diodes. The output impedance of the device is a low 28Ω, voltage conversion efficiency is 99.9%, and power conversion efficiency is 97%.	8-Dip	4.05	87.75	315.00
TC7106CPL	10102-ND	3-1/2 Digit A/D Converter for LCD's	40-Dip	4.12	89.21	320.25
TC7107CPL	10104-ND	3-1/2 Digit A/D Converter for LED's	40-Dip	4.01	86.78	311.50
TC7106ACPL	10101-ND	3-1/2 Digit A/D Converter for LCD's	40-Dip	4.12	89.21	320.25
TC7107ACPL	10103-ND	3-1/2 Digit A/D Converter for LED's Electronically Improved The TC7106A and TC7107A 3-1/2 digit direct display drive analog-to-digital converters allow existing 7106/7107 based systems to be upgraded. Each device offers a precision internal voltage reference featuring a 20 ppm/°C maximum temperature drift coefficient. This represents a 4 to 7 times improvement over similar 3-1/2 digit converters. Existing 7106 & 7107 based systems may be upgraded without changing external passive component values. The need for a costly, space consuming external reference is removed. The TC7107A drives common anode light emitting diode (LED) displays directly. The TC7106A (for LCD's) low power drain and 9V battery operation make it suitable for portable applications.	40-Dip	4.16	90.19	323.75
TC7109ACPL	10105-ND	12-Bit µP-Compatible Analog-to-Digital Converters The TC7109A is a 12-bit plus sign, CMOS low-power analog-to-digital converter (ADC). Only eight passive components and a crystal are required to form a complete dual slope integrating ADC. The improved VOH source current TC7109A has features that make it an attractive per-channel alternative to analog multiplexing for many data acquisition applications. These features include typical input bias current of 1 pA, drift of less than 1 µV/°C, input noise typically 15 µVp-p, and auto zero. True differential input and reference allow measurement of bridge-type transducers such as load cells, strain gauges, and temperature transducers.	40-Dip	7.31	158.44	568.75
TC7116ACPL	10106-ND	3-1/2 Digit A/D Converter with Hold (LCD)	40-Dip	5.60	121.39	435.75
TC7117ACPL	10107-ND	3-1/2 Digit A/D Converter with Hold (LED) The TC7116A and TC7117A feature a precision, low-drift internal reference, and are functionally identical to the TC7116/TC7117. A low-drift external reference is not normally required with the TC7116A/TC7117A. The TC7116A/TC7117A are 3-1/2 digit CMOS analog-to-digital converters (ACD's) containing all the active components necessary to construct a 0.05% resolution measurement system. The TC7116A drives liquid crystal displays (LCD's) and includes a backplane driver. The TC7117A drives common anode light emitting diode (LED) displays directly with an 8-mA drive current per segment.	40-Dip	5.85	126.75	455.00
TC7135CPI	10108-ND	4-1/2 Digit Analog-to-Digita Converter The TC7135 4-1/2 Digit analog-to-digital converter (ADC) offers 50 ppm (1 part in 20,000) resolution with a maximum nonlinearity error of 1 count. An auto-zero cycle reduces zero error to below 10µV and zero drift to 0.5µV/°C. Source impedance errors are minimized by a 10 pA maximum input current. Roll-over error is limited to ± 1 count. By combining the TC7135 with a TC7211A (LCD) or TC7212A (LED) driver, a 4-1/2 digital display DVM or DPM can be constructed. Overrange and underrange signals support automatic range switching and special display blanking/flashing applications.	28-Dip	6.55	141.86	509.25
TC7650CPA	10110-ND	Chopper-Stabilized Operational Amplifier The TC7650 CMOS chopper-stabilized operational amplifier practically removes offset voltage error terms from system error calculations. The 5µV maximum Vos specification, for example, represents a 15 times improvement over the industry standard OP07E. The 50 nV/°C offset drift specification is over 25 times lower than the OP07E.\ The increased performance eliminates Vos trim procedures, periodic potentiometer adjustment and the reliability problems caused by damaged trimmers. The TC7650 is one of the lowest cost precision-operational amplifiers available.	8-Dip	2.90	62.89	225.75
TC7652CPA	10111-ND	Low Noise, Chopper-Stabilized Operational Amplifier The TC7652 low noise, chopper-stabilized operational amplifier improves noise performance and provides a wider common-mode input voltage range. It offers low-input offset voltage and time/temperature stability, with reduced bandwidth and slew rate. CMOS circuitry eliminates most chopping spikes inter-modulation effects and overrange lockup problems. The TC7652 compares inverting and noninverting input voltages in an amplifier nulled by alternate clock phases.	8-Dip	3.94	85.31	306.25
TC7660CPA	10112-ND	DC-to-DC Voltage Converter The TC7660 DC-to-DC voltage converter will generate a negative voltage from a positive source. With two external capacitors, the TC7660 will convert a 1.5V to 10V input signal to a -1.5V to -10V level. The TC7660 easily generates -5V in +5V digital systems. Many analog-to-digital converters, digital-to-analog converters, operational amplifiers, and multiplexers require negative supply voltages. The TC7660 allows +5V digital logic systems to incorporate these analog components without adding an additional main power source. The TC7660 can lower total system cost, ease engineering development, and save space, power and weight.	8-Dip	1.58	34.13	122.50
TC7662ACPA	10113-ND	DC-to-DC Converter The TC7662A is an improved version of the industry standard TC7660/TC7662 switched capacitor DC-to-DC converters. CMOS construction and advanced design result in a device with twice the output power of the TC7662 and requires fewer parts in many applications. The TC7662A can source 40 mA versus the TC7662's 20 mA capability. As an inverter, the TC7662A can output voltages as high as 18V and as low as 3V, without the need for external diodes. The output impedance of the device is a low 40Ω (typical), voltage conversion efficiency is 99.9% and power conversion efficiency is 97%. See TC962 if higher output current is required.	8-Dip	2.25	48.75	175.00
TC626040VAB	10074-ND	Solid State Temp. Sensor (Turn on 40°C)	TO-220	3.83	82.88	297.50
TC626050VAB	10075-ND	Solid State Temp. Sensor (Turn on 50°C)	TO-220	3.83	82.88	297.50
TC626080VAB	10076-ND	Solid State Temp. Sensor (Turn on 80°C)	TO-220	3.83	82.88	297.50
TC626100VAB	10077-ND	Solid State Temp. Sensor (Turn on 100°C) The TC626 is a solid-state temperature sensor designed to replace mechanical switches in temperature sensing applications. The ambient temperature is sensed and compared to an internal programmed temperature. Absolute temperature accuracy is ±3°C. The output will remain low until the internally programmed temperature is reached. The device then switches its output high. This output signal can source and sink up to 50 mA (TO-220 pkg).	TO-220	3.83	82.88	297.50
—	9122B-ND	Telcom Data Book 1995		9.95	—	—

★ Call for better pricing on larger quantities!

MAXIM SPECIALIZED INTEGRATED CIRCUITS

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
DG201ACJ-ND	Quad SPST CMOS Normally Closed Analog Switch	16-Dip	4.30	91.50	243.39
DG211CJ-ND	Quad SPST CMOS Normally Closed Analog Switch	16-Dip	3.06	65.00	172.90
DG211CSE-ND	**Quad SPST CMOS Normally Closed Analog Switch**	**SO-16**	**2.44**	**52.00**	**138.32**
DG212CJ-ND	Quad SPST CMOS Normally Open Analog Switch	16-Dip	3.06	65.00	172.90
DG418DY-ND	**Precision CMOS Analog Switch**	**SO-8**	**2.89**	**61.50**	**163.59**
DG508ACJ-ND	Monolithic CMOS Analog 1 to 8 Multiplexer	16-Dip	5.05	107.50	285.95
DG509ACJ-ND	Monolithic CMOS Analog 2 to 8 Multiplexer	16-Dip	5.05	107.50	285.95
HI3-0201-5-ND	Quad SPST CMOS Analog Switch ***NEW!***	16-Dip	4.42	94.00	250.04
HI3-0201HS-5-ND	High Speed Quad SPST CMOS Analog Switch ***NEW!***	16-Dip	4.94	105.00	279.30
HI6-0201-5-ND	**Quad SPST CMOS Analog Switch *NEW!***	**SO-16**	**5.03**	**107.00**	**284.62**
HI6-0201HS-5-ND	**High Speed Quad SPST CMOS Analog Switch *NEW!***	**SO-16**	[illegible]	**148.50**	**395.01**
ICL7109CPL-ND	12 Bit ADC w/Tri-State Binary Outputs	40-Dip	11.56	246.00	654.36
ICL7126CPL-ND	Low Power 3-1/2 Digit ADC w/Direct Drive (LCD)	40-Dip	9.52	202.50	538.65
ICL7129ACPL-2-ND	4-1/2 Digit ADC Mux Driver ***NEW!***	40-Dip	13.77	293.00	779.38
ICL7129ACQH-ND	**4-1/2 Digit ADC Mux Driver *NEW!***	**44-PLCC**	**19.29**	**410.50**	**1091.93**
ICL7660CSA-ND	**CMOS Switch Capacitor Voltage Converter**	**SO-8**	**2.54**	**54.00**	**143.64**
ICL7665ACPA-ND	Under/Over Volt Detector	8-Dip	4.37	93.00	247.38
ICL7665ACSA-ND	**Under/Over Volt Detector**	**SO-8**	**4.82**	**102.50**	**272.65**
ICL8069CCZQ-2-ND	1.2V Volt Reference	TO-92	1.74	37.00	98.42
ICM7218AIPI-ND	8 Digit Multiplexer LED Decoder/Driver	28-Dip	8.84	188.00	500.08
ICM7250IJE-ND	Programmable RC Timer (Ceramic Pkg.)	16-CDip	4.72	100.50	267.33
ICM7250IPE-ND	Programmable RC Timer	16-Dip	4.23	90.00	239.40
ICM7250IWE-ND	**Programmable RC Timer**	**SO-16**	**4.65**	**99.00**	**263.34**
ICM7555IPA-2-ND	CMOS General Purpose Timer	8-Dip	1.67	35.50	94.43
IH5051CWE-ND	**Low Charge Injection Quad SPDT SW**	**SO-16**	**12.22**	**260.00**	**691.60**
MAX038CPP-ND	IC 20MHZ Function Generator	20-Dip	19.01	404.50	1075.97
MAX110ACPE-ND	2 Channel ± 14 Bit Serial ADC ***NEW!***	16-Dip	13.47	286.50	762.09
MAX110ACWE-ND	**2 Channel ±14 Bit Serial ADC *NEW!***	**SO-16**	**13.47**	**286.50**	**762.09**
MAX120CNG-ND	500ksps, 12-Bit ADC w/Track/Hold and Ref.	24-Dip	32.59	693.50	1844.71
MAX120CWG-ND	**12 Bit ADC with Track/Hold and Ref *NEW!***	**SO-24**	**32.59**	**693.50**	**1844.71**
MAX121CPE-ND	308ksps A/D Converter with DSP 78dB Interface and Serial A/D	16-Dip	25.87	550.50	1464.33
MAX121CWE-ND	**308ksps A/D Converter with DSP 78dB Interface and Serial A/D *NEW!***	**SO-16**	**25.87**	**550.50**	**1464.33**
MAX122BCNG-ND	12-Bit ADC with Track/Hold and Ref.	24-Dip	24.70	525.50	1397.83
MAX122BCWG-ND	**12 Bit ADC withTrack/Hold and Ref *NEW!***	**SO-24**	**24.70**	**525.50**	**1397.83**
MAX132CNG-ND	ADC with Serial Interface	24-Dip	16.29	346.50	921.69
MAX132CWG-ND	**ADC with Serial Interface *NEW!***	**SO-24**	**16.29**	**346.50**	**921.69**
MAX133CPL-ND	3 3/4 Digit DMM Circuit	40-Dip	19.86	422.50	1123.85
MAX133CQH-ND	**3 3/4 Digit DMM Circuit *NEW!***	**44-PLCC**	**21.86**	**465.00**	**1236.90**
MAX135CPI-ND	15 Bit Low Power ADC W/ Parallel Interface ***NEW!***	28-Dip	16.29	346.50	921.69
MAX135CWI-ND	**15 Bit Low Power ADC W/ Parallel Interface *NEW!***	**SO-28**	**16.29**	**346.50**	**921.69**
MAX138CPL-2-ND	3 1/2 Digit ADC w/Bandgap Ref. and Chrg. Pump Volt Converter and LCD Driver	40-Dip	10.18	216.50	575.89
MAX139CPL-2-ND	3 1/2 Digit ADC w/Bandgap Ref. and Chrg. Pump Volt Converter and LED Driver	40-Dip	10.18	216.50	575.89
MAX140CPL-2-ND	3 1/2 Digit ADC w/Bandgap Ref. and Chrg. Pump Volt Converter and LED Driver w/Low Segment Current	40-Dip	9.17	195.00	518.70
MAX147DCAP-ND	**2.7V Low Power 12-Bit 8-Channel Serial ADC *NEW!***	**20-SSOP**	**13.63**	**290.00**	**771.40**

MAXIM — SPECIALIZED INTEGRATED CIRCUITS *(Continued)*

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
MAX147BCPP-ND	2.7V Low Power 12-Bit 8-Channel Serial ADC ***NEW!***	20-Dip	13.63	290.00	771.40
MAX148BCAP-ND	**2.7V Low Power 10-Bit 8-Channel Serial ADC *NEW!***	20-SSOP	9.40	200.00	532.00
MAX148BCPP-ND	2.7V Low Power 10-Bit 8-Channel Serial ADC ***NEW!***	20-Dip	9.40	200.00	532.00
MAX150ACPP-ND	CMOS 8-Bit ADC with VREF, Track and Hold	20-Dip	25.57	544.00	1447.04
MAX150ACWP-ND	**CMOS 8-Bit ADC w/VREF, Track and Hold**	SO-20	25.57	544.00	1447.04
MAX152CPP-ND	3V Mpu Comp, 8-Bit A/D Conv w/1.8µS Conversion & 1µA Power Down	20 Dip	8.86	188.50	501.41
MAX152CWP-ND	**3V 8 Bit ADC 1µA Power Down *NEW!***	SO-20	8.86	188.50	501.41
MAX153CPP-ND	1Msps, µP-Compatible, 8-Bit ADC w/Power Down	20-Dip	13.51	287.50	764.75
MAX154ACNG-ND	4 Channel ADC with Track and Hold	24-Dip	26.48	563.50	1498.91
MAX154ACWG-ND	**4 Channel ADC with Track and Hold**	SO-24	26.48	563.50	1498.91
MAX156ACWI-ND	**High Speed 8 Bit ADC with 4 CH Mux *NEW!***	SO-28	18.40	391.50	1041.39
MAX156BCNG-ND	High-Speed, 8-Bit, ADC with 4-Channel MUX	24-Dip	15.32	326.00	867.16
MAX158ACPI-ND	8 Channel ADC with Track and Hold	28-Dip	27.40	583.00	1550.78
MAX158ACWI-ND	**8 Channel ADC with Track and Hold**	SO-28	27.40	583.00	1550.78
MAX160CPN-ND	CMOS µP Compatible, 4µs, 8-Bit A/D Converter	18-Dip	16.50	351.00	933.66
MAX160CWN-ND	**Cmos uP Compatible 4 µS 8 Bit A/D Converter *NEW!***	SO-18	16.50	351.00	933.66
MAX162BCNG-ND	Complete High Speed CMOS 12 Bit ADC ***NEW!***	24-Dip	47.59	1012.50	2693.25
MAX162BCWG-ND	**Complete High Speed CMOS 12 Bit ADC *NEW!***	SO-24	47.59	1012.50	2693.25
MAX164BCNG-ND	Cmos 12 Bit ADC with Track & Hold ***NEW!***	24-Dip	37.95	807.50	2147.95
MAX164BCWG-ND	**Cmos 12 Bit ADC with Track & Hold *NEW!***	SO-24	37.95	807.50	2147.95
MAX165ACPN-ND	Cmos µP Compatible 5 uS 8 Bit ADC ***NEW!***	18-Dip	10.81	230.00	611.80
MAX165ACWN-ND	**Cmos µP Compatible 5 uS 8 Bit ADC *NEW!***	SO-18	10.81	230.00	611.80
MAX165BCPN-ND	CMOS µP Compatible, 5µs, 8-Bit ADC with T/H & Ref.	18-Dip	8.32	177.00	470.82
MAX165BCWN-ND	**Cmos µP Compatible 5 uS 8 Bit ADC *NEW!***	SO-18	8.32	177.00	470.82
MAX166BCPP-ND	Differential Input, 5µs, 8-Bit ADC with T/H & Ref.	20-Dip	8.86	188.50	501.41
MAX172BCNG-ND	Complete 10µs CMOS 12-Bit ADC	24-Dip	22.00	468.00	1244.88
MAX174CCPI-ND	12-Bit ADC with Ref.	28-Dip	57.83	1230.50	3273.13
MAX176BCPA-ND	Serial Output, 12-Bit 250kSPS ADC	8-Dip	26.88	572.00	1521.52
MAX178ACNG-ND	Calibrated 12 Bit A/D Converter with T/H and Reference ***NEW!***	24-Dip	35.13	747.50	1988.35
MAX178ACWG-ND	**Calibrated 12 Bit A/D Converter with T/H and Reference *NEW!***	SO-24	35.13	747.50	1988.35
MAX178BCNG-ND	Calibrated 12 Bit A/D Converter with T/H and Reference ***NEW!***	24-Dip	31.61	672.50	1788.85
MAX178BCWG-ND	**Calibrated 12 Bit A/D Converter with T/H and Reference *NEW!***	SO-24	31.61	672.50	1788.85
MAX180BCPL-ND	8 Channel 12 Bit Data Acquis. System	40-Dip	39.81	847.00	2253.02
MAX180BCQH-ND	**8 Channel 12-Bit Data Acquis. System**	44-PLCC	39.81	847.00	2253.02
MAX181CCPL-ND	6 Channel 12-Bit Data Acquis. System	40-Dip	34.62	736.50	1959.09
MAX181CCQH-ND	**6 Channel 12-Bit Data Acquis. System**	44-PLCC	34.62	736.50	1959.09
MAX182BCPI-ND	4 Channel 12-Bit ADC with Track and Hold	28-Dip	36.38	774.00	2058.84
MAX182BCWI-ND	**4 Channel 12-Bit ADC with Track and Hold**	SO-28	36.38	774.00	2058.84
MAX186BCPP-ND	Low Power 8 Channel Serial 12 Bit ADC with Reference ***NEW!***	20-Dip	26.48	563.50	1498.91
MAX186BCWP-ND	**Low Power 8 Channel Serial 12 Bit ADC with Reference *NEW!***	SO-20	26.48	563.50	1498.91
MAX186DCPP-ND	Low-Power, 8-Channel Serial 12-Bit ADC w/V Ref. on Board	20-Dip	17.46	371.50	988.19
MAX186DCWP-ND	**Low Power 8 Channel Serial 12 Bit ADC with Reference *NEW!***	SO-20	17.46	371.50	988.19
MAX187BCPA-ND	Low Pwr 12-Bit Serial ADC w/Track and Hold	8-Dip	16.10	342.50	911.05
MAX187BCWE-ND	**Low Pwr 12-Bit Serial ADC w/Track and Hold**	SO-16	16.10	342.50	911.05
MAX188BCPP-ND	Low Power 8 Channel Serial 12 Bit ADC with Reference ***NEW!***	20-Dip	24.21	515.00	1369.90
MAX188BCWP-ND	**Low Power 8 Channel Serial 12 Bit ADC with Reference *NEW!***	SO-20	24.21	515.00	1369.90
MAX188DCPP-ND	Low-Power, 8-Channel Serial 12-Bit ADC, External Ref. Required	20-Dip	16.47	350.50	932.33
MAX188DCWP-ND	**Low Power 8 Channel Serial 12 Bit ADC with Reference *NEW!***	SO-20	16.47	350.50	932.33
MAX189CCPA-ND	5V Low Power 12-Bit Serial A/D Converter	8-Dip	13.56	288.50	767.41
MAX189CCWE-ND	**5V Low Power 12-Bit Serial A/D Converter**	SO-8	13.56	288.50	767.41
MAX191BCNG-ND	Low-Pwr, Single-Supply 12-Bit ADC w/Pwr. Dn. & Serial/Parallel Outputs	24-Dip	19.55	416.00	1106.56
MAX191BCWG-ND	**Low Power 12 Bit ADC with Power Down and Serial/Parallel Out *NEW!***	SO-24	19.55	416.00	1106.56
MAX192BCAP-ND	**Low Power 8 Channel 10-Bit ADC**	20-SSOP	13.79	293.50	780.71
MAX192BCPP-ND	Low Power 8 Channel 10 Bit ADC	20-Dip	12.55	267.00	710.22
MAX192BCWP-ND	**Low Power 8 Channel 10 Bit ADC**	SO-20	12.55	267.00	710.22
MAX194BCPE-ND	14 Bit 85 KSPS ADC With 10µA Shut Down ***NEW!***	16-Dip	29.85	635.00	1689.10
MAX194BCWE-ND	**14 Bit 85 KSPS ADC With 10µA Shut Down *NEW!***	SO-16	29.85	635.00	1689.10
MAX195BCPE-ND	16 Bit 100 KSPS ADC With 10µA Shut Down ***NEW!***	16-Dip	54.99	1170.00	3112.20
MAX195BCWE-ND	**16 Bit 100 KSPS ADC with 10µA Shut Down *NEW!***	SO-16	54.99	1170.00	3112.20
MAX196BCAI-ND	**6-Channel Multi Range 12 Bit ADC Parallel Interface *NEW!***	28-SSOP	23.01	489.50	1302.07
MAX196BCNI-ND	6-Channel Multi Range 12 Bit ADC Parallel Interface ***NEW!***	28-Dip	22.14	471.00	1252.86
MAX197BCAI-ND	**8-Channel Multi Range 12 Bit ADC Parallel Interface *NEW!***	28-SSOP	23.01	489.50	1302.07
MAX197BCNI-ND	8-Channel Multi Range 12 Bit ADC Parallel Interface ***NEW!***	28-Dip	22.14	471.00	1252.86
MAX200CPP-ND	+5V Powered, Five RS-232 Trans. w/Pwr. Shutdown & .1µF External Capacitors	20-Dip	6.70	142.50	379.05
MAX200CWP-ND	**+5V Powered, Five RS-232 Trans. w/Pwr. Shutdown & .1µF External Capacitors *NEW!***	SO-20	6.70	142.50	379.05
MAX201CPD-ND	+5V/+9V to +13.2V, Dual RS-232 Transceiver w/ .1µF External Capacitors	14-Dip	2.94	62.50	166.25
MAX201CWE-ND	**5V RS232 Transceiver W/ .1 uF Ext Caps 2 Drivers/ 2 Receivers *NEW!***	SO-16	2.94	62.50	166.25
MAX202CPE-ND	+5V Dual RS-232 Transceiver w/ .1µF External Caps	16-Dip	2.94	62.50	166.25

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
MAX202CSE-ND	**+5V Dual RS-232 Transceiver w/0.1F External Caps**	SO-16	2.94	62.50	166.25
MAX203CPP-ND	Complete, +5V Powered, Dual RS-232 Transceiver	20-Dip	6.60	140.50	373.73
MAX203CWP-ND	**5V RS232 Transceiver 2 Drivers/ 2 Receivers Caps Internal *NEW!***	SO-20	6.60	140.50	373.73
MAX204CPE-ND	+5V Quad RS-232 Transceiver w/ .1µF External Capacitors	16-Dip	5.22	111.00	295.26
MAX205CPG-ND	Complete, +5V Pwrd, 5-Channel RS-232 Trans	24-Dip	14.52	309.00	821.94
MAX206CNG-ND	+5V Pwrd., 4 RS-232 Xmitters & 3 RS-232 Receivers w/Pwr. Shutdown and Receiver & .1µF Ext. Caps.	24-Dip	6.70	142.50	379.05
MAX206CWG-ND	**5V RS232 Transceiver W/ .1 uF Ext Caps 4 Drivers/ 3 Receivers *NEW!***	SO-24	6.70	142.50	379.05
MAX207CNG-ND	+5V Powered, 5 RS-232 Transmitters and 3 RS-232 Receivers w/ .1µF Ext. Caps.	24-Dip	6.70	142.50	379.05
MAX207CWG-ND	**5V RS232 Transceiver W/ .1 uF Ext Caps 5 Drivers/ 3 Receivers *NEW!***	SO-24	6.70	142.50	379.05
MAX208CNG-ND	+5 Quad RS-232 Transceiver w/ .1µF Ext. Caps.	24-Dip	6.70	142.50	379.05
MAX208CWG-ND	**5V RS232 Transceiver W/ .1 uF Ext Caps 4 Drivers/ 4 Receivers *NEW!***	SO-24	6.70	142.50	379.05
MAX209CNG-ND	+5V & +12V Pwrd., 3 RS-232 Xmitters and 5 RS-232 Rcvrs w/Rcvr Enable and .1µF Ext. Caps.	24-Dip	6.70	142.50	379.05
MAX209CWG-ND	**+5V & +12V Pwrd., 3 RS-232 Xmitters and 5 RS-232 Rcvrs w/Rcvr Enable and .1µF Ext. Caps. *NEW!***	SO-24	6.70	142.50	379.05
MAX211CWI-ND	**+5V Pwrd., 4 RS-232 Xmitters and 5 RS-232 Rcvrs. w/ .1µF Ext. Caps**	SO-28	6.70	142.50	379.05
MAX213CWI-ND	**+5V Pwrd., 4 RS-232 Xmitters and 5 RS-232 Rcvrs. (2 active in shutdown) w/0.1µF Ext. Caps.**	SO-28	6.70	142.50	379.05
MAX214CPI-ND	Programmable DTE/DCE, 5V RS232 Transceiver	28-Dip	8.04	171.00	454.86
MAX214CWI-ND	**Programable DTE/DCE, 5V RS232 Transceiver *NEW!***	SO-28	8.04	171.00	454.86
MAX218CPP-ND	Dual True RS232 Transceiver	20-Dip	3.85	82.00	218.12
MAX218CWP-ND	**1.8V - 4.25V Powered True RS232 Dual Transceiver *NEW!***	SO-20	3.85	82.00	218.12
MAX220CPE-ND	5V High Speed RS232 Driver Receiver	16-Dip	4.32	92.00	244.72
MAX220CSE-ND	**High Speed 5V Powered Dual RS232 Drivers/Receivers *NEW!***	SO-16	4.32	92.00	244.72
MAX222CPN-ND	5V High Speed RS232 Driver Receiver w/SD	18-Dip	4.32	92.00	244.72
MAX222CWN-ND	**5V High Speed RS232 Driver Receiver w/SD**	SO-18	4.32	92.00	244.72
MAX223CWI-ND	**+5V Pwrd., 4 RS-232 Xmitters and 5 RS-232 Rcvrs. (2 active in shutdown)**	SO-28	6.70	142.50	379.05
MAX230CPP-ND	+5V Pwrd., Five RS-232 Transmitters with Power Shutdown	20-Dip	6.70	142.50	379.05
MAX230CWP-ND	**5V Powered 5 RS232 Transmitters with Shut Down *NEW!***	SO-20	6.70	142.50	379.05
MAX231CPD-ND	+5V & +12V Pwrd., Dual RS-232 Transmitters and Receivers	14-Dip	2.94	62.50	166.25
MAX231EPD-ND	+5V & +12V Pwrd., Dual RS-232 Transmitters and Receivers	14-Dip	3.53	75.00	199.50
MAX232ACPE-ND	High-Speed + 5V Pwrd., Dual RS-232 Transmitters and Receivers	16-Dip	4.32	92.00	244.72
MAX232ACSE-ND	**High-Speed + 5V Pwrd., Dual RS-232 Transmitters and Receivers**	SO-16	4.32	92.00	244.72
MAX232ACWE-ND	**High-Speed + 5V Pwrd., Dual RS-232 Transmitters and Receivers**	SO-16	4.32	92.00	244.72
MAX232CPE-ND	+5V Pwrd., Dual RS-232 Transmitters & Receivers	16-Dip	2.94	62.50	166.25
MAX232CWE-ND	**+5V Pwrd., Dual RS-232 Transmitters & Receivers**	SO-16	2.94	62.50	166.25
MAX232EPE-ND	+5V Pwrd., Dual RS-232 Transmitters & Receivers	16-Dip	3.53	75.00	199.50
MAX232EWE-ND	**+5V Pwrd., Dual RS-232 Transmitters & Receivers**	SO-16	3.53	75.00	199.50
MAX233ACPP-ND	No Ext Comp 5V Powered Dual RS232 Xmitters/ Receivers ***NEW!***	20-Dip	9.54	203.00	539.98
MAX233ACWP-ND	**No Ext Comp 5V Powered Dual RS232 Xmitters/ Receivers *NEW!***	SO-20	9.54	203.00	539.98
MAX233CPP-ND	No Ext. Comp. +5V Pwrd., Dual,RS-232 Xmitters and Receivers	20-Dip	6.60	140.50	373.73
MAX233EPP-ND	No Ext. Comp. +5V Pwrd., Dual,RS-232 Xmitters and Receivers	20-Dip	7.92	168.50	448.21
MAX234CPE-ND	+5V Pwrd., Quad RS-232,Transmitters	16-Dip	5.22	111.00	295.26
MAX234CWE-ND	**5V Powered Quad RS232 Transmitters *NEW!***	SO-16	5.22	111.00	295.26
MAX235CPG-ND	No Ext. Comp. +5V Pwrd., 5 RS-232 Xmitters and Receivers w/Power Shutdown and Receiver	24-Dip	14.52	309.00	821.94
MAX236CNG-ND	+5V Pwrd., 4 RS-232 Xmitters and 3 RS-232 Receivers w/Pwr. Shutdown and Receiver	24-Dip	6.70	142.50	379.05
MAX236CWG-ND	**+5V Pwrd., 4 RS-232 Xmitters and 3 RS-232 Receivers w/Pwr. Shutdown and Receiver**	SO-24	6.70	142.50	379.05
MAX237CNG-ND	+5V Pwrd., 5 RS-232 Transmitters and 3 RS-232 Receivers	24-Dip	6.70	142.50	379.05
MAX237CWG-ND	**5V Powered 5 RS232 Transmitters, 3 RS232 Receivers *NEW!***	SO-24	6.70	142.50	379.05
MAX238CNG-ND	+5V Pwrd., Quad RS-232 Transmitters and Receivers	24-Dip	6.70	142.50	379.05
MAX238CWG-ND	**+5V Pwrd., Quad RS-232 Transmitters and Receivers**	SO-24	6.70	142.50	379.05
MAX239CNG-ND	+5V & +12V Pwrd., 3 RS-232 Xmitters and 5N RS-232 Receivers w/Receiver Enable	24-Dip	6.70	142.50	379.05
MAX240CMH-ND	**+5V Pwrd., 5 RS-232 Xmitters and Receivers w/Pwr. Shutdown and Receiver**	44-Plastic FP	11.00	234.00	622.44
MAX241CWI-ND	**+5V Pwrd., 4 RS-232 Xmitters, 5 Receivers w/Pwr. Shutdown and Receiver 3-State Enable**	SO-28	11.00	234.00	622.44
MAX242CPN-ND	High Speed 5V Dual RS232 Driver/Receiver	18-Dip	4.32	92.00	244.72
MAX242CWN-ND	**5V Powered Dual RS232 Dri/Rec *NEW!***	SO-18	4.32	92.00	244.72
MAX243CPE-ND	High Speed 5V Dual RS232 Driver/Receiver with Neg Threshold	18-Dip	4.32	92.00	244.72
MAX243CSE-ND	**5V Powered Dual RS232 Dri/Rec *NEW!***	SO-16	4.32	92.00	244.72
MAX261BCNG-ND	µP Programmable Universal Switched Cap Filter ***NEW!***	24-Dip	14.03	298.50	794.01
MAX261BCWG-ND	**µP Programmable Universal Switched Cap Filter *NEW!***	SO-24	14.03	298.50	794.01
MAX274BCNG-ND	8th Order Analog Filter	24-Dip	10.08	214.50	570.57
MAX274BCWI-ND	**8th Order Analog Filter**	SO-24	10.08	214.50	570.57
MAX275BCPP-ND	4th Order Analog Filter	20-Dip	6.30	134.00	356.44
MAX275BCWP-ND	**4th Order Analog Filter**	SO-20	6.30	134.00	356.44
MAX280CPA-ND	5TH Order Zero-Error, Butterworth Switched Cap LP Filter ***NEW!***	8-Dip	8.51	181.00	481.46

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
MAX280CWE-ND	**5TH Order Zero-Error, Butterworth Switched Cap LP Filter *NEW!***	SO-16	8.51	181.00	481.46
MAX281ACPA-ND	5TH-Order, Zero Error, Bessel Switched Cap LP Filter ***NEW!***	8-Dip	10.36	220.50	586.53
MAX281ACWE-ND	**5TH-Order, Zero Error, Bessel Switched Cap LP Filter *NEW!***	SO-16	10.36	220.50	586.53
MAX281BCPA-ND	5TH-Order, Zero Error, Bessel Switched Cap LP Filter ***NEW!***	8-Dip	8.51	181.00	481.46
MAX281BCWE-ND	**5TH-Order, Zero Error, Bessel Switched Cap LP Filter *NEW!***	SO-16	8.51	181.00	481.46
MAX291CPA-ND	8th-Order, Lowpass, Butterworth, 0.1Hz to 25kHz, Switched-Capacitor Filter	8-Dip	6.02	128.00	340.48
MAX291CWE-ND	**8th Order, Clock Tunable Lowpass Butterworth Filter *NEW!***	SO-16	6.32	134.50	357.77
MAX292CPA-ND	8th-Order, Bessel, Lowpass, 0.1Hz to 25kHz, Switched-Capacitor Filter	8-Dip	6.02	128.00	340.48
MAX292CWE-ND	**8th Order, Clock Tunable Lowpass Bessel Filter *NEW!***	SO-16	6.32	134.50	357.77
MAX293CPA-ND	8th-Order, Lowpass, Elliptic, 0.1Hz to 25kHz, 1.5 Transition Ratio, Switched-Capacitor Filter	8-Dip	6.37	135.50	360.43
MAX293CWE-ND	**8th Order, Clock Tunable Lowpass Elliptic Filter *NEW!***	SO-16	6.70	142.50	379.05
MAX294CPA-ND	8th-Order, Lowpass, Elliptic, 0.1Hz to 25kHz, 1.2 Transition Ratio, Switched-Capacitor Filter	8-Dip	6.37	135.50	360.43
MAX294CWE-ND	**8th Order, Clock Tunable Lowpass Elliptic Filter *NEW!***	SO-16	6.70	142.50	379.05
MAX295CPA-ND	8th-Order, Butterworth, Lowpass, 0.1Hz to 50 kHz, Switched-Capacitor Filter	8-Dip	6.02	128.00	340.48
MAX295CWE-ND	**8th Order, Clock Tunable Lowpass Butteworth Filter *NEW!***	SO-16	6.32	134.50	357.77
MAX296CPA-ND	8th-Order, Bessel, Lowpass, 0.1Hz to 50kHz, Switched-Capacitor Filter	8-Dip	6.02	128.00	340.48
MAX296CWE-ND	**8th Order, Clock Tunable Lowpass Bessel Filter *NEW!***	SO-16	6.32	134.50	357.77
MAX297CPA-ND	8th-Order, Lowpass, Elliptic, 0.1Hz to 50kHz, Switched-Capacitor Filter	8-Dip	6.37	135.50	360.43
MAX297CWE-ND	**8th Order, Clock Tunable Lowpass Elliptic Filter *NEW!***	SO-16	6.70	142.50	379.05
MAX301CPE-ND	Precision Dual Low On Res Matched CMOS Switch (SPST) ***NEW!***	16-Dip	3.36	71.50	190.19
MAX301CSE-ND	**Precision Dual Low On Res Matched CMOS Switch (SPST) *NEW!***	SO-16	4.04	86.00	228.76
MAX303CPE-ND	Precision Dual, Low On Resistance Matched CMOS SW (SPDT) ***NEW!***	16-Dip	7.03	149.50	397.67
MAX303CSE-ND	**Precision Dual, Low On Resistance Matched CMOS SW (SPDT) *NEW!***	SO-16	8.44	179.50	477.47
MAX305CPE-ND	Precision Dual, Matched CMOS Switches (DPST,NO) ***NEW!***	16-Dip	7.03	149.50	397.67
MAX305CSE-ND	**Precision Dual, Matched CMOS Switches (DPST.NO) *NEW!***	SO-16	8.44	179.50	477.47
MAX306CPI-ND	Precision 16 Channel High Perform CMOS Analog Mux ***NEW!***	28-Dip	8.44	179.50	477.47
MAX306CWI-ND	**Precision 16 Channel High Perform CMOS Analog Mux *NEW!***	SO-28	11.61	247.00	657.02
MAX307CPI-ND	Precision Dual 8 Channel High Performance CMOS Analog Mux ***NEW!***	28-Dip	8.44	179.50	477.47
MAX307CWI-ND	**Precision Dual 8 Channel High Performance CMOS Analog Mux *NEW!***	SO-28	11.61	247.00	657.02
MAX308CPE-ND	Precision 8 Channel High Performance CMOS Analog Mux ***NEW!***	16-Dip	5.45	116.00	308.56
MAX308CSE-ND	**Precision 8 Channel High Performance CMOS Analog Mux *NEW!***	SO-16	6.53	139.00	369.74
MAX309CPE-ND	Precision Dual 4 Channel High Performance CMOS Analog Mux ***NEW!***	16-Dip	5.45	116.00	308.56
MAX309CSE-ND	**Precision Dual 4 Channel High Performance CMOS Analog Mux *NEW!***	SO-16	6.53	139.00	369.74
MAX311CPE-ND	RF/Video Differential 4-Channel Multiplexer/ Demultiplexer	16-Dip	13.51	287.50	764.75
MAX311CWN-ND	**RF/Video Differential 4-Channel Multiplexer/ Demultiplexer**	SO-18	16.54	352.00	936.32
MAX317CPA-ND	Precision SPST Normally Closed CMOS Analog Switch ***NEW!***	8-Dip	2.33	49.50	131.67
MAX317CSA-ND	**Precision SPST Normally Closed CMOS Analog Switch *NEW!***	SO-8	2.73	58.00	154.28
MAX318CPA-ND	Precision SPST Normally Open Analog Switch ***NEW!***	8-Dip	2.33	49.50	131.67
MAX318CSA-ND	**Precision SPST Normally Open Analog Switch *NEW!***	SO-8	2.73	58.00	154.28
MAX319CPA-ND	Precision SPDT CMOS Analog Switch ***NEW!***	8-Dip	3.15	67.00	178.22
MAX319CSA-ND	**Precision SPDT CMOS Analog Switch *NEW!***	SO-8	3.45	73.50	195.51
MAX323CPA-ND	Precison, Single Supply, SPST Analog Switch ***NEW!***	8-Dip	2.63	56.00	148.96
MAX323CSA-ND	**Precison, Single Supply, SPST Analog Switch *NEW!***	SO-8	2.89	61.50	163.59
MAX326CPE-ND	Quad SPST, Ultra Low Leakage, CMOS Analog Switch ***NEW!***	16-Dip	6.82	145.00	385.70
MAX326CSE-ND	**Quad SPST, Ultra Low Leakage, CMOS Analog Switch *NEW!***	SO-16	7.47	159.00	422.94
MAX328CPE-ND	8-Channel, Ultra-Low Leakage Monolithic CMOS Multiplexer	16-Dip	8.86	188.50	501.41
MAX328CWE-ND	**8-Channel, Ultra-Low Leakage Monolithic CMOS Multiplexer**	SO-16	9.73	207.00	550.62
MAX329CPE-ND	Differential 4-Channel, Ultra-Low Leakage Monolithic CMOS Multiplexer	16-Dip	8.86	188.50	501.41
MAX329CWE-ND	**Differential 4-Channel, Ultra-Low Leakage Monolithic CMOS Multiplexer**	SO-16	9.73	207.00	550.62
MAX333CPP-ND	Quad SPDT CMOS Analog Switch	20-Dip	6.39	136.00	361.76
MAX333CWP-ND	**Quad SPDT CMOS Analog Switch**	SO-20	8.25	175.50	466.83
MAX335CNG-ND	Serial, Controlled, 8 Channel SPST Switch ***NEW!***	24-Dip	5.78	123.00	327.18
MAX335CWG-ND	**Serial, Controlled, 8 Channel SPST Switch *NEW!***	SO-24	6.35	135.00	359.10
MAX351CPE-ND	Precision Quad SPST Analog Switch Normally Closed ***NEW!***	16-Dip	4.82	102.50	272.65
MAX351CSE-ND	**Precision Quad SPST Analog Switch Normally Closed *NEW!***	SO-16	6.25	133.00	353.78
MAX352CPE-ND	Precision Quad SPST Analog Switch Normally Open ***NEW!***	16-Dip	4.82	102.50	272.65
MAX352CSE-ND	**Precision Quad SPST Analog Switch Normally Open *NEW!***	SO-16	6.25	133.00	353.78
MAX353CPE-ND	Precision Quad SPST Analog Switch 2 N/C and 2 N/O ***NEW!***	16-Dip	4.82	102.50	272.65
MAX353CSE-ND	**Precision Quad SPST Analog Switch 2 N/C and 2 N/O *NEW!***	SO-16	6.25	133.00	353.78
MAX354CPE-ND	Single 8 Channel Fault Protected Analog Mux ***NEW!***	16-Dip	8.81	187.50	498.75
MAX354CWE-ND	**Single 8 Channel Fault Protected Analog Mux *NEW!***	SO-16	8.81	187.50	498.75
MAX355CPE-ND	Dual 4 Channel Fault Protected Analog Mux ***NEW!***	16-Dip	8.81	187.50	498.75
MAX355CWE-ND	**Dual 4 Channel Fault Protected Analog Mux *NEW!***	SO-16	8.81	187.50	498.75
MAX358CPE-ND	Fault Protected 8-Channel Multiplexer	16-Dip	8.81	187.50	498.75
MAX358CWE-ND	**Fault Protected 8-Channel Multiplexer**	SO-16	8.81	187.50	498.75
MAX359CPE-ND	Fault Protected Differential 4-Channel Multiplexer	16-Dip	8.81	187.50	498.75
MAX359CWE-ND	**Fault Protected Differential 4-Channel Multiplexer**	SO-16	8.81	187.50	498.75
MAX361CPE-ND	Precision Quad SPST Analog Switch N/C 3 Ohm Tolerance ***NEW!***	16-Dip	4.25	90.50	240.73
MAX361CSE-ND	**Precision Quad SPST Analog Switch N/C 3 Ohm Tolerance *NEW!***	SO-16	5.10	108.50	288.61
MAX362CPE-ND	Precision Quad SPST Analog Switch N/O 3 Ohm Tolerance ***NEW!***	16-Dip	4.25	90.50	240.73
MAX362CSE-ND	**Precision Quad SPST Analog Switch N/O 3 Ohm Tolerance *NEW!***	SO-16	5.10	108.50	288.61
MAX364CPE-ND	Precision Quad SPST Analog Switch N/C 2 Ohm Tolerance ***NEW!***	16-Dip	2.49	53.00	140.98
MAX364CSE-ND	**Precision Quad SPST Analog Switch N/C 2 Ohm Tolerance *NEW!***	SO-16	2.49	53.00	140.98
MAX365CPE-ND	Precision Quad SPST Analog Switch N/O 2 Ohm Tolerance ***NEW!***	16-Dip	2.49	53.00	140.98
MAX365CSE-ND	**Precision Quad SPST Analog Switch N/O 2 Ohm Tolerance *NEW!***	SO-16	2.49	53.00	140.98
MAX366CPA-ND	3 Signal Line Circuit Protectors ***NEW!***	8-Dip	2.89	61.50	163.59
MAX366CSA-ND	**3 Signal Line Circuit Protectors *NEW!***	SO-8	3.17	67.50	179.55
MAX367CPN-ND	8 Signal Line Circuit Protectors ***NEW!***	18-Dip	4.96	105.50	280.63
MAX367CWN-ND	**8 Signal Line Circuit Protectors *NEW!***	SO-18	5.45	116.00	308.56
MAX368CPN-ND	Fault Protected 8 Channel Latched Multiplexer ***NEW!***	18-Dip	11.16	237.50	631.75
MAX368CWN-ND	**Fault Protected 8 Channel Latched Multiplexer *NEW!***	SO-18	12.83	273.00	726.18
MAX378CPE-ND	High Voltage, Fault Protected Analog Multiplexer ***NEW!***	16-Dip	12.93	275.00	731.50
MAX378CWG-ND	**High Voltage, Fault Protected Analog Multiplexer *NEW!***	SO-24	12.93	275.00	731.50
MAX382CPN-ND	Low Voltage 8 Channel Mux with Latchable Inputs ***NEW!***	18-Dip	7.40	157.50	418.95
MAX382CWN-ND	**Low Voltage 8 Channel Mux with Latchable Inputs *NEW!***	SO-18	8.88	189.00	502.74
MAX384CPN-ND	Low Voltage Dual 4 Channel Mux with Latchable Inputs ***NEW!***	18-Dip	7.40	157.50	418.95
MAX384CWN-ND	**Low Voltage Dual 4 Channel Mux with Latchable Inputs *NEW!***	SO-18	8.88	189.00	502.74
MAX385CPE-ND	Precision Low Voltage Analog Switch ***NEW!***	16-Dip	7.03	149.50	397.67
MAX385CSE-ND	**Precision Low Voltage Analog Switch *NEW!***	SO-16	8.44	179.50	477.47
MAX388CPN-ND	8-Channel, High Volt, Fault-Protected Multiplexer	18-Dip	14.10	300.00	798.00
MAX389CPN-ND	Differential 4-Channel, High Voltage, Fault Protected Multiplexer	18-Dip	14.10	300.00	798.00
MAX394CPP-ND	Low Voltage Quad SPDT, CMOS Analog Switch ***NEW!***	20-Dip	7.10	151.00	401.66
MAX394CWP-ND	**Low Voltage Quad SPDT CMOS Analog Switch *NEW!***	SO-20	9.17	195.00	518.70
MAX403CPA-ND	High Speed Low Power Op Amp ***NEW!***	8-Dip	5.97	127.00	337.82
MAX403CSA-ND	**High Speed Low Power Op Amp *NEW!***	SO-8	5.97	127.00	337.82
MAX405CPA-ND	Precision 180MHz Video Buffer ***NEW!***	8-Dip	9.07	193.00	513.38
MAX405CSA-ND	**Precision 180MHz Video Buffer *NEW!***	SO-8	9.17	195.00	518.70
MAX406ACPA-ND	Ultra Low Power CMOS Op Amp***NEW!***	8-Dip	9.14	194.50	517.37
MAX406ACSA-ND	**Ultra Low Power CMOS Op Amp *NEW!***	SO-8	9.33	198.50	528.01
MAX406BCPA-ND	1.2µA Max., Single-Supply Op Amp	8-Dip	3.97	84.50	224.77
MAX406BCSA-ND	**Ultra Low Power CMOS Op Amp *NEW!***	SO-8	3.97	84.50	224.77
MAX407CPA-ND	1.2µA Max., Dual, Single Supply Op Amp	8-Dip	6.16	131.00	348.46
MAX407CSA-ND	**1.2 µA Max, Dual Single Supply Op Amp *NEW!***	SO-8	6.16	131.00	348.46
MAX408CSA-ND	**Single High Speed High Output Current Op Amp *NEW!***	SO-8	6.84	145.50	387.03
MAX409BCPA-ND	1.2µA Max., 150kHz, Single-Supply Op Amp	8-Dip	3.97	84.50	224.77
MAX409BCSA-ND	**1.2 µA Single Supply Op Amp *NEW!***	SO-8	3.97	84.50	224.77
MAX410CPA-ND	28MHz, Low-Noise, Low Voltage, Precision Op Amp	8-Dip	4.72	100.50	267.33
MAX410CSA-ND	**28MHz Low Noise Low Voltage Precision Op Amp *NEW!***	SO-8	4.72	100.50	267.33
MAX412CPA-ND	Dual Low Noise Low Voltage Precision Op Amp ***NEW!***	8-Dip	6.89	146.50	389.69
MAX412CSA-ND	**Dual Low Noise Low Voltage Precision Op Amp *NEW!***	SO-8	6.89	146.50	389.69
MAX414CPD-ND	Low Noise Quad Op Amp	14-Dip	10.08	214.50	570.57
MAX414CSD-ND	**Low Noise Quad Op Amp *NEW!***	SO-14	10.08	214.50	570.57
MAX417CPA-ND	1.2 µA Dual Single Supply Op Amp ***NEW!***	8-Dip	6.06	129.00	343.14
MAX417CSA-ND	**1.2 µA Dual Single Supply Op Amp *NEW!***	SO-8	6.06	129.00	343.14
MAX418CPD-ND	1.2 µA Quad Single Supply Op Amp ***NEW!***	14-Dip	8.11	172.50	458.85
MAX418CSD-ND	**1.2 µA Quad Single Supply Op Amp *NEW!***	SO-14	8.11	172.50	458.85
MAX420CPA-ND	15V Chopper Stabilized Op Amp ***NEW!***	8-Dip	7.31	155.50	413.63
MAX422CPA-ND	Low Power Chopper Stabilizer Op Amp	8-Dip	8.15	173.50	461.51
MAX427CPA-ND	Ultra-Low Noise, Unity-Gain Stable, 8MHz GBW, Precision Op Amp	8-Dip	3.57	76.00	202.16
MAX427CSA-ND	**Ultra Low Noise Precision Op Amp *NEW!***	SO-8	4.49	95.50	254.03
MAX435CPD-ND	250MHz, Differential Output, Wide-band Transconductance Amplifier	14-Dip	5.55	118.00	313.88
MAX435CSD-ND	**250MHz, Differential Output, Wide-band Transconductance Amplifier *NEW!***	SO-14	5.55	313.88	313.88
MAX436CPD-ND	250MHz, Single-Ended Output, Wide-band Transconductance Amplifier	14-Dip	5.55	118.00	313.88

Digi-Key Part No.	Description	Pkg.	Pricing★		
			1	25	100
MAX436CSD-ND	**Wideband Transconductance Amplifier *NEW!***	SO-14	5.55	118.00	313.88
MAX437CPA-ND	Ultra-Low Noise, 60MHz GBW, Precision Op Amp	8-Dip	3.57	76.00	202.16
MAX437CSA-ND	**Ultra Low Noise Precision Op Amp *NEW!***	SO-8	4.49	95.50	254.03
MAX438CPA-ND	High-Speed, Micropower Operational Amplifier, 6MHz GBW	8-Dip	4.49	95.50	254.03
MAX438CSA-ND	**High Speed Micropower Op Amp *NEW!***	SO-8	4.49	95.50	254.03
MAX439CPA-ND	High-Speed, Micropower Operational Amplifier	8-Dip	5.97	127.00	337.82
MAX442CPA-ND	140MHz, 2-Channel Video Multiplexer/Amp.	8-Dip	9.07	193.00	513.38
MAX442CSA-ND	**140MHz, 2 Channel Video Multiplexer/Amp *NEW!***	SO-8	9.07	193.00	513.38
MAX452CPA-ND	50MHz CMOS Video Amplifier	8-Dip	5.29	112.50	299.25
MAX453CPA-ND	2-Channel 50MHz Video Multiplexer/Amp	8-Dip	7.38	157.00	417.62
MAX454CPD-ND	4 Channel 50MHz Video Multiplexer Amplifier	14-Dip	9.85	209.50	557.27
MAX455CPP-ND	8-Channel 50MHz Video Multiplexer/Amp.	20-Dip	16.40	349.00	928.34
MAX455CWP-ND	**8-Channel 50MHz Video Multiplexer/Amp.**	SO-20	18.05	384.00	1021.44
MAX473CPA-ND	Single Supply 10MHz Op Amp	8-Dip	2.91	62 00	164.92
MAX473CSA-ND	**Single Supply 10MHz Op Amp *NEW!***	SO-8	2.91	62.00	164.92
MAX474CPA-ND	Single Supply 10MHz Dual Op Amp	8-Dip	4.54	96.50	256.69
MAX474CSA-ND	**Dual 10MHz Single Supply Op Amp *NEW!***	SO-8	4.54	96.50	256.69
MAX475CPD-ND	Single Supply 10MHz Quad Op Amp	14-Dip	7.26	154.50	410.97
MAX475CSD-ND	**Quad 10MHz Single Supply Op Amp *NEW!***	SO-14	7.26	154.50	410.97
MAX479CPD-ND	17 µA Max Quad Single Supply Precision Op Amp ***NEW!***	14-Dip	6.42	136.50	363.09
MAX479CSD-ND	**17 µA Max Quad Single Supply Precision Op Amp *NEW!***	SO-14	6.42	136.50	363.09
MAX480CPA-ND	High-Precision, Low-Voltage, Micropower Op Amp	8-Dip	6.96	148.00	393.68
MAX480CSA-ND	**High Precision Low Voltage Micropower Op Amp *NEW!***	SO-8	7.38	157.00	417.62
MAX481CPA-ND	RS485 Transceiver w/Low I Shutdown Slew-Rate Limited, 500µA	8-Dip	2.44	52.00	138.32
MAX483CPA-ND	RS485 Transceiver w/Low I Shutdown Slew-Rate Limited, 350µA	8-Dip	2.44	52.00	138.32
MAX485CPA-ND	**Low Power RS485 Transceiver**	8-Dip	2.44	52 00	138.32
MAX485CSA-ND	**Low Power RS485 Transceiver**	SO-8	2.44	52.00	138.32
MAX487CPA-ND	RS485/RS422 Transceiver with Low Power Shut Down	8-Dip	2.49	53.00	140.98
MAX487CSA-ND	**Low Power Slew Rate Limited RS485/422 Transceiver *NEW!***	SO-8	2.49	53.00	140.98
MAX488CPA-ND	RS485/RS422 Transceiver with Low Power Low Slew	8-Dip	2.49	53.00	140.98
MAX488CSA-ND	**RS485/RS422 Transceiver with Low Power Low Slew *NEW!***	SO-8	2.49	53.00	140.98
MAX489CPD-ND	RS485/RS422 Transceiver with Drive Enable	14-Dip	2.49	53.00	140.98
MAX489CSD-ND	**RS485/RS422 Transceiver with Drive Enable *NEW!***	SO-14	2.49	53.00	140.98
MAX490CPA-ND	RS485/RS422 Transceiver with Full Duplex	8-Dip	2.49	53.00	140.98
MAX490CSA-ND	**RS485/RS422 Transceiver with Full Duplex *NEW!***	SO-8	2.49	53.00	140.98
MAX491CPD-ND	RS485 Transceiver Tri-State Control	14-Dip	2.49	53.00	140.98
MAX492CPA-ND	Single Supply Dual Op Amp	8-Dip	4.54	96.50	256.69
MAX492CSA-ND	**Single Supply Dual Op Amp *NEW!***	SO-8	4.54	96.50	256.69
MAX494CPD-ND	Single Supply Quad Op Amp	14-Dip	7.26	154.50	410.97
MAX494CSD-ND	**Single Supply Quad Op Amp *NEW!***	SO-14	7.26	154.50	410.97
MAX495CPA-ND	Single Supply Op Amp	8-Dip	2.91	62.00	164.92
MAX495CSA-ND	**Single Supply Op Amp *NEW!***	SO-8	2.91	62.00	164.92
MAX500BCPE-ND	Quad Serial Input 8-Bit D/A Converter	16-Dip	11 00	234.00	622.44
MAX500BCWE-ND	**Quad Serial Input 8-Bit D/A Converter**	SO-16	11.00	234.00	622.44
MAX501ACWG-ND	**12 Bit Mult. DAC (8+4) Voltage Output *NEW!***	SO-24	15.49	329.50	876.47
MAX501BCNG-ND	12-Bit Mult. DAC (8+4) Voltage Output	24-Dip	11.52	245.00	651 70
MAX502BCNG-ND	Parallel, Voltage-Output, 12-Bit Mult. DAC	24-Dip	11.52	245.00	651.70
MAX502BCWG-ND	**Parrallel Voltage Output 12 Bit Mult. DAC *NEW!***	SO-24	11.52	245.00	651.70
MAX503CNG-ND	5V Low Power Parallel Input Voltage Output 10 Bit DAC ***NEW!***	24-Dip	6.77	144.00	383.04
MAX503CWG-ND	**5V Low Power Parallel Input Voltage Output 10 Bit DAC *NEW!***	SO-24	6.77	144.00	383.04
MAX504CPD-ND	5V Low Power Voltage Output Serial 10 Bit DAC ***NEW!***	14-Dip	6.42	136.50	363.09
MAX504CSD-ND	**5V Low Power Voltage Output Serial 10 Bit DAC *NEW!***	SO-14	6.42	136.50	363.09
MAX505ACWG-ND	**CMOS Quad 8 Bit DAC *NEW!***	SO-24	18.87	401.50	1067.99
MAX505BCNG-ND	CMOS, +5V, Quad, 8-Bit D/A Converter w/Rail-to-Rail Outputs & 4 Sep.Ref. Inputs	24-Dip	14.52	309.00	821.94
MAX506BCPP-ND	CMOS, +5V, Quad, 8-Bit D/A Converter w/Rail-to-Rail Outputs & 1 Ref. Input	20-Dip	12.74	271.00	720.86
MAX506BCWP-ND	CMOS, +5V, Quad, 8-Bit D/A Converter w/Rail-to-Rail Outputs & 1 Ref. Input ***NEW!***	SO-20	12.74	271.00	720.86
MAX507BCNG-ND	Parallel, Volt Output, 12-Bit DAC w/Internal Ref.	24-Dip	16.24	345.50	919.03
MAX507BCWG-ND	**Parallel Volt Output 12 Bit DAC with Internal Ref *NEW!***	SO-24	16.24	345.50	919.03
MAX508BCPP-ND	12-Bit DAC w/Internal Reference, (8+4) Volt Output	20-Dip	16.24	345.50	919.03
MAX508BCWP-ND	**12 Bit DAC w/ Internal Reference (8+4) Volt Output *NEW!***	SO-20	16.24	345.50	919.03
MAX509BCPP-ND	Quad Serial Input 8-Bit D/A Converter.	20-Dip	11.14	237.00	630.42
MAX509BCWP-ND	**Quad Serial Input 8-Bit D/A Converter**	SO-20	11.14	237.00	630.42
MAX510BCPE-ND	Quad Serial Input 8-Bit D/A Converter	16-Dip	10.81	230.00	611.80
MAX510BCWE-ND	**Quad Serial Input 8-Bit D/A Converter**	SO-16	10.81	230.00	611.80
MAX512CPD-ND	8-Bit Voltage Out D/A Converter	14-Dip	6.13	130.50	347.13
MAX512CSD-ND	**8-Bit Voltage Out D/A Converter**	SO-14	6.13	130.50	347.13
MAX513CPD-ND	8-Bit Voltage Out D/A Converter	14-Dip	6.13	130.50	347.13
MAX513CSD-ND	**8-Bit Voltage Out D/A Converter**	SO-14	6.13	130.50	347.13
MAX514BCNG-ND	Quad CMOS 12-Bit Serial Input Mult. DAC	24-Dip	29.02	617.50	1642.55
MAX514BCWI-ND	**Quad CMOS 12-Bit Serial Input Mult. DAC**	SO-28	29.02	617.50	1642.55
MAX517BCPA-ND	Single 8 Bit Rail/Rail DAC With 2-Wire Serial Interface ***NEW!***	8-Dip	4.58	97.50	259.35
MAX517BCSA-ND	**Single 8 Bit Rail/Rail DAC With 2-Wire Serial Interface *NEW!***	SO-8	4.58	97.50	259.35
MAX518BCPA-ND	Dual 8 Bit Rail/Rail DAC With 2 Wire Serial Interface ***NEW!***	8-Dip	4.91	104.50	277.97
MAX518BCSA-ND	**Dual 8 Bit Rail/Rail DAC With 2 Wire Serial Interface *NEW!***	SO-8	4.91	104.50	277.97
MAX520BCPE-ND	Quad 8 Bit 2 Wire Interface Serial DAC Unbuffered Output ***NEW!***	16-Dip	7.54	160.50	426.93
MAX520BCWE-ND	**Quad 8 Bit 2 Wire Interface Serial DAC Unbuffered Output *NEW!***	SO-16	7.54	160.50	426.93
MAX521BCPP-ND	Octal 8 Bit Rail/Rail DAC - 2 Wire Serial Interface ***NEW!***	20-Dip	10.67	227.00	603.82
MAX522CPA-ND	Dual Voltage Out Serial 8 Bit DAC ***NEW!***	8-Dip	4.91	104.50	277.97
MAX522CSA-ND	**Dual Voltage Out Serial 8 Bit DAC *NEW!***	SO-8	4.91	104.50	277.97
MAX526DCNG-ND	Quad 12-Bit Voltage Output DAC, .3"	24-Dip	39.60	842.50	2241.05
MAX526DCWG-ND	**Quad 12 Bit Voltage Output DAC *NEW!***	SO-24	39.60	842.50	2241.05
MAX527DCNG-ND	+/- 5V Quad 12-Bit Voltage-Output DAC, .3"	24-Dip	33.72	717.50	1908.55
MAX527DCWG-ND	**Calibrated Quad 12 Bit Voltage Output DAC *NEW!***	SO-24	33.72	717.50	1908.55
MAX528CPP-ND	Octal 8-Bit Serial DAC w/Output Buffer.	20-Dip	13.75	292.50	778.05
MAX529CPP-ND	+/- 5V Octal 8-Bit Serial DAC w/Output Buffer	20-Dip	11.07	235.50	626.43
MAX529CWG-ND	**+/- 5v Octal 8 Bit Serial DAC w/ Output Buffer *NEW!***	SO-24	11.07	235.50	626.43
MAX530BCNG-ND	5V Low Power Voltage Out 12-Bit DAC	24-Dip	11.61	247.00	657.02
MAX530BCWG-ND	**5V Low Power Voltage Out 12-Bit DAC**	SO-24	11.61	247.00	657.02
MAX531BCPD-ND	5V Voltage Out 12-Bit Serial DAC	14-Dip	11.61	247.00	657.02
MAX531BCSD-ND	**5V Voltage Out 12-Bit Serial DAC**	SO-14	11.61	247.00	657.02
MAX532BCPE-ND	Dual, Serial input, Voltage-Output, 12-Bit Mult. DAC	16-Dip	18.00	383.00	1018.78
MAX532BCWE-ND	**Dual Serial Input Voltage Output 12 Bit Multipling DAC *NEW!***	SO-16	18.00	383.00	1018.78
MAX536BCPE-ND	Quad Voltage Out 12-Bit Serial DAC	16-Dip	36.54	777.50	2068.15
MAX536BCWE-ND	**Quad Voltage Out 12-Bit Serial DAC**	SO-16	36.54	777.50	2068.15
MAX538BCPA-ND	Low Power 5V 12-Bit Serial DAC	8-Dip	10.34	220.00	585.20
MAX538BCSA-ND	**Low Power 5V 12-Bit Serial DAC 8 Dip**	SO-8	10.34	220.00	585.20
MAX539BCPA-ND	Low Power 5V 12-Bit Serial DAC	8-Dip	10.34	220.00	585.20
MAX539BCSA-ND	**Low Power 5V 12-Bit Serial DAC**	SO-8	10.34	220.00	585.20
MAX543BCPA-ND	CMOS 12-Bit Serial Multiplying DAC	8-Dip	15.58	331.50	881.79
MAX543BCSA-ND	**CMOS 12 Bit Serial Multiplying DAC *NEW!***	SO-8	12.48	265.50	706.23
MAX547ACMH-ND	**Octal 13 Bit Voltage Out DAC /Parallel Interface *NEW!***	44-PQFP	77.22	1643.00	4370.38
MAX547ACQH-ND	**Octal 13 Bit Voltage Out DAC /Parallel Interface *NEW!***	44-PLCC	75.72	1611.00	4285.26
MAX547BCQH-ND	**Octal 13 Bit Voltage Out DAC /Parallel Interface *NEW!***	44-PLCC	63.10	1342.50	3571.05
MAX555CQK-ND	**300 MSPS 12 Bit DAC With Complementary Voltage Outputs *NEW!***	68-PLCC	131.04	2788.00	7416.08
MAX560CWI-ND	**+3.3V-Pwrd. RS-232 4 Driver/5 Receiver w/ Receivers Active in Shutdown**	SO-28	6.70	142.50	379.05
MAX613CPD-ND	Dual PCMCIA Analog Power Controller	14-Dip	3.55	75.50	200.83
MAX613CSD-ND	**Dual PCMCIA Analog Power Controller**	SO-14	3.71	79.00	210.14
MAX630CSA-ND	**CMOS Step Up Switching Regulator**	SO-8	6.46	137.50	365.75
MAX631ACPA-ND	+5V/Adjustable Output CMOS Step-Up Switching Reg	8-Dip	5.59	119.00	316.54
MAX631ACSA-ND	**+5V/Adjustable Output CMOS Step-Up Switching Regulator**	SO-8	5.78	123.00	327.18
MAX632ACPA-ND	+12V/Adjustable Output CMOS Step-Up Switching Regulator	8-Dip	5.59	119.00	316.54
MAX632ACSA-ND	**+12V/Adjustable Output CMOS Step-Up Switching Regulator *NEW!***	SO-8	5.78	123.00	327.18
MAX634CPA-ND	CMOS Micropower Inverting Switching Regulator	8-Dip	5.31	113.00	300.58
MAX634CSA-ND	**CMOS Micropower Inverting Switching Regulator *NEW!***	SO-8	5.85	124.50	331.17
MAX635ACPA-ND	-5V/Adjustable Output CMOS Inverting Switching Reg.	8-Dip	5.59	119.00	316.54
MAX635ACSA-ND	**5V/Adj Output CMOS Inverting Switching Regulator *NEW!***	SO-8	5.78	123.00	327.18
MAX636ACPA-ND	-12V/Adjustable Output CMOS Inverting Switching Regulator	8-Dip	5.59	119.00	316.54
MAX636ACSA-ND	**-12V/Adj Output CMOS Inverting Switching Regulator *NEW!***	SO-8	5.78	123.00	327.18
MAX637ACPA-ND	-15V/Adj Output CMOS Inverting Switching Regulator ***NEW!***	8-Dip	5.59	119.00	316.54
MAX637ACSA-ND	**-15V/Adj Output CMOS Inverting Switching Regulator *NEW!***	SO-8	5.78	123.00	327.18
MAX638ACPA-ND	5V Adj Output CMOS Step Down Switching Regulator ***NEW!***	8-Dip	5.59	119.00	316.54
MAX638ACSA-ND	**5V Adj Output CMOS Step Down Switching Regulator *NEW!***	SO-8	5.78	123.00	327.18
MAX660CPA-ND	100mA CMOS Monolithic Voltage Converter	8-Dip	6.16	131.00	348.46
MAX660CSA-ND	**100mA CMOS Monolithic Voltage Converter**	SO-8	6.46	137.50	365.75
MAX662ACPA-ND	12V Supply for Flash Memory	8-Dip	4.25	90.50	240.73
MAX662CPA-ND	CMOS +12V, 30mA Flash Memory Program Supply	8-Dip	4.25	90.50	240.73
MAX662CSA-ND	**12V CMOS Flash Memory Supply**	SO-8	4.35	92.50	246.05
MAX663CPA-ND	CMOS +5V/Adjustable Micropower Positive Volt Reg	8-Dip	3.74	79.50	211.47
MAX663CSA-ND	**CMOS +5V/Adjustable Micropower Positive Voltage Regulator**	SO-8	4.11	87.50	232.75
MAX665CPA-ND	CMOS +8V/Switched-Capacitor Voltage Converter	8-Dip	8.08	172.00	457.52
MAX666CPA-ND	CMOS +5V/Adjustable Volt Reg w/Low Batt. Detect.	8-Dip	4.32	92.00	244.72
MAX666CSA-ND	**CMOS +5V/Adjustable Voltage Regulator w/Low Batt. Detect.**	SO-8	4.75	101.00	268.66
MAX666ESA-ND	**CMOS +5V/Adjustable Voltage Regulator w/Low Batt. Detect.**	SO-8	7.38	157.00	417.62
MAX667CPA-ND	+5V/Programmable Low-Dropout Voltage Regulator	8-Dip	4.86	103.50	275.31
MAX667CSA-ND	**+5V/Programmable Low-Dropout Voltage Regulator**	SO-8	5.08	108.00	287.28
MAX667ESA-ND	**5V Low Drop Out Regulator**	SO-8	6.56	139.50	371.07
MAX680CPA-ND	+5V to +/-10V Voltage Converter	8-Dip	3.64	77.50	206.15
MAX680CSA-ND	**+5V to +/-10V Voltage Converter**	SO-8	4.00	85.00	226.10
MAX687CPA-ND	3.3V High Accuracy Low Dropout Reg with Auto Shut Down ***NEW!***	8-Dip	3.53	75.00	199.50
MAX687CSA-ND	**3.3V High Accuracy Low Dropout Reg with Auto Shut Down *NEW!***	SO-8	3.53	75.00	199.50
MAX688CPA-ND	3.3V High Accuracy Low Dropout Reg. ***NEW!***	8-Dip	3.53	75.00	199.50
MAX688CSA-ND	**3.3V High Accuracy Low Dropout Reg. *NEW!***	SO-8	3.53	75.00	199.50
MAX689CPA-ND	3.0V High Accuracy Low Dropout Reg. ***NEW!***	8-Dip	3.53	75.00	199.50
MAX689CSA-ND	**3.0V High Accuracy Low Dropout Reg. *NEW!***	SO-8	3.53	75.00	199.50
MAX690ACPA-ND	MPU Watch Dog/Reset Circuit.	8-Dip	6.16	131.00	348.46
MAX690ACSA-ND	**Microp. Watch Dog Reset Circuit *NEW!***	SO-8	6.46	137.50	365.75
MAX690CPA-ND	Microp. Watch Dog Battery Switch-over/Reset Gen.2mA I Supply	8-Dip	6.42	136.50	363.09
MAX690EPA-ND	Microp. Watch Dog Battery Switch-over/Reset Gen.2mA I Supply	8-Dip	9.31	198.00	526.68

MAXIM SPECIALIZED INTEGRATED CIRCUITS *(Continued)*

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
MAX691ACPE-ND	Microp. Supervisory Circ. w/4.65V Reset, 10ns	16-Dip	6.96	148.00	393.68
MAX691CPE-ND	Microp. Watch Dog Battery Switch-over/Reset Gen., 200ns	16-Dip	6.96	148.00	393.68
MAX691CWE-ND	**Microp. Watch Dog Battery Switch-over/Reset Gen., 200ns**	**SO-16**	**7.66**	**163.00**	**433.58**
MAX692ACPA-ND	Microp. Supervisory Circuit w/4.4V Reset, 200µA I Supply	8-Dip	6.16	131.00	348.46
MAX692CPA-ND	Microp. Watch Dog/Battery Switch-over/Reset Gen., 2mA I Supply	8-Dip	6.42	136.50	363.09
MAX693ACPE-ND	Microp. Supervisory Circuit w/4.4V Reset, 10ns Max.	16-Dip	6.96	148.00	393.68
MAX693CPE-ND	Microp. Watch Dog/Battery Switch-over/Reset Gen., 200ns	16-Dip	6.96	148.00	393.68
MAX693CWE-ND	**Microp. Watch Dog/Battery Switch-over/Reset Gen., 200ns**	**SO-16**	**7.66**	**163.00**	**433.58**
MAX694CPA-ND	Microp. Watch Dog/Battery Switch-over/Reset Gen., Min. Reset Pulse Width 140ms	8-Dip	6.42	136.50	363.09
MAX695CPE-ND	Microp. Watch Dog/Batt. Switchover/Reset Gen	16-Dip	6.96	148.00	393.68
MAX695CWE-ND	**Microp. Watch Dog/Batt. Switchover/Reset Gen.**	**SO-16**	**7.66**	**163.00**	**433.58**
MAX696CPE-ND	Microp. Supervise Circuit with Battery Switchover ***NEW!***	16-Dip	6.96	148.00	393.68
MAX696CWE-ND	**Microp. Supervise Circuit with Battery Switchover *NEW!***	**SO-16**	**7.66**	**163.00**	**433.58**
MAX699CPA-ND	Low-Cost Power-On Reset & Watch-dog Controller	8-Dip	4.37	93.00	247.38
MAX699CWE-ND	**Low-Cost Power-On Reset & Watch-dog Controller**	**SO-16**	**4.72**	**100.50**	**267.33**
MAX701CPA-ND	Power Supply Monitor w/Reset	8-Dip	3.69	78.50	208.81
MAX701CSA-ND	**Power Supply Monitor w/Reset**	**SO-8**	**3.69**	**78.50**	**208.81**
MAX703CPA-ND	Low Cost, µP Supervisory Circuit w/Battery Backup, 4.65V Reset	8-Dip	5.41	115.00	305.90
MAX703CSA-ND	**Low Cost, µP Supervisory Circuit w/Battery Backup, 4.65V Reset**	**SO-8**	**5.41**	**115.00**	**305.90**
MAX704CPA-ND	Low Cost, µP Supervisory Circuit w/Battery Backup, 4.4V Reset	8-Dip	5.41	115.00	305.90
MAX704CSA-ND	**Low Cost, µP Supervisory Circuit w/Battery Backup, 4.4V Reset**	**SO-8**	**5.41**	**115.00**	**305.90**
MAX705CPA-ND	Low Cost, µP Supervisory Circuit w/Battery Backup, Watchdog Output, 4.65V Reset	8-Dip	4.84	103.00	273.98
MAX705CSA-ND	**Low Cost, µP Supervisory Circuit w/Battery Backup, Watchdog Output, 4.65V Reset**	**SO-8**	**4.84**	**103.00**	**273.98**
MAX706CPA-ND	Low-Cost, µP Supervisory Circuit, Watchdog Output, 4.4V Reset	8-Dip	4.84	103.00	273.98
MAX706SCPA-ND	MPU Supervisor Circuit	8-Dip	5.24	111.50	296.59
MAX706SCSA-ND	**Microp. Supervisor Circuit *NEW!***	**SO-8**	**5.24**	**111.50**	**296.59**
MAX707CPA-ND	Low-Cost, µP Supervisory Circuit, Active-High Reset, 4.65V Reset	8-Dip	4.35	92.50	246.05
MAX707CSA-ND	**Low-Cost, µP Supervisory Circuit,Active-High Reset, 4.65V Reset**	**SO-8**	**4.35**	**92.50**	**246.05**
MAX708CPA-ND	Low-Cost, µP Supervisory Circuit, Active-High Reset, 4.4V Reset	8-Dip	4.35	92.50	246.05
MAX708CSA-ND	**Low-Cost, µP Supervisory Circuit, Active-High Reset, 4.4V Reset**	**SO-8**	**4.35**	92.50	246.05
MAX709RCPA-ND	Power Supply Monitor 2.63V Reset	8-Dip	2.35	50.00	133.00
MAX709RCSA-ND	**Power Supply Monitor 2.63V Reset**	**SO-8**	**2.35**	**50.00**	**133.00**
MAX709TCPA-ND	Power Supply Monitor 3.08V Reset	8-Dip	2.35	50.00	133.00
MAX709MCPA-ND	Power Supply Monitor 4.40V Reset	8-Dip	2.35	50.00	133.00
MAX709LCPA-ND	Power Supply Monitor 4.65V Reset	8-Dip	2.35	50.00	133.00
MAX709LCSA-ND	**Power Supply Monitor 4.65V Reset**	**SO-8**	**2.35**	**50.00**	**133.00**
MAX712CPE-ND	Battery Fast-Charge Controller (for NIMH Batt.)	16-Dip	6.27	133.50	355.11
MAX712CSE-ND	**Battery Fast Charger Controller (NIMH Bat.) *NEW!***	**SO-16**	**6.58**	**140.00**	**372.40**
MAX713CPE-ND	3-Output Battery Fast-Charge Controller, (for NICAD Batteries)	16-Dip	6.27	133.50	355.11
MAX713CSE-ND	**3 Output Battery Fast Charger Controller (NIMH Bat.) *NEW!***	**SO-16**	**6.58**	**140.00**	**372.40**
MAX714CPE-ND	3 Output Battery Management Supply ***NEW!***	16-Dip	7.21	153.50	408.31
MAX714CWE-ND	**3 Output Battery Management Supply *NEW!***	**SO-16**	**7.54**	**160.50**	**426.93**
MAX717CSE-ND	**+3.3V Dual Output DC-DC Converter with Back-Up Switcher**	**SO-16**	**10.03**	**213.50**	**567.91**
MAX718CSE-ND	**+3.3V/5V Dual Output DC-DC Converter w/Back-Up Switcher**	**SO-16**	**10.03**	**213.50**	**567.91**
MAX719CSE-ND	**+3.0V/5V Dual Output DC-DC Converter w/Back-Up Switcher**	**SO-16**	**10.03**	**213.50**	**567.91**
MAX720CSE-ND	**+3.3V Dual Output DC-DC Converter**	**SO-16**	**10.03**	**213.50**	**567.91**
MAX721CSE-ND	**+3.3V/5V Dual Output DC-DC Converter**	**SO-16**	**10.03**	**213.50**	**567.91**
MAX722CSE-ND	**+3.3V LCD Power Supply Regulator**	**SO-16**	**9.40**	**200.00**	**532.00**
MAX723CSE-ND	**+3.0V LCD Power Supply Regulator**	**SO-16**	**9.40**	**200.00**	**532.00**
MAX724CCK-ND	5A, Step-down, PWM, Switch Mode DC-DC Reg.	5 Pin TO-220	8.55	182.00	484.12
MAX731CPA-ND	+5V Step-Up Current-Mode DC-DC Converter	8-Dip	5.22	111.00	295.26
MAX731CWE-ND	**5V Current Mode DC/DC Converter**	**SO-16**	**5.45**	**116.00**	**308.56**
MAX732CPA-ND	+12V Step-Up Current-Mode PWM Regulator (for flash memory)	8-Dip	5.31	113.00	300.58
MAX732CWE-ND	**+12V Step-Up Current-Mode PWM Regulator (for Flash Memory)**	**SO-16**	**5.57**	**118.50**	**315.21**
MAX734CPA-ND	+12V, 120mA Supply for Flash Memory	8-Dip	4.44	94.50	251.37
MAX734CSA-ND	**+12V, 120mA Supply (for Flash Memory)**	**SO-8**	**4.51**	**96.00**	**255.36**
MAX741DCPP-ND	Pin-Programmed, Low-Voltage, Current-Mode SMPS Controller (Step-Down)	20-Dip	7.24	154.00	409.64
MAX741NCPP-ND	Pin-Programmed,Low-Voltage, Current-Mode SMPS Controller (Inverting)	20-Dip	7.24	154.00	409.64
MAX741UCPP-ND	Pin-Programmed,Low-Voltage, Current-Mode SMPS Controller (Step-Up)	20-Dip	7.24	154.00	409.64
MAX749CPA-ND	Digitally Adjustable LCD Bias Supply	8-Dip	5.29	112.50	299.25
MAX749CSA-ND	**Digitally Adjustable LCD Bias Supply**	**SO-8**	**5.50**	**117.00**	**311.22**
MAX750ACPA-ND	Adjustable Step-Down Current-Mode PWM Reg	8-Dip	4.54	96.50	256.69
MAX750ACSA-ND	**Adjustable Step Down Current Mode PWM Regulator *NEW!***	**SO-8**	**4.54**	**96.50**	**256.69**
MAX751CPA-ND	+5V Step-Ip, Current-Mode PWM DC-DC Converter	8-Dip	4.49	95.50	254.03
MAX752CPA-ND	Adjustable Step-Up Current-Mode PWM Regulator	8-Dip	5.99	127.50	339.15
MAX755CPA-ND	Adjustable, Neg. Output, Inverting, Current-Mode PWM Regulator	8-Dip	4.30	91.50	243.39
MAX756CPA-ND	High Efficiency Step Up DC/DC Converter ***NEW!***	8-Dip	3.90	83.00	220.78
MAX756CSA-ND	**High Efficiency Step Up DC/DC Converter *NEW!***	**SO-8**	**4.37**	**93.00**	**247.38**
MAX758ACPA-ND	Adjustable Step-Down Current-Mode PWM Reg	8-Dip	5.22	111.00	295.26
MAX759CWE-ND	**Adjustable Inverting Current Mode PWM *NEW!***	**SO-16**	**5.78**	**123.00**	**327.18**
MAX759CPD-ND	Adjustable Inverting Current-Mode PWM	14-Dip	5.52	117.50	312.55
MAX761CPA-ND	12V/Adj High Efficiency Step Up DC/DC Converter ***NEW!***	8-Dip	4.42	94.00	250.04
MAX761CSA-ND	**12V/Adj High Efficiency Step Up DC/DC Converter *NEW!***	**SO-8**	**4.86**	**103.50**	**275.31**
MAX765CPA-ND	-12V DC/DC Inverter	8-Dip	4.86	103.50	275.31
MAX766CPA-ND	-15V DC/DC Inverter	8-Dip	4.86	103.50	275.31
MAX777CPA-ND	1V to 5V Step Up DC/DC Converter ***NEW!***	8-Dip	5.29	112.50	299.25
MAX777CSA-ND	**1V to 5V Step Up DC/DC Converter *NEW!***	**SO-8**	**5.57**	**118.50**	**315.21**
MAX780ACNG-ND	PCMCIA Analog Controller	24-Dip	5.45	116.00	308.56
MAX791CPE-ND	High Perform Microprocessor Supervisory Circuit	16-Dip	7.52	160.00	425.60
MAX791CSE-ND	**High Perform Microprocessor Supervisory Circuit *NEW!***	**SO-16**	**7.90**	**168.00**	**446.88**
MAX792RCPE-ND	Power Supply Monitor 2.61V	16-Dip	6.84	145.50	387.03
MAX792SCPE-ND	Power Supply Monitor 2.91V	16-Dip	6.84	145.50	387.03
MAX792SCSE-ND	**Power Supply Monitor 2.91V**	**SO-16**	**7.17**	**152.50**	**405.65**
MAX792MCPE-ND	Power Supply Monitor 4.37V	16-Dip	6.84	145.50	387.03
MAX792LCPE-ND	Power Supply Monitor 4.62V	16-Dip	6.84	145.50	387.03
MAX792LCSE-ND	**Power Supply Monitor 4.62V**	**SO-16**	**7.17**	**152.50**	**405.65**
MAX800LCPE-ND	Microp. Supervisory Circuit with 4.65V Reset, Chip Enable, Watchdog	16-Dip	7.54	160.50	426.93
MAX800MCPE-ND	Microp. Supervisory Circuit with 4.4V Reset, Chip Enable, Watchdog	16-Dip	7.54	160.50	426.93
MAX802LCPA-ND	Microp. Supervisory Circuit with 4.65V Reset	8-Dip	6.82	145.00	385.70
MAX802MCPA-ND	Microp. Supervisory Circuit with 4.4V Reset	8-Dip	6.82	145.00	385.70
MAX804TCPA-ND	3V CPU Supervisor Circuit	8-Dip	7.52	160.00	425.60
MAX805TCPA-ND	3V CPU Supervisor Circuit	8-Dip	6.58	140.00	372.40
MAX813LCPA-ND	Low Cost Microprocessor Supervisor Circuit	8-Dip	3.08	65.50	174.23
MAX813LCSA-ND	**Low Cost Microprocessor Supervisor Circuit**	**SO-8**	**3.08**	**65.50**	**174.23**
MAX872CPA-ND	10µA, Low Dropout, +2.5V Precision Volt Ref	8-Dip	4.14	88.00	234.08
MAX873BCSA-ND	**Low-Power.Low-Drift, +2.5V Precision Voltage Reference**	**SO-8**	**6.02**	**128.00**	**340.48**
MAX874CPA-ND	10µA, Low Dropout, +4.096V Precision Volt Ref	8-Dip	4.14	88.00	234.08
MAX875BCPA-ND	Low-Power,Low-Drift, +5V Precision Volt Ref	8-Dip	6.02	128 00	340.48
MAX876BCPA-ND	Low-Power,Low-Drift, +10V Precision Volt Ref	8-Dip	6.02	128.00	340.48
MAX907CPA-ND	Dual. High-Speed, Ultra-Low Power, Single +5V, TTL Comparator	8-Dip	3.48	74.00	196.84
MAX908CPD-ND	Quad, High-Speed, Ultra-Low Power, Single +5V, TTL Comparator	14-Dip	6.04	128.50	341.81
MAX921CSA-ND	**Low Power Comparator with Reference 8 Pin Surface Mount Device**	**SO-8**	**3.22**	**68.50**	**182.21**
MAX921ESA-ND	**Low Power Comparator with Reference**	**SO-8**	**3.76**	**80.00**	**212.80**
MAX931CPA-ND	Ultra Low Power Comparator	8-Dip	2.00	42.50	113.05
MAX1044CPA-ND	CMOS Switchcap Voltage Converter	8-Dip	2.37	50.50	134.33
MAX1482CPD-ND	Full Duplex, Slew Rate Limited, Low Power RS485 Transceiver ***NEW!***	14-Dip	2.49	53.00	140.98
MAX1487CPA-ND	2.5 MBPS RS485/RS422 Transceiver ***NEW!***	8-Dip	2.49	53.00	140.98
MAX1487CSA-ND	**2.5 MBPS RS485/RS422 Transceiver *NEW!***	**SO-8**	**2.49**	**53.00**	**140.98**
MAX1771CPA-ND	12V ADJ Output Step UP DC/DC Converter 90% Efficient	8-Dip	3.62	77.00	204.82
MAX4420CPA-ND	High-Speed 6A MOSFET Driver (Non-Invert.)	8-Dip	3.01	64.00	170.24
MAX4429CPA-ND	High-Speed 6A MOSFET Driver (Inverting)	8-Dip	3.01	64.00	170.24
MAX7219CNG-ND	Serial Input 8 Digit LED Driver Multiplexed.	24-Dip	8.27	176.00	468.16
MAX7219CWG-ND	**Serial Input 8 Digit LED Driver Multiplexed**	**SO-24**	**8.27**	**176.00**	**468.16**
MAX7624CPE-ND	CMOS 8 Bit Buffered Multiplying DAC ***NEW!***	16-Dip	4.98	106.00	281.96
MAX7624CSE-ND	**CMOS 8 Bit Buffered Multiplying DAC *NEW!***	**SO-16**	**5.48**	**116.50**	**309.89**
MAX7645BCPP-ND	CMOS 12 Bit Buffered Multiplying DAC ***NEW!***	20-Dip	12 83	273.00	726.18
MAX7645BCWP-ND	**CMOS 12 Bit Buffered Multiplying DAC *NEW!***	**SO-20**	**14.22**	**302.50**	**804.65**
MAX8211CPA-2-ND	Programmable Volt. Detector, Non-Inverting	8-Dip	2.23	47.50	126.35
MAX8211CSA-ND	**Programmable Volt. Detector, Non-Inverting**	**SO-8**	**2.84**	**60.50**	**160.93**
MAX8211ESA-ND	**Programmable Voltage Detector**	**SO-8**	**4.30**	**91.50**	**243.39**
MAX8212CPA-ND	Programmable Voltage Detector	8-Dip	2.70	57.50	152.95
MAX8212CPA-2-ND	Programmable Volt. Detector, Inverting	8-Dip	2.16	46.00	122.36
MAX8212CSA-ND	**Programmable Volt. Detector, Inverting**	**SO-8**	**2.37**	**50.50**	**134.33**
MAX8213ACPE-ND	Five Universal Voltage Monitors w/Open-Drain Outputs	16-Dip	5.88	125 00	332.50
MAX8214ACPE-ND	Five Universal Voltage Monitors w/Active Pull-Ups	16-Dip	5.88	125.00	332.50
MX7524JN-ND	CMOS 8-Bit Buffer DAC	16-Dip	5.19	110.50	293.93
MX7528JCWP-ND	**CMOS Dual DAC 8-Bit Buffered**	**SO-20**	**7.80**	**166.00**	**441.56**
MX7575JCWN-ND	**8-Bit ADC Microprocessor Compatible**	**SO-18**	**8.65**	**184.00**	**489.44**
MXD1210CPA-ND	Nonvolatile RAM Controller	8-Dip	4.94	105.00	279.30
MXD1210CSA-ND	**Nonvolatile RAM Controller**	**SO-8**	**5.17**	**110.00**	**292.60**
MXD1210CWE-ND	**Nonvolatile RAM Controller**	**SO-16**	**5.43**	**115.50**	**307.23**

★ Call for better pricing on larger quantities!

HOLTEK REMOTE CONTROL INTEGRATED CIRCUITS

These CMOS LSI encoder and decoder integrated circuits are designed for use in serial digit-code transmission and reception. The digit-code is address selectable allowing numerous code possibilities. When an encoder sends a digit-code matching that of a decoder, a valid transmission state occurs. Various decoder options allow 1, 4, 5, or 8 bit momentary data outputs, or 4, 5, or 8 latching data outputs for a given valid transmission state. Encoder flexibility allows use with more than 1 decoder type. FEATURES: • 2.4-12 VDC Operating Voltage • Built in Oscillator • Easy Interface with RF or Infra-Red

Digi-Key Part No.	Description	Matching Encoder(s)	Pkg.	Pricing★ 1	25	100
	2^{12} Encoders (logic levels 0,1)					
HT-12A-ND	2^{8} Address Code, 4 Data, w/ 38KHz Carrier	—	18-Dip#	2.07	46.25	125.80
HT-12B-ND	2^{8} Address Code, 4 Data, w/ 38KHz Carrier	—	18-Dip†#	2.07	46.25	125.80
HT-12E-ND	2^{12} Address Code, No Data	—	18-Dip	1.71	38.13	103.70
	2^{12} Decoders					
HT-12D-ND	2^{8} Address Code, 4 Latching Data	HT-12A/B/E	18-Dip	1.71	38.13	103.70
HT-12F-ND	2^{12} Address Code, 1 Momentary VT Output	HT-12A/B/E	18-Dip	1.71	38.13	103.70
	3^{12} Encoders (logic levels 0,1, float)					
HT-6010-ND	3^{8} Address Code, 4 Data	—	18-Dip	1.90	42.50	115.60
HT-6012-ND	3^{10} Address Code, 2 Data	—	18-Dip•	1.90	42.50	115.60
HT-6013-ND	3^{8} Address Code, 2 Data	—	16-Dip	1.82	40.63	110.50
HT-6014-ND	3^{8} Address Code, 4 Data	—	18-Dip•	1.90	42 50	115.60
HT-6015-ND	3^{8} Address Code, 2 Data	—	16-Dip•	1.82	40.63	110.50

Digi-Key Part No.	Description	Matching Encoder(s)	Pkg.	Pricing★ 1	25	100
	3^{12} Decoders					
HT-6030-ND	3^{12} Address Code, 1 Mom. VT Output	HT6010	18-Dip	1.90	42.50	115.60
HT-6032-ND	3^{10} Address Code, 2 Latching Data	HT6010/6012	18-Dip	1.90	42.50	115.60
HT-6033-ND	3^{10} Address Code, 1 Mom. VT Output	HT6013	16-Dip	1.82	40.63	110.50
HT-6034-ND	3^{8} Address Code, 4 Latching Data	HT6010/6014	18-Dip	1.90	42.50	115.60
HT-6035-ND	3^{8} Address Code, 2 Latching Data	HT6013/6015	16-Dip	1.82	40.63	110.50
HT-6042-ND	3^{10} Address Code, 2 Mom. Data	HT6010/6012	18-Dip	1.90	42.50	115.60
HT-6044-ND	3^{8} Address Code, 4 Mom. Data	HT6010/6014	18-Dip	1.90	42.50	115.60
HT-6045-ND	3^{8} Address Code, 2 Mom. Data	HT6013/6015	16-Dip	1.90	42.50	115.60
	3^{15} Encoder/Decoder					
HT-6150-ND	3^{15} Digit-Code, Momentary VT, TGO Output	—	28-Dip	3.72	83.13	226.10
	3^{18} Encoders (logic levels 0, 1, float)					
HT-600-ND	3^{14} Address Code, No Data	—	20-Dip	3.02	67.50	183.60
HT-640-ND	3^{10} Address Code, 8 Data	—	24-Dip	3.42	76.25	207.40
HT-680-ND	3^{12} Address Code, 4 Momentary Data	—	18-Dip	2.41	53.75	146.20
HT-6187-ND	3^{9} Address Code, 3 Data	—	18-Dip•	2.52	56.25	153.00
HT-6207-ND	3^{10} Address Code, 4 Data	—	20-Dip•	3.02	67.50	183.60
HT-6247-ND	3^{12} Address Code, 6 Data	—	24-Dip•	3.42	76.25	207.40
	3^{18} Decoders					
HT-602L-ND	3^{12} Address Code, 2 Latching Data	HT600	20-Dip	3.02	67.50	183.60
HT-604L-ND	3^{10} Address Code, 4 Latching Data	HT600/6207	20-Dip	3.02	67.50	183.60
HT-605L-ND	3^{9} Address Code, 5 Latching Data	HT600	20-Dip	3.02	67.50	183.60
HT-611-ND	3^{14} Address Code, 1 Momentary VT Output	HT600	20-Dip	3.02	67.50	183.60
HT-612-ND	3^{12} Address Code, 2 Momentary Data	HT600	20-Dip	3.02	67.50	183.60
HT-614-ND	3^{10} Address Code, 4 Momentary Data	HT600/6207	20-Dip	3.02	67.50	183.60
HT-615-ND	3^{9} Address Code, 5 Momentary Data	HT600	20-Dip	3.02	67.50	183.60
HT-644L-ND	3^{14} Address Code, 4 Latching Data	HT640	24-SDip	3.42	76.25	207.40
HT-646L-ND	3^{12} Address Code, 6 Latching Data	HT640/6247	24-SDip	3.42	76.25	207.40
HT-648L-ND	3^{10} Address Code, 8 Latching Data	HT640	24-SDip	3.42	76.25	207.40
HT-651-ND	3^{18} Address Code, 1 Mom. VT Output	HT640	24-SDip	3.42	76.25	207.40
HT-654-ND	3^{14} Address Code, 4 Momentary Data	HT640	24-SDip	3.42	76.25	207.40
HT-656-ND	3^{12} Address Code, 6 Momentary Data	HT640/6247	24-SDip	3.42	76.25	207.40
HT-658-ND	3^{10} Address Code, 8 Momentary Data	HT640	24-SDip	3.42	76.25	207.40
HT-682L-ND	3^{10} Address Code, 2 Latching Data	HT680	18-Dip	2.52	56.25	153.00
HT-683L-ND	3^{9} Address Code, 3 Latching Data	HT680/6187	18-Dip	2.52	56.25	153.00
HT-684L-ND	3^{8} Address Code, 4 Latching Data	HT680	18-Dip	2.41	53.75	146.20
HT-691-ND	3^{12} Address Code, 1 Momentary VT Output	HT680	18-Dip	2.41	53.75	146.20
HT-692-ND	3^{10} Address Code, 2 Momentary Data	HT680	18-Dip	2.41	53.75	146.20
HT-693-ND	3^{9} Adress Code, 3 Momentary Data	HT680/6187	18-Dip	2.41	53.75	146.20
HT-694-ND	3^{8} Address Code, 4 Momentary Data	HT680	18-Dip	2.41	53.75	146.20
	Remote Fan Controller Encoder					
HT-12C-ND	2^{2} Address Code, 10 Data, w/ 38KHz Carrier	—	18-Dip#	2.07	46.25	125.80
	Remote Fan Controller Decoders					
HT-6337A-ND	2^{2} Address Code, 8 Data	—	28-Dip	3.42	76.25	207.40
HT-6337B-ND	No Address Code, 8 Data	—	24-Dip	3.33	74.38	202.30
HT-6337C-ND	No Address Code, 6 Data	—	20-Dip	2.91	65.00	176.80
HT-6337D-ND	No Address Code, 5 Data	—	18-Dip	2.72	60.63	164.90
HT-6338A-ND	Local fan controller w/ speed, rythm, & sleep mode operation	—	18-Dip	2.13	47.50	129.20
	Special Purpose Encoders/Decoders					
HT-6160-ND	Programmable Decoder, 3^{12} Address Code, 6 Data For use with all 3^{18} Encoders	—	16-Dip	3.39	75.63	205.70
HT-6280-ND	Car Alarm Decoder, 3^{12} Address Code, 6 Data. For use with HT-600, 640 ,680 ,6187, 6207, 6247 Encoders	—	40-Dip	4.14	92.50	251.60
HT-6320-ND	Toy Car Decoder, 2^{2} Address Code, 6 Data	—	16-Dip	2.13	47.50	129.20
HT-6350-ND	Toy Car Encoder, 2^{2} Address code, 6 Data	—	16-Dip	2.13	47.50	129.20
9096B-ND	Holtek Data Book			9.95	—	—
	RF Transmitter & Receiver Boards — Ming Microsystems					
TX-01-ND	Encoder Motherboard Utilizing the HT-12E Encoder I.C. (2.7" x 1.75") Designed for Use with Either the TX-66 or TX-99V3 transmitters. Operating Voltage: 12 VDC			16 72	373.13	1014.90
RE-01-ND	Decoder Motherboard Utilizing the HT-12D Decoder I.C. (3.2" x 2.4") Designed for Use with Either the RE-66 or RE-99V3 Receivers. Operating Voltage: 12 VDC			25.12	560.63	1524.90
TX-66-ND	Serial Data Input 310 MHz SAW AM Transmitter Board. (.75" x 1.75") Operating Voltage: 5VDC			18.40	410.63	1116.90
RE-66-ND	Serial Data Output 310 MHz LC AM Receiver Board. (1.188" x 2.375") Operating Voltage: 5VDC			11.68	260.63	708.90
TX-99V3-ND	Serial Data Input 300Mhz LC AM Transmitter Daughterboard (1.8" x 0.8") Operating Voltage: 5 VDC Data Rate: 1200 BPS			10.00	223.13	606.90
RE-99V3-ND	Serial Data Output 300Mhz AM Receiver Daughterboard (2.4" x 1.2") Operating Voltage: 5 VDC Data Rate: 1200BPS			11.68	260.63	708.90
TX-99-ND	300 MHz, LC RF Transmitter Board with HT-12E Encoder (1.5" x 2.5") Operating Voltage: 9-12 VDC			16.88	375.00	1125.00
TX-99K-ND	Two Button, Key Chain Housed 300 MHz RF Transmitter Board with HT-12E Encoder. (2" x 2") Operates on one 12V (23A) Battery (Not included)			26.80	598.13	1626.90

† Data code polarity is inverted (0=1, 1=0)

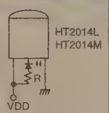
• Contain an active-low transmission pin for use with an LED

# Requires 455 KHz resonator (TK9942-ND)

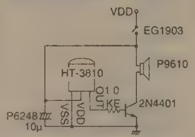
★ ***Call for better pricing on larger quantities!***

HOLTEK LED FLASHERS AND MELODY GENERATOR

LED Flashers: The HT-2014's need only a power source, an LED, and a current limiting resistor to complete an LED flasher circuit. **Features:** Operating Voltage: 1.2 - 4.5 Vdc. Built-in Oscillator. TO-92 package.



Melody Generators: Features: Operating Voltage: 2.4 - 5.0 Vdc. Drive 8 ohm speaker through NPN transistor, or piezo directly. TO-92 package. *Note: Other melodies available upon request.*



Warning – It is the sole responsibility of the enduser to contact and receive written authorization from individual Publishers who may hold copyrights to the melodies supplied by Holtek in order for that melody to be used on any given product or project. Holtek Microelectronics, Inc., nor any of its agents, distributors or sales representatives, cannot be held liable for any claims or actions taken from the unauthorized use of copyrighted melodies.

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	50
	LED Flashers				
HT-2014L-ND	1Hz LED Flasher	TO-92	.81	18.13	49.30
HT-2014M-ND	2Hz LED Flasher	TO-92	.81	18.13	49.30
	Melody Generators				
HT-3810B-ND	"Happy Birthday" Melody I.C.	TO-92	.81	18.13	49.30
HT-3810W-ND	"Old MacDonald" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813A-ND	"Jingle Bells" Melody I.C	TO-92	.81	18.13	49.30
HT-3813H-ND	"Frosty the Snowman" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813C-ND	"Rudolph the Rednose Reindeer" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813D-ND	"Silent Night" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813B-ND	"Santa Claus is Coming to Town" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813M-ND	"Hark the Herald/12 Days of Christmas" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813E-ND	"We Wish You a Merry Christmas" Melody I.C.	TO-92	.81	18.13	49.30
HT-3814I-ND	"Hey Jude" Melody I.C.	TO-92	.81	18.13	49.30
HT-3811E-ND	"Who's Afraid of the Big Bad Wolf" Melody I.C.	TO-92	.81	18.13	49.30
HT-3811A-ND	"Popeye the Sailor Man" Melody I.C.	TO-92	.81	18.13	49.30
HT-3812K-ND	"Unchained Melody" Melody I.C.	TO-92	.81	18.13	49.30
HT-3812A-ND	"Green Sleeves" Melody I.C.	TO-92	.81	18.13	49.30
HT-3814M-ND	"Wedding March" Melody I.C.	TO-92	.81	18.13	49.30
HT-3813I-ND	"Away in a Manger" Melody I.C.	TO-92	.81	18.13	49.30
HT-3811B-ND	"Row, Row, Row Your Boat" Melody I.C.	TO-92	.81	18.13	49.30
HT-3814A-ND	"You Are My Sunshine" Melody I.C.	TO-92	.81	18.13	49.30
HT-3812B-ND	"Music Box Dancer" Melody I.C.	TO-92	.81	18.13	49.30
HT-3811G-ND	"Mary Had a Little Lamb" Melody I.C.	TO-92	.81	18.13	49.30
HT-3814L-ND	"My Way" Melody I.C.	TO-92	.81	18.13	49.30
HT-381DPB-ND‡	Demo Melody Kit with 10 Samples		25.12	560.63	1524.90

‡Requires two AA batteries for operation (not included)

★ ***Call for better pricing on larger quantities!***

Panasonic BUCKET BRIGADE DEVICES

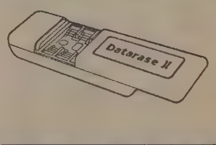
A P-channel silicon gate MOS LSI consists of a number of bucket brigade stages fabricated on a single chip. Each stage consists of a capacitor that stores the electrical charge and a tetrode transistor for switching purposes. Electrical charges corresponding to analog signals are transferred from one stage to another by a two phase clock drive. Thus the electric signals flow undirectionally from the input to the output with a time delay which can be controlled by the clock frequency.

The Bucket Brigade Device has found a variety of applications in audio equipment as a useful equipment as a useful variable or fixed delay line. The device can obtain chorus and tremolo effects in electronic musical instruments as well as reverberation effects in audio equipment, which completely replaces conventional mechanical systems.

Digi-Key Part No.	Description	Pkg.	Pricing★ 1	25	100
MN3003-ND	Dual 64-Stage BBD for Low Voltage Operation	14-Dip	11.48	258.19	765.15
MN3004-ND	512-Stage Low Noise BBD	14-Dip	8.73	196.31	581.78
MN3005-ND	4096-Stage Low Noise BBD	8-Dip	39.93	898.31	2662.20
MN3007-ND	1024-Stage Low Noise BBD	8-Dip	9.73	218.81	648.46
MN3008-ND	2048-Stage Low Noise BBD	8-Dip	18.00	405.00	1200.24
MN3009-ND	256-Stage Low Noise BBD	8-Dip	5.38	120.94	358.41
MN3010-ND	Dual 512-Stage Low Noise BBD	14-Dip	15.70	353.25	1046.88
MN3011-ND	3328-Stage Multi-Tap BBD for Audio Delay Signals	12-Dip	41.95	943.88	2797.23
MN3012-ND	190-Stage, 5-Stage, 3-Stage (3 outputs)	14-Dip	5.70	128.25	380.08
MN3101-ND	Clock Generator/Driver for BBD's	8-Dip	1.95	43.88	130.03
MN3102-ND	CMOS Clock Generator/Driver for Low Voltage Operational BBD.	8-Dip	1.70	38.25	113.36
MN3204-ND	512-Stage Low Volt Operation, Low Noise BBD	8-Dip	9.30	209.25	620.12
MN3206-ND	128-Stage Low Volt Operation, Low Noise BBD.	8-Dip	4.28	96.19	285.06
MN3207-ND	1024-Stage Low Volt Operation, Low Noise BBD	8-Dip	6.10	137.25	406.75
MN3208-ND	2048-Stage Low Volt Op, Low Noise BBD, 8-Pin	14-Dip	23.98	539.44	1598.65
MN3209-ND	256-Stage Low Volt Op, Low Noise BBD	8-Dip	6.10	137.25	406.75
MN3214-ND	1024-Stage Low Volt. Operation BBD w/ 5 taps	14-Dip	18.23	410.06	1215.24
9102B-ND	Data Book		3.50	—	—

★ ***Call for better pricing on larger quantities!***

WALLING CO. UV ERASER

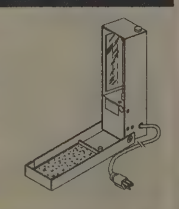


Holds 4 chips, molded plastic case, shirt pocket size. Erases most EPROM's/EPLD's in 3 minutes. Handles all sizes up to 4 at a time. Regulated lamp output for uniform erase time. Runs off of wall transformer (Included).

ER2-ND **$39.95**
ER3-ND **$49.95**
Same as ER2-ND, but with 2-8 minute timer and time-out beeper.

Jelight Company, Inc. CHIPHERASER®

• Operating intensity is at least 25% greater than competitive systems for increased throughput. • Excellent uniformity ensures fast and complete erasure. • Quick load/unload trays for EPROMs. • All metal housing. • Heavy duty construction for ruggedness. • Units may be stacked to save space. • Safety interlock to prevent accidental UV exposure. • Deep drawer for processing loaded PC boards



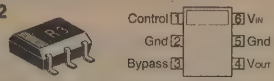
JEL10-ND (Holds 12 IC's) **$95.00**
JEL20-ND (Holds 20 IC's, with 60 min. Dial Timer) **$165.00**

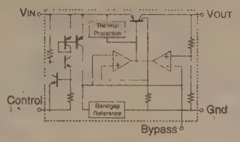
TOKO AMERICA, INC.

Low Dropout Voltage Regulators

A – Series TK112

SMT

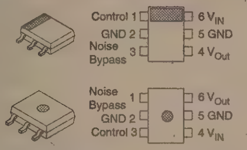

R3
Control 1
Gnd 2
Bypass 3
6 VIN
5 Gnd
4 VOUT

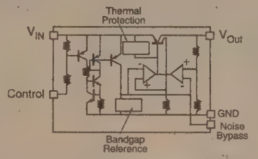

VIN
VOUT
Thermal Protection
Control
Bandgap Reference
Gnd
Bypass

Features: • Low Dropout Voltage • CMOS/TTL Compatible ON/OFF Switch • Very Low Standby Current 180µA (ON, No Load) • Internal Thermal Shutdown • Short Circuit Protection • Very Low (0.1 µA) Current in OFF Mode • Low Noise with External Bypass Capacitor • 130 mA Current Capability. **Absolute Maximum Ratings: Supply Voltage:** 16V. **Load Current:** 220mA. **Power Dissipation:** 200mW. **Operating Temperature Range:** -40°C to +85°C. **Electrical Characteristics:** V_{OUT}: ±3% max. LI_{REG}: 0.12%/V Typ. LD_{REG}: 0.03%/ mA Typ. V_{Ripple}: 60dB.

B – Series TK113

SMT


Control 1
GND 2
Noise Bypass 3
6 VIN
5 GND
4 VOut
Noise Bypass 1
GND 2
Control 3
6 VOut
5 GND
4 VIN


Thermal Protection
VIN
VOut
Control
GND
Noise Bypass
Bandgap Reference

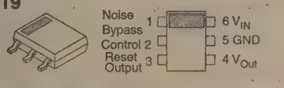
Features: • Active Low On/Off Switch • High Voltage Precision at ±2 4% or ±80 MV • Very Low Dropout Voltage 0.16V at 60 mA • Very Low Noise • Very Small SOT-23L Surface Mount Package • Internal Thermal Shutdown • Short Circuit Protection

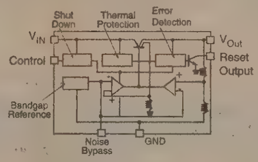
Description: The TK113xx is a low dropout linear regulator with a built-in electronic switch. The internal switch can be controlled by TTL or CMOS logic levels. The device is in the OFF state when the control pin is pulled to a logic high level. A noise bypass pin can be used to connect an external capacitor to internal noise reduction circuitry to lower the overall output noise level to 30 µVrms.

The internal PNP pass transistor is used to achieve a low dropout voltage of 70 mV (typ.) at 30 mA load current. The TK113xx has a very low quiescent current of 170 µA at no load and 3 mA with a 100 nA load. The standby current is typically 200 pA. The internal thermal shutdown circuitry limits the junction temperature to below 150°C. The load current is internally monitored and the device will shutdown in the presence of a short circuit at the output.

C – Series TK119

SMT


Noise Bypass 1
Control 2
Reset Output 3
6 VIN
5 GND
4 VOut


Shut Down
Thermal Protection
Error Detection
VIN
VOut
Control
Reset Output
Bandgap Reference
Noise Bypass
GND

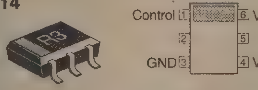
Features: • Reset Output for Microprocessor • Very Low Dropout Voltage • Very Low Quiescent Current (No Load) • Internal Thermal/Overload Shutdown • Low Noise Voltage • Input and Output Voltage Sense • ±2.5% Output Voltage Accuracy • CMOS or TTL ON/OFF Control • High Speed ON/OFF Transient (Typ. 50 µs)

Description: The TK119 series are low power linear regulators with on/off switch. Built-in voltage comparators provide a reset logic LOW level whenever the input or output voltage falls outside internally preset limits. The internal electronic switch can be controlled by CMOS or TLL levels. The device is in the OFF state when the control pin is biased HIGH.

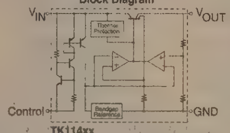
An internal PNP pass transistor is used to achieve a low dropout voltage (typically 200 mV at 50 mA load current). The device has a very low quiescent current (130 µA) in the ON mode with no load and 2 mA with 30 nA load. The quiescent current is typically 4 mA at 60 mA load The current consumption in the OFF mode is 65 µA. An internal thermal shutdown circuit limits the junction temperature to below 150°C. The load current is internally monitored and the device will shut down (no load current) in the presence of a short circuit at the output. The output noise is very low at 10 dB down from V_O when an external noise bypass capacitor is used. The TK119xx is available in a small SOT-23L surface mount package.

D – Series TK114

SMT


R3
Control 1
2
GND 3
6 VIN
5
4 VOUT

Block Diagram

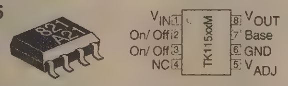

VIN
VOUT
Thermal Protection
Control
Bandgap Reference
GND

TK114xx

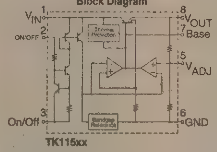
Features: • Electronic "On/Off" Switch • Very low Standby Current ("On", no load) •InternalThermalShut-down • Short Circuit Protection. **Absolute Maximum Ratings:**
Supply Voltage: 14V. **Load Current:** 180mA. **Power Dissipation:** 200mW. **Operating Temperature Range:** -20°C to +75°C. **Electrical Characteristics:** V_{OUT}: ±3.5% max. LI_{REG}: 0.04%/V Typ. LD_{REG}: 0.02%/mA Typ. V_{IN}: 3.1V min., 13V max. V_{Ripple}: 55dB.

E – Series TK115

SMT


821 A21
VIN 1
On/ Off 2
On/ Off 3
NC 4
TK115xxM
8 VOUT
7 Base
6 GND
5 VADJ

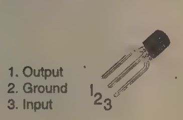
Block Diagram


1 VIN
2 ON/OFF
3 On/Off
8 VOUT
7 Base
5 VADJ
6 GND
Thermal Protection
Bandgap Reference

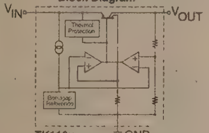
TK115xx

Features: • Very low Standby Current ("On", no load) • Internal Thermal Shutdown • Short Curcuit Protection. **Absolute Maximum Ratings: Supply Voltage:** 14V. **Load Current:** 180mA. **Power Dissipation:** 600mW. **Operating Temperature Range:** -20°C to +75°C. **Electrical Characteristics:** V_{OUT}: ±3% max. LI_{REG}: 0.02%/V Typ. LD_{REG}: 0.01%/ mA Typ. V_{IN}: 3.1V min., 13V max. V_{Ripple}:55dB.

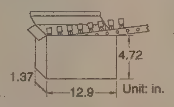
F – Series TK116

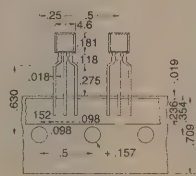

1. Output
2. Ground
3. Input
1 2 3

Block Diagram


VIN
VOUT
Thermal Protection
Bandgap Reference
GND

TK116xx


4.72
1.37
12.9
Unit: in.


.25
.5
4.6
.181
.118
.018
.275
.019
.630
.152
.098
.098
.236
.354
.709
.5
.157

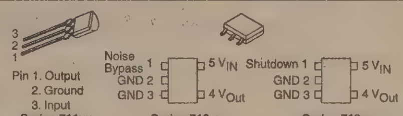
Features: • Internal Thermal Shutdown • Short Circuit Protection • 3% Output Voltage Accuracy. **Absolute Maximum Ratings: Supply Voltage:** 16V. **Load Current:** 180mA. **Power Dissipation:** 500mW. **Operating Temperature Range:** -20°C to +75°C. **Electrical Characteristics:** V_{OUT}: ±3% max. LI_{REG}: 0.01%/V Typ. LD_{REG}: 0.02%/ mA Typ. V_{IN}: 2.5V min., 14V max. V_{Ripple}: 55dB.

Fig.	Output Voltage	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing	Toko Part No.
NEW! A	2.0	TK11220CT-ND	1.73	16.26	152.40	TK11220TR-ND	1472.90/1300	TK11220AMTL
	2.25	TK11222CT-ND	1.73	16.26	152.40	TK11222TR-ND	1472.90/1300	TK11222AMTL
	2.5	TK11225CT-ND	1.73	16.26	152.40	TK11225TR-ND	1472.90/1300	TK11225AMTL
	2.75	TK11227CT-ND	1.73	16.26	152.40	TK11227TR-ND	1472.90/1300	TK11227MTL
	3.0	TK11230CT-ND	1.73	16.26	152.40	TK11230TR-ND	1472.90/1300	TK11230MTL
	3.5	TK11235CT-ND	1.73	16.26	152.40	TK11235TR-ND	1472.90/1300	TK11235AMTL
	4.0	TK11240CT-ND	1.73	16.26	152.40	TK11240TR-ND	1472.90/1300	TK11240AMTL
	4.5	TK11245CT-ND	1.73	16.26	152.40	TK11245TR-ND	1472.90/1300	TK11245AMTL
	4.75	TK11247CT-ND	1.73	16.26	152.40	TK11247TR-ND	1472.90/1300	TK11247AMTL
	5.0	TK11250CT-ND	1.73	16.26	152.40	TK11250TR-ND	1472.90/1300	TK11250MTL
NEW! B	2.0	TK11320MTLCT-ND	2.04	19.10	179.10	TK11320MTLTR-ND	1730.70/1300	TK11320MTL
	3.0	TK11330MTLCT-ND	2.04	19.10	179.10	TK11330MTLTR-ND	1730.70/1300	TK11330MTL
	3.3	TK11333MTLCT-ND	2.04	19.10	179.10	TK11333MTLTR-ND	1730.70/1300	TK11333MTL
	4.0	TK11340MTLCT-ND	2.04	19.10	179.10	TK11340MTLTR-ND	1730.70/1300	TK11340MTL
	4.5	TK11345MTLCT-ND	2.04	19.10	179.10	TK11345MTLTR-ND	1730.70/1300	TK11345MTL
	4.8	TK11348MTLCT-ND	2.04	19.10	179.10	TK11348MTLTR-ND	1730.70/1300	TK11348MTL
	5.0	TK11350MTLCT-ND	2.04	19.10	179.10	TK11350MTLTR-ND	1730.70/1300	TK11350MTL
NEW! C	2.25	TK11922MTLCT-ND	2.25	21.06	197.40	TK11922MTLTR-ND	1907.54/1300	TK11922MTL
	2.7	TK11927MTLCT-ND	2.25	21.06	197.40	TK11927MTLTR-ND	1907.54/1300	TK11927MTL
	3.2	TK11932MTLCT-ND	2.25	21.06	197.40	TK11932MTLTR-ND	1907.54/1300	TK11932MTL
	4.8	TK11948MTLCT-ND	2.25	21.06	197.40	TK11948MTLTR-ND	1907.54/1300	TK11948MTL
	5.0	TK11950MTLCT-ND	2.25	21.06	197.40	TK11950MTLTR-ND	1907.54/1300	TK11950MTL
D	2.0	TK11420CT-ND	1.49	14.05	131.70	TK11420TR-ND	1272.70/1300	TK11420
	2.5	TK11425CT-ND	1.49	14.05	131.70	TK11425TR-ND	1272.70/1300	TK11425
	3.0	TK11430CT-ND	1.49	14.05	131.70	TK11430TR-ND	1272.70/1300	TK11430
	3.2	TK11432CT-ND	1.49	14.05	131.70	TK11432TR-ND	1272.70/1300	TK11432
	3.5	TK11435CT-ND	1.49	14.05	131.70	TK11435TR-ND	1272.70/1300	TK11435
	4.0	TK11440CT-ND	1.49	14.05	131.70	TK11440TR-ND	1272.70/1300	TK11440
	4.5	TK11445CT-ND	1.49	14.05	131.70	TK11445TR-ND	1272.70/1300	TK11445
	4.7	TK11447CT-ND	1.49	14.05	131.70	TK11447TR-ND	1272.70/1300	TK11447
	5.0	TK11450CT-ND	1.49	14.05	131.70	TK11450TR-ND	1272.70/1300	TK11450
	5.5	TK11455CT-ND	1.49	14.05	131.70	TK11455TR-ND	1272.70/1300	TK11455
	6.0	TK11460CT-ND	1.49	14.05	131.70	TK11460TR-ND	1272.70/1300	TK11460
	8.0	TK11480CT-ND	1.49	14.05	131.70	TK11480TR-ND	1272.70/1300	TK11480
E	2.0	TK11520CT-ND	2.43	22.88	214.50	TK11520TR-ND	1594.00/1000	TK11520
	2.5	TK11525CT-ND	2.43	22.88	214.50	TK11525TR-ND	1594.00/1000	TK11525
	3.0	TK11530CT-ND	2.43	22.88	214.50	TK11530TR-ND	1594.00/1000	TK11530
	3.2	TK11532CT-ND	2.43	22.88	214.50	TK11532TR-ND	1594.00/1000	TK11532
	3.5	TK11535CT-ND	2.43	22.88	214.50	TK11535TR-ND	1594.00/1000	TK11535
	4.0	TK11540CT-ND	2.43	22.88	214.50	TK11540TR-ND	1594.00/1000	TK11540
	4.5	TK11545CT-ND	2.43	22.88	214.50	TK11545TR-ND	1594.00/1000	TK11545
	4.7	TK11547CT-ND	2.43	22.88	214.50	TK11547TR-ND	1594.00/1000	TK11547
	5.0	TK11550CT-ND	2.43	22.88	214.50	TK11550TR-ND	1594.00/1000	TK11550
	5.5	TK11555CT-ND	2.43	22.88	214.50	TK11555TR-ND	1594.00/1000	TK11555
	8.0	TK11580CT-ND	2.43	22.88	214.50	TK11580TR-ND	1594.00/1000	TK11580
F	2.0	TK11620CT-ND	1.30	12.19	114.30	TK11620TB-ND*	1275.00/1500	TK11620
	2.5	TK11625CT-ND	1.30	12.19	114.30	TK11625TB-ND*	1275.00/1500	TK11625
	3.0	TK11630CT-ND	1.30	12.19	114.30	TK11630TB-ND*	1275.00/1500	TK11630
	3.2	TK11632CT-ND	1.30	12.19	114.30	TK11632TB-ND*	1275.00/1500	TK11632
	3.5	TK11635CT-ND	1.30	12.19	114.30	TK11635TB-ND*	1275.00/1500	TK11635
	4.0	TK11640CT-ND	1.30	12.19	114.30	TK11640TB-ND*	1275.00/1500	TK11640
	4.5	TK11645CT-ND	1.30	12.19	114.30	TK11645TB-ND*	1275.00/1500	TK11645
	5.0	TK11650CT-ND	1.30	12.19	114.30	TK11650TB-ND*	1275.00/1500	TK11650
	5.5	TK11655CT-ND	1.30	12.19	114.30	TK11655TB-ND*	1275.00/1500	TK11655
	9.0	TK11690CT-ND	1.30	12.19	114.30	TK11690TB-ND*	1275.00/1500	TK11690NT
NEW! G	2.5	TK71225MCTLCT-ND	1.72	16.10	150.90	TK71225MCTLTR-ND	3365.07/3000	TK71225MCTL
	3.0	TK71230MCTLCT-ND	1.72	16.10	150.90	TK71230MCTLTR-ND	3365.07/3000	TK71230MCTL
	4.0	TK71240MCTLCT-ND	1.72	16.10	150.90	TK71240MCTLTR-ND	3365.07/3000	TK71240MCTL
	5.0	TK71250MCTLCT-ND	1.72	16.10	150.90	TK71250MCTLTR-ND	3365.07/3000	TK71250MCTL
NEW! G	1.5	TK71315MCTLCT-ND	1.72	16.10	150.90	TK71315MCTLTR-ND	3365.07/3000	TK71315MCTL
	3.2	TK71320MCTLCT-ND	1.72	16.10	150.90	TK71320MCTLTR-ND	3365.07/3000	TK71320MCTL
	5.0	TK71350MCTLCT-ND	1.72	16.10	150.90	TK71350MCTLTR-ND	3365.07/3000	TK71350MCTL

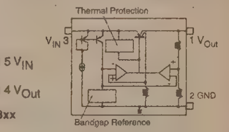
* Tape and Box Pricing

Fig.	Output Voltage	Digi-Key Part No.	Pricing 1	100	500	Toko Part No.
NEW! G	2.0	TK71120NCBX-ND	1.65	144.60	631.50	TK71120NCBX
	2.5	TK71125NCBX-ND	1.65	144.60	631.50	TK71125NCBX
	3.0	TK71130NCBX-ND	1.65	144.60	631.50	TK71130NCBX
	4.0	TK71140NCBX-ND	1.65	144.60	631.50	TK71140NCBX
	4.5	TK71145NCBX-ND	1.65	144.60	631.50	TK71145NCBX
	5.0	TK71150NCBX-ND	1.65	144.60	631.50	TK71150NCBX

G


3
2
1
Pin 1. Output
2. Ground
3. Input
Noise Bypass 1
GND 2
GND 3
5 VIN
4 VOut
Shutdown 1
GND 2
GND 3
5 VIN
4 VOut

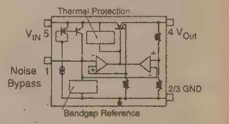
Series 711xx Series 712xx Series 713xx

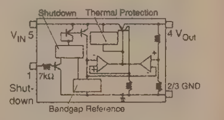

Thermal Protection
VIN 3
1 VOut
2 GND
Bandgap Reference

Features: • Low Dropout Voltage • Low Quiescent Current • Very Stable Output • Extremely Small Package (SOT25) • Built-in Output On/Off Control On 713xx • Noise Reduction Available on 712xx

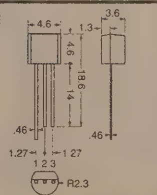
Description: TK711x/712xx/713xx series are low saturation, linear regulators used for applications with large supply voltage change. Since a PNP power transistor is used, dropout voltage is very low, making it possible to maintain a stable output voltage even as the battery voltage decreases. This allows longer battery operation. The TK711xx series is connected in a basic three terminal configuration. The TK712xx series has a noise bypass pin available. The TK713xx series has an on/off control pin only (a low level turns the output on). Since the current at the High Level is extremely stable (12 µA type. at V_{IN} = 5 V), a smaller output capacitor can be used.

The TK711xx is available in a TO-92 package while the 712xx/713xx are available in a very small SOT25 surface mount package.


Thermal Protection
VIN 5
4 VOut
Noise Bypass 1
2/3 GND
Bandgap Reference

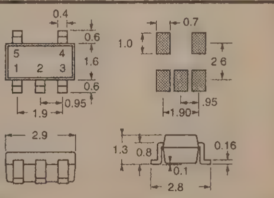

Shutdown
Thermal Protection
VIN 5
4 VOut
7kΩ
Shut-down
2/3 GND
Bandgap Reference

TO-92N


4.6
1.3
3.6
4.6
18.6
14
.46
.46
1.27
1.27
1 2 3
R2.3

SOT25

SMT


0.4
0.6
1.6
0.6
5
4
1
2
3
1.9
0.95
2.9
0.7
1.0
2.6
.95
1.90
1.3
0.8
0.16
0.1
2.8

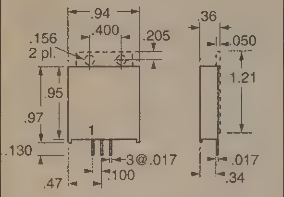
POWER TRENDS

Integrated Switching Regulators

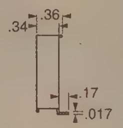
Power Trends manufactures the industry's smallest, most efficient and easy to use Integrated Switching Regulators (ISRs). Using a unique, proprietary design which employs 1 MHz switching technology to produce state-of-the-art power densities, these ISRs let you select the product performance that exactly matches your application.

Features: • Easy to use. Just plug them in. In most cases, only one external component is required, if any. • All magnetics are completely integrated. • Output voltages are laser-trimmed for accuracy. • All products feature internal short-circuit and over-temperature protection. • High efficiencies and low component counts combine to yield MTBF's in excess of 1,000,000 hours. • Operating Temperatures from -40°C to +70°C.

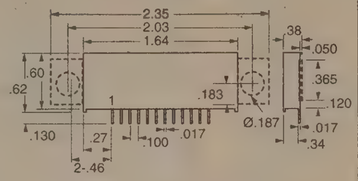
3-Pin Standard SIP Vertical



3-Pin Standard SIP Horizontal Sideview

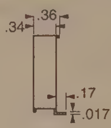


12-Pin Low Profile SIP Vertical

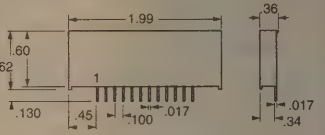


On/Off Control, VOUT ADJUST

12-Pin Low Profile SIP Horizontal Sideview

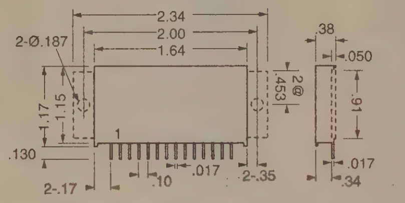


12-Pin Low Profile XL SIP



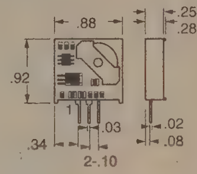
VOUT ADJUST

14-Pin Standard SIP

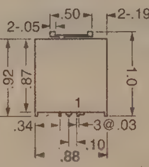


On/Off Control, VOUT ADJUST

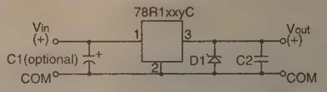
78/79 Plastic Vertical



78/79 Plastic Horizontal



Typical Application



Tab Configuration for PT Series*

Case Configuration	Heat Tab Configuration None	Top	Side
Vertical Through-Hole	N	S	R
Horizontal Through-Hole	A		

Package Style	Config -urations*	DC VOUT	Max Amp IOUT	DC VIN Range	Effici- ency	External Output Component Required	Digi-Key Part No.	Price Each				
								1	25	100	500	1000
Standard, High-Performance SIP ISRs (See Configuration Matrix above for Heat Tabs)												
3-Pin Std. SIP	A	5.0	1.0	7 to 38	85%	100 µF Cap.	PT5101A-ND	13.65	11.70	9.43	8.65	8.13
3-Pin Std. SIP	N	5.0	1.0	7 to 38	85%	100 µF Cap.	PT5101N-ND	13.65	11.70	9.43	8.65	8.13
3-Pin Std. SIP	S	5.0	1.0	7 to 38	85%	100 µF Cap.	PT5101S-ND	15.65	13.41	10.81	9.91	9.32
3-Pin Std. SIP	A	12.0	1.0	14.5 to 38	90%	100 µF Cap.	PT5102A-ND	13.65	11.70	9.43	8.65	8.13
3-Pin Std. SIP	N	12.0	1.0	14.5 to 38	90%	100 µF Cap.	PT5102N-ND	13.65	11.70	9.43	8.65	8.13
3-Pin Std. SIP	S	12.0	1.0	14.5 to 38	90%	100 µF Cap.	PT5102S-ND	15.65	13.41	10.81	9.91	9.32
12-Pin Low-P. SIP	A	5.0	1.0	7 to 30	90%	100 µF Cap.	PT6101A-ND	14.49	12.42	10.01	9.18	8.63
12-Pin Low-P. SIP	N	5.0	1.0	7 to 30	90%	100 µF Cap.	PT6101N-ND	14.49	12.42	10.01	9.18	8.63
12-Pin Low-P. SIP	R	5.0	1.0	7 to 30	90%	100 µF Cap.	PT6101R-ND	16.49	14.13	11.39	10.45	9.82
12-Pin Low-P. SIP	A	12.0	1.0	14.5 to 30	93%	100 µF Cap.	PT6103A-ND	14.49	12.42	10.01	9.18	8.63
12-Pin Low-P. SIP	N	12.0	1.0	14.5 to 30	93%	100 µF Cap.	PT6103N-ND	14.49	12.42	10.01	9.18	8.63
12-Pin Low-P. SIP	R	12.0	1.0	14.5 to 30	93%	100 µF Cap.	PT6103R-ND	16.49	14.13	11.39	10.45	9.82
12-Pin Low-P. SIP	N	5.0	2.0	7.25 to 28	90%	100 µF Cap.	PT6202N-ND	19.43	16.65	13.42	12.31	11.57
12-Pin Low-P. SIP	R	5.0	2.0	7.25 to 28	90%	100 µF Cap.	PT6202R-ND	21.42	18.36	14.79	13.57	12.75
12-Pin Low-P. SIP	N	12.0	2.0	14.5 to 28	93%	100 µF Cap.	PT6204N-ND	19.43	16.65	13.42	12.31	11.57
12-Pin Low-P. SIP	R	12.0	2.0	14.5 to 28	93%	100 µF Cap.	PT6204R-ND	21.42	18.36	14.79	13.57	12.75
12-Pin Low-P. SIP	R	5.0	3.0	7.5 to 28	90%	100 µF Cap.	PT6302R-ND	24.05	20.61	16.61	15.23	14.32
12-Pin Low-P. SIP	R	12.0	3.0	14.5 to 28	93%	100 µF Cap.	PT6304R-ND	24.05	20.61	16.61	15.23	14.32
Low-Voltage, High-Power Adjustable SIPs (See Configuration Matrix above for Heat Tabs)												
12-Pin Low-P. XL SIP	N	3.3	3.0	4.5 to 10	80%	100 µF Cap.	PT6305N-ND	26.46	22.68	18.27	16.76	15.75
14-Pin Std. SIP	N	3.3	8.0	4.5 to 6.0	83%	330 µF Cap.	PT6501N-ND	46.20	39.60	31.90	29.26	27.50
14-Pin Std. SIP	R	3.3	8.0	4.5 to 6.0	83%	330 µF Cap.	PT6501R-ND	48.20	41.31	33.28	30.53	28.69
78/79 Series Products												
78/79 Plastic	Horz.	5.0	1.5	7 to 30	85%	5W Zener	78SR105HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	5.0	1.5	7 to 30	85%	5W Zener	78SR105VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	6.0	1.5	8 to 30	86%	5W Zener	78SR106HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	6.0	1.5	8 to 30	86%	5W Zener	78SR106VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	8.0	1.5	10 to 30	87%	5W Zener	78SR108HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	8.0	1.5	10 to 30	87%	5W Zener	78SR108VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	12.0	1.5	14 to 30	90%	5W Zener	78SR112HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	12.0	1.5	14 to 30	90%	5W Zener	78SR112VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	15.0	1.5	14.5 to 30	92%	5W Zener	78SR115HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	15.0	1.5	14.5 to 30	92%	5W Zener	78SR115VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	3.3	1.5	7 to 20	80%	100 µF Cap.	78ST133HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	3.3	1.5	7 to 20	80%	100 µF Cap.	78ST133VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	5.0	1.5	7 to 30	85%	100 µF Cap.	78ST105HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	5.0	1.5	7 to 30	85%	100 µF Cap.	78ST105VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	12.0	1.5	14.5 to 30	90%	100 µF Cap.	78ST112HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	12.0	1.5	14.5 to 30	90%	100 µF Cap.	78ST112VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	3.3	3.0	7 to 15	80%	100 µF Cap., Zener	78ST233HC-ND	22.05	18.90	15.23	13.97	13.13
78/79 Plastic	Vert.	3.3	3.0	7 to 15	80%	100 µF Cap., Zener	78ST233VC-ND	22.05	18.90	15.23	13.97	13.13
78/79 Plastic	Horz.	5.0	3.0	7 to 20	85%	100 µF Cap., Zener	78ST205HC-ND	22.05	18.90	15.23	13.97	13.13
78/79 Plastic	Vert.	5.0	3.0	7 to 20	85%	100 µF Cap., Zener	78ST205VC-ND	22.05	18.90	15.23	13.97	13.13
78/79 Plastic	Horz.	5.0	3.0	8 to 28	85%	100 µF Cap., Zener	78HT205HC-ND	22.05	18.90	15.23	13.97	13.13
78/79 Plastic	Horz.	-5.0	-1.5	-7.5 to -30	87%	5W Zener	79SR105HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	-5.0	-1.5	-7.5 to -30	87%	5W Zener	79SR105VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Horz.	-5.2	-1.5	-8 to -30	87%	5W Zener	79SR152HC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	-5.2	-1.5	-8 to -30	87%	5W Zener	79SR152VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	-12.0	-1.5	-14.5 to -30	90%	5W Zener	79SR112VC-ND	18.38	15.75	12.69	11.64	10.94
78/79 Plastic	Vert.	-15.0	-1.5	-18.5 to -30	91%	5W Zener	79SR115VC-ND	18.38	15.75	12.69	11.64	10.94

IC MASTER

The 1996 I.C. Master now available in traditional book form or available on a CD.

The ***1996 I.C. Master*** is without question "the most wonderful tool available anywhere for complete systems design, from standard I.C.'s through Custom/Semi-custom to PCB layout." Compared to previous editions, the 1995 I.C. Master covers expanded sections and new categories including: Linear, Interface, Interface and memory, enhanced master selection guides, new glossaries and much, much more. Comes in a highly attractive 3 Volume set.

ATTENTION: If you are at all interested in the use, design or theory regarding the application of CMOS or OP AMPS in your electronic world, these books are a must. The information you will find is meant for everyone, from beginner to expert. They are written in a simple, straightforward manner that allows the novice to follow, yet have information for the expert so he will keep them on his desk. The most exciting editorial change to the new version of the 1996 CDRom Plus is the addition of packaging and pinout information.

1995 I.C. Master Book
21949-ND $120.00
21951-ND $190.00

CDROM Plus
Contains all the I.C. Master Books and Directory information on CDROM
21952-ND $235.00

NATIONAL SEMICONDUCTOR

Digi-Key Part No. — Price

NEW! 1996 Advanced BICMOS Logic Data Book
Contains data on: ABT, low voltage BICMOS logic, advanced BICMOS with boundary scan, clock generation and support extended TTL technology.
9262B-ND $10.96

NEW! 1995 Advanced BIPOLAR Logic Data Book
Contains data on: FAST / FASTr and ALS / AS.
9263B-ND $12.78

NEW! 1995 Application Specific Analog Products
Contains data on: audio, automotive, video and special function.
9241B-ND $16.00

1994 COP8 Data Book
Contains data on: COP8 family and applications, microwire/plus peripherals, development support and appendices/physical dimensions.
9253B-ND $14.00

1994 CGS Clock Driver Data Book
Contains data on: definitions and text philosophy, collateral and support tools, product overview, datasheets and physical dimensions.
9254B-ND $5.12

NEW! 1995 Clock Generation & Support (CGS) Design Data Book
9264B-ND $7.30

1995 Data Acquisition Data Book
Contains data on: D/A and A/D Converters , voltage ref., sample and hold, temperature sensors, analog switches-multiplexors and active filters.
9242B-ND $18.00

1991 DRAM Management Handbook
9158B-ND $11.00

1992 Embedded Controllers Data Book
9187B-ND $15.00

1993 FACT CMOS LOGIC Data Book
Product index and selection guide, FACT descriptions and family characteristics, ratings, specification and waveforms, design considerations, datasheets, package outlines and ordering info.
9195B-ND $14.00

1990 FAST Advanced Schottky Logic Data Book
9164B-ND $8.78

1990 FAST Application Data Book
9141B-ND $12.00

1992 IBM Data Communications Handbook
9160B-ND $10.00

Interface Data Transmission Data Book
9207B-ND $10.00

Intuitive I.C. CMOS Evolution
9100B-ND $8.95

Intuitive I.C. OP AMPS
9101B-ND $12.95

1993 Local Area Network Data Book
9185B-ND $16.00

1994 Linear Applications Handbook
9245B-ND $16.00

1992 Low Voltage Data Book
Contains data on: low voltage logic, linear, Eprom, EEprom, SRAM, interface, Asic, embedded controllers, realtime clocks, clock generation and support.
9191B-ND $11.00

1989 Mass Storage
Disk interface design guide and user manual, Winchester disk support, Winchester disk data controller, floppy disk support, drive interface support circuits.
9126B-ND $8.00

1992 Memory Data Book
9170B-ND $13.99

1994 Memory Data Book
9202B-ND $14.00

1984 MOS Memory Data Book
A comprehensive collection of information on advanced, high density memory products covering the spectrum of this mainstream semiconductor component category.
9082B-ND $3.00

1995 Operational Amplifiers Data Book
Contains data on: Op amps, buffers, voltage comparators, instrumentation amplifiers, surface mount, appendixes/physical dimensions.
9243B-ND $17.00

1993 Packaging Data Book
Contains data on: introduction, Hermetic packages, plastic packages, advanced pkg. technology, package reliability considerations, packaging considerations, surface mount considerations and appendix.
9255B-ND $7.00

1995 Power IC's Data Book
Contains data on: linear, low dropout, and switching volt. regulators, motion control, peripheral drivers, high current switches, surface mount, and appendixes/physical dim.
9244B-ND $12.00

1993 Power IC's Data Book
Contains data on: linear, low dropout, & switching volt. regulators, motion control, peripheral drivers, high current switches, surface mount and appendixes/physical dim.
9192B-ND $9.90

Real-Time Clock Handbook
9205B-ND $7.00

1986 Series 32000 Data Book
9047B-ND $12.00

NEW! 1996 VHC Advanced CMOS Logic Data Book
Contains data on: VHC, VHCT & VHC specialty functions.
9265B-ND $9.13

74ABT/C Cmos Logic Data Book
9223B-ND $6.58

74LCX CrossVolt Low Voltage Data Book
9240B-ND $9.00

Telecommunications Data Book
9246B-ND $10.00

POCKET REFERENCE SERIES

Digi-Key Part No. — Price

NEW! PC Computer Reference Book 5th Edition
Concise computer reference containing 544 pages of hard to find information on IBM PC's and compatibles
9261B-ND $14.95

NEW! Pocket Reference Book 2nd Edition
Contains 542 pages of facts, figures, formulas, and conversions on dozens of topics.
9260B-ND $9.95

MISCELLANEOUS

Digi-Key Part No. — Price

C&K Switch Data Book
9138B-ND $2.95

1994 Chicago Miniature Data Book
9221B-ND $2.95

Crydom Solid State Relay Design Guide
9213B-ND $21.12

Data Book for LM1871 and LM1872
9029B-ND $2.00

1995 Diodes Inc., Data Book
9266B-ND $2.50

E-1330 IC Application Manual
9250B-ND $3.95

ECS X-Tal/Oscillator Data Book
9256B-ND $2.95

E-Switch Data Book
9157B-ND $2.95

Charleswater ESD Awareness Guide
10398-ND $2.10

General Instruments/Taitron Data Book
(Power Semi-conductor Divison)
9137B-ND $3.95

Grayhill Engineering Catalog
9154B-ND $4.95

Holtek Data Book
9096B-ND $9.95

IDI Data Book
9118B-ND $4.98

International Rectifier Hexfet Power Mosfet Designers Book
9091B-ND $9.95

International Rectifier IGBT Data Book
9220B-ND $11.25

International Rectifier Schottky Diode Designers Manual
9193B-ND $9.95

Keystone Carbon Thermistor Catalog
9190B-ND $4.98

Linear Technology Applications Data Book
9177B-ND $19.95

Linear Technology Data Boo
9175B-ND $9.95

Linear Technology Data Book Supplement
9176B-ND $9.95

Linear Technology Data Book Volume 3
9210B-ND $9.95

Linear Technology Data Book Volume 4
9257B-ND $10.00

Linear Technology Applications Data Book
9258B-ND $10.00

1992 Memory Data Book
9170B-ND $13.99

NEW! Microchip PIC16C7X Series Family Data Book
9267B-ND $6.95

NEW! Microchip PIC14000 Series Family Data Book
9268B-ND $4.95

Microchip MCU Data Book 1995/96
9229B-ND $4.00

Microchip Memory Data Book 1995/96
9230B-ND $7.80

Microchip 1994/95 Embedded Control PIC Applications Handbook
9211B-ND $9.95

NJR CMOS Data Book
9200B-ND $19.95

NJR Regulator and Bipolar Data Book
9201B-ND $14.95

Omron Counters Full Line Catalog
9248B-ND $2.00

Omron Solid State Timers Catalog
9249B-ND $2.00

Omron Photomicrosensors Data Book
9136B-ND $5.70

Omron Relay Data Book
9135B-ND $5.00

Optrex Data Book
73-1001-ND $2.42

Panasonic MN1380 Series Data Booklet
9198B-ND $1.95

Teccor Data Book
9097B-ND $3.00

Telcom Data Book 1995
9122B-ND $9.95

Toko Application Notes for Balun Transformers 458DB-456DB
9179B-ND $1.95

Toko Application Notes for Balun Transformers 458DS-456DS
9180B-ND $1.95

Toko Application Notes for Balun Transformers 458PS-456PS
9178B-ND $1.95

Toko Coils and Filters Catalog
9139B-ND $9.95

Toko IC Data Book
9194B-ND $15.00

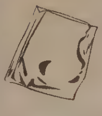
Toko Power Supplies and DC-DC Converters
9140B-ND $9.95

Varitronix LCD Modules Data Book
153-1001-ND $2.98

Xilinx Programmable Logic Data Book
9204B-ND $1.95

3M Static Control Products

Transparent Static-Shielding Bags (2100 Series Metal-Out Reusable)



3M 2100R bags are produced with a proprietary "metal-out" construction in which the shielding layer is very near the exterior surface. A thin abrasion-resistant coating protects this metal surface from scratches, but still permits measurement of electrical continuity with common volt-ohmmeters for easy verification of shielding performance prior to reuse.

Model 2100R bags use a 1.0 mil polyester layer, double the thickness found in lower-priced bags. This polyester is the sturdy foundation to which the thin metallization layer is applied. This makes 3M bags more durable and provides electrical isolation that prevents electrical currents from passing through the bag. The interior features a volume-loaded, amine-free antistat that limits triboelectric charging of parts as they slide around inside the bag.

Static-Shielding Bags for Economy (1900 Series Metal-In)

Use these more economical Static Shielding Bags for less demanding applications where reuse and high durability are not a prime consideration. The metal-in aluminum vapor coating is on a thinner 0.48 mil polyester as opposed to the 0.92 mil polyester in the 2100 series.

Static-Shielding Bags for Economy (1910 Series Metal-In)

The 1910 features a dual track closure for easy opening and closing

Size	Digi-Key Part No.	Pricing 25	100	3M Part No.
2100R Series Metal-Out Transparent Static-Shielding Bags				
3" x 5"	SCP193-ND	6.09	18.96	2100R 3x5
4" x 6"	SCP194-ND	7.94	24.72	2100R 4x6
5" x 8"	SCP195-ND	13.13	40.86	2100R 5x8
6" x 10"	SCP196-ND	15.19	47.28	2100R 6x10
7" x 15"	SCP200-ND	21.13	65.74	2100R 7x15
8" x 10"	SCP201-ND	16.69	51.95	2100R 8x10
1900 Series Metal-In Transparent Static-Shielding Bags				
3" x 5"	SCP153-ND	2.86	8.91	1900 3x5
4" x 6"	SCP154-ND	3.31	10.29	1900 4x6
4" x 24"	SCP155-ND	7.46	23.20	1900 4x24
4" x 30"	SCP156-ND	9.27	28.84	1900 4x30
5" x 8"	SCP157-ND	4.69	14.61	1900 5x8
6" x 10"	SCP158-ND	6.14	19.10	1900 6x10
8" x 10"	SCP159-ND	7.56	23.53	1900 8x10
8" x 12"	SCP160-ND	8.29	25.81	1900 8x12
10" x 14"	SCP161-ND	10.64	33.12	1900 10x14
12" x 16"	SCP162-ND	14.18	44.11	1900 12x16
1901 Series Metal-In Static-Shielding ZipBags				
3" x 5"	SCP165-ND	3.91	12.16	1910 3x5
4" x 6"	SCP166-ND	4.52	14.06	1910 4x6
5" x 8"	SCP167-ND	6.41	19.94	1910 5x8
6" x 10"	SCP168-ND	8.38	26.08	1910 6x10
8" x 10"	SCP169-ND	10.33	32.13	1910 8x10
10" x 12"	SCP170-ND	13.23	41.18	1910 10x12
12" x 16"	SCP171-ND	19.37	60.28	1910 12x16

Highland Model™ 2272 Adjustable Static Control Wrist Strap

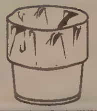
Flex life 350,000. Provides cost effective static protection. **Adjustable design** - The 2272 features a patented clasp. It is easily readjusted to ensure a snug fit. The adjustable Band simplifies ordering and inventory procedures. **Conductive comfort band** — Silver-plated, continuous monofilament threads establish a 360° contact zone and a reliable path to ground. The banding gently contacts the skin and allows it to breathe for extreme comfort. The stainless steel backplate secures the end of the band in the clasp and ensures reliable electrical bond.

Highland Model™ 2259 Lay-In/Adjustable Static Control Wrist Strap

Flex life 600,000. **Provides cost effective static protection.** The simple practice of grounding workers with wrist straps is the most cost-effective aspect of ESD control and gives immediate and identifiable cost savings. It is estimated that forty percent of a company's total static control cost savings depend on the proper function and use of wrist straps. 3M has made the use of wrist straps even more cost effective by offering this quality wrist strap at an economical price. **Unique lay-in adjustable design.** The 2259 features a unique clasp that can be adjusted to fit your wrist.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Adjustable Wrist Strap, 5 ft. Coiled Grounding Cord & Alligator Clip	SCP172-ND	7.58	2272
Adjustable Wrist Strap	SCP173-ND	4.37	2271
5 ft. Coiled Grounding Cord & Alligator Clip	SCP174-ND	4.89	2270
Adjustable Lay-in Wrist Strap, 5 ft. Coiled Grounding Cord & Alligator Clip	SCP191-ND	11.63	2259
Lay-in Adjustable Wrist Strap	SCP176-ND	4.86	2216
5 ft. Coiled Cord & Alligator Clip	SCP192-ND	7.13	2250

Electrically Conductive Bags and Liners



3M 2014 Velostat drum liner bags are made of opaque, volume conductive, carbon impregnated polyolefin. They are easily grounded, and the electrical characteristics are not affected by age or humidity. A common application in the electronic industry is as a waste container liner. Velostat drum liners are simple large conductive bags.

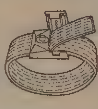
Size	Digi-Key Part No.	Pricing 25	100	3M Part No.
18" x 24"	SCP197-ND	70.57	219.61	2014 18x24
24" x 36"	SCP198-ND	111.47	346.89	2014 24x36
30" x 36"	SCP199-ND	139.61	434.47	2014 30x36

Corrosion Control Absorber Patches

The 3M Model 2101 Corrosion Control Absorber Patch inhibits corrosion by absorbing harmful chemicals from the air before corrosion can occur. Simply place the protective patches inside an enclosed package with the item to be protected. The patches will immediately go to work scavenging corrosive agents such as hydrogen sulfide, sulfur dioxide and organic carboxylic acid. Depending on the type of container used, products can be protected for up to two years.

Size	Digi-Key Part No.	Pricing 25	100	3M Part No.
2" x 2"	SCP202-ND	4.61	14.33	2101 2x2

Charge-Guard™ Adjustable Wrist Strap ⓤ



Flex life 1,000,000. Wrist straps are the front line of defense in all static control processes. Ensure a comfortable fit with the Charge-Guard™ Series Adjustable Wrist Strap. One size adjusts to any size wrist to provide reliable, 360 degree protection.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
w/Coiled Cord, 5 ft.*	SCP141-ND	30.23	2214
w/Coiled Cord, 10 ft.*	SCP142-ND	37.60	2224
w/Lightweight, Heavy-duty, Coiled,5 ft.*	SCP143-ND	31.81	2244
Replacement Wrist Bands	SCP144-ND	12.45	2204

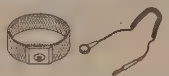
*Practical Extended Length

Charge-Guard™ Disposable Wrist Strap ⓤ

The Charge-Guard™ Disposable Wrist Strap provides cost-effective and reliable static protection. The wrist strap is suited for shipping valuable products to ensure protection at the receiving end

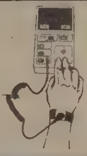
Description	Digi-Key Part No.	Pricing 1	3M Part No.
Disposable Wrist Strap	SCP145-ND	1.29	2209

Charge-Guard™ Wrist Straps & Grounding Cords



Description	Digi-Key Part No.	Pricing 1	3M Part No.
Wrist Strap With 5 ft. Coiled Cord			
Small (Gray - 4 1/2 - 6")	SCP132-ND	20.31	2211
Med. (Burgundy - 5 1/2 - 7 1/4")	SCP133-ND	20.31	2212
Lg. (Blue - 6 1/2 and larger)	SCP134-ND	20.31	2213
Wrist Strap With 10 ft. Coiled Cord			
Small (Gray - 4 1/2 - 6")	SCP135-ND	24.45	2221
Med.(Burgundy - 5 1/2 - 7 1/4")	SCP136-ND	24.45	2222
Lg. (Blue - 6 1/2 and larger)	SCP137-ND	24.45	2223
Wrist Strap - Rep. Wrist Band			
Small (Gray - 4 1/2 - 6")	SCP138-ND	8.04	2201
Medium (Burgundy - 5 1/2 - 7 1/4")	SCP139-ND	8.04	2202
Large (Blue - 6 1/2 and larger)	SCP140-ND	8.04	2203

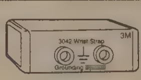
Charge-Guard™ Wrist Strap Tester



Makes it easy to test a wrist strap frequently and regularly while wearing it. PASS/FAIL lamps indicate if strap resistance is within acceptable ranges. Power Requirements: 6 volts (4 AA cells).

Dimensions	Weight	Digi-Key Part No.	Pricing 1	3M Part No.
1-3/4 x 4-5/16 x 7-3/8	1.0 lb.	SCP101-ND	212.16	745

Wrist Strap Grounding System



Wrist Strap Grounding System with two banana jacks and one 10 ft. (3,0m) grounding cord.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Wrist Strap Grounding System	SCP115-ND	19.88	3042

Field Service Kit

Static-Dissipative Portable Field Service Kit: • Static-dissipative work mat with two pockets, .024 in. x 2 ft. x 2 ft. (0,6mm x 61cm x 61cm) • Grounding cord assembly with alligator clip • Charge-Guard™ Series adjustable wrist strap.

Lightweight Field Service Kit

The small lightweight kit offers the same level of static control as the full-sized 3M 8501 Field Service Kit, yet is small enough to fit in a shirt pocket.

Kit Includes: • Static-Dissipative Work Surface with Pocket 0.015" x 15" x 20" • 2204 Adjustable Wrist Band • Lightweight Heavy-Duty Coiled Ground Cords: 2240 Wrist strap ground cord, 5 ft. (1,5m); 2243 Extension ground cord, 5 ft. (1,5m); 3063 Work surface ground cord 5 ft. (1,5m) • 3038 Alligator Clip

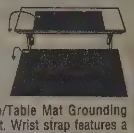
Description	Digi-Key Part No.	Pricing 1	3M Part No.
Field Service Kit	SCP124-ND	55.62	8501
Lightweight Field Service Kit	SCP182-ND	51.23	8505

Velostat™ Table Mat

Velostat Table Mat. Conductive 1/15 in. (1,5mm) thick, 2 ft. x 4 ft. (0,6mm x 1,2 mm), with two female snap connectors installed, and one Table Mat Grounding System.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Velostat™ Table Mat	SCP102-ND	59.28	1872

Workstation Grounding Kits



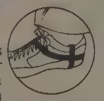
Grounding Kits provide the basic items needed to create a static safe work environment for fabrication, assembly, storage, kitting, testing and repair operations. Table and floor mats connect to building ground using components included in the kit. two Wrist Straps can be connected to the Wrist Strap/Table Mat Grounding System which grounds the wrist straps and table mat. Wrist strap features a one megohm resistor to protect personnel from electrical shock through cord.

Kit Includes: • Table Mat (2' x 4'). • Floor Mat (4' x 6'). • Ground Cord (15'). • Wrist Strap/Table Mat Grounding System. • Charge Guard™ Wrist Strap. Both the floor and table mats are made from our soft three layer static dissipative material.

8030 Series: These kits contain two different types of static control mats. The table mat is made of the soft three-layered, static-dissipative 8200 material, while the floor mat is of the more rigid, conductive Velostat™ material

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Table and Floor Mats			
Brown, 3 Layer Construction	SCP121-ND	255.60	8021
Beige, 3 Layer Construction	SCP122-ND	255.60	8022
Gray, 3 Layer Construction	SCP123-ND	255.60	8023
Granite, 3 Layer Construction	SCP178-ND	255.60	8025
Black, Velostat	SCP120-ND	212.94	8011
With Black Velostat Floor Mat			
Brown, 3 Layer Table Mat	SCP179-ND	244.65	8031
Gray, 3 Layer Table Mat	SCP180-ND	244.65	8033
Granite, 3 Layer Table Mat	SCP181-ND	244.65	8035

Static Control Shoe Grounding Assemblies (Heel Straps)



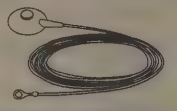
2051/52 Long lasting Static Control heel straps provide static protection while retaining worker mobility. • Increase personnel mobility • One size fits most shoe. • Extra long contact ribbon accommodates most boots • Available with & without safety resistor • Comfortable elastic ankle strap • Non-marking insulative interior

Note: The 2051/2052 Grounding Assemblies are not to be used in areas where the individual may come in contact with electrical circuitry exceeding 250 volts.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Shoe Grounding Assembly			
With 1meg ohm resistor	SCP163-ND	8.54	2051
With 240K ohm resistor	SCP164-ND	8.54	2052

Accessory

Grounding Cord

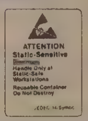


15 ft. Pre-installed male snap fastener with integral one megohm resistor on one end, solderless terminal on other end.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Grounding Cord	SCP114-ND	12.87	3040

Labels

A



B

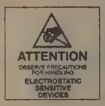
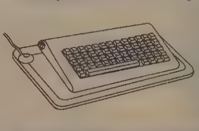

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING
ELECTROSTATIC SENSITIVE DEVICES

Fig.	Digi-Key Part No.	Quantities (per roll)
A	SCP129-ND	500
A	SCP128-ND	500
B	SCP127-ND	500
B	SCP126-ND	500
B	SCP130-ND	250

Description	Digi-Key Part No.	Pricing 1	3M Part No.
(JEDEC-14) Orange, 1 3/4 x 2 1/2"†•	SCP129-ND	16.07	7101
(JEDEC-14) Yellow, 1 3/4 x 2 1/2"†*	SCP128-ND	16.07	7102
(Mil. Std. 129J) Yellow, 2 x 2"†•	SCP127-ND	18.29	7201
(Mil. Std. 129J) Yellow, 2 x 2"†*	SCP126-ND	18.29	7202
(Mil. Std. 129J) Yellow, 4 x 4"†•	SCP130-ND	29.84	7203

† With Black type • Reusable * Destructible

Computer and Keyboard Pads

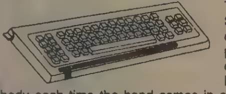


Placed under your PC system, 3M Static Control Pads drain away static charge instantly when touched. The unique layered construction not only creates a static-free environment, but also cushions your equipment, prevents slippage and reduces noise. The pads come in both full system and keyboard sizes

Description	Digi-Key Part No.	Pricing 1	3M Part No.
Brown, 23" x 26", Computer Pad	SCP183-ND	40.69	9200
Gray, 23" x 26", Computer Pad	SCP184-ND	40.69	9202
Brown, 23" x 9.5", Keyboard Pad	SCP185-ND	23.27	9210
Gray, 23" x 9.5", Keyboard Pad	SCP186-ND	23.27	9212

3M Static Control Products

First-Touch™ Static Control Strip



The First Touch™ Static Control Strip prevents garbled data, loss of memory, lock-up and other problems caused by static electricity. Static charge drains harmlessly from the operators body each time the hand comes in contact with the strip. Adhesive-backed for easy attachment to the keyboard.

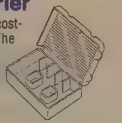
Description	Digi-Key Part No.	Pricing 1	3M Part No.
Static Control Strip	SCP125-ND	13.13	9250

Velostat™ Pin Insertion Grade Foam

Velostat™ 28 x 3 is approx. 3 lb. density and is primarily a cushioning foam, but can be used for pin insertion application with sturdier device leads.

Description	Digi-Key Part No.	Pricing 1	3M Part No.
1/8" thick, 12" x 12"	SCP146-ND	4.92	—
1/4" thick, 12" x 12"	SCP147-ND	8.59	—
1/8" thick, 24" x 36"	SCP118-ND	18.84	2803(1/8")
1/4" thick, 24" x 36"	SCP119-ND	32.91	2803(1/4")
1/8" thick, 24" x 50'	SCP112-ND	252.99	2823(1/8")
1/4" thick, 24" x 50'	SCP113-ND	506.00	2823(1/4")

Velostat™ Single Device Carrier



The rugged Velostat™ Single Device Carrier provides cost-effective physical and static protection for DIPS. The conductive units feature a volume resistivity of less than 500 ohm-centimeters and will not lose their conductivity with age, nor do they depend on humidity to function.

Hinged Containers

3M hinged containers are made from Velostat plastic and are noncorrosive and light weight. The containers feature molded pin hinges that provide better security and reliability than traditional snap hinges.

Single Card Carriers

3M static-shielding single card carriers protect individual printed circuit boards from static and physical damage during storage and transport.

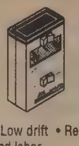
Dimensions L x W x D	Digi-Key Part No.
1.55" x 1.01" x 0.46"	SCP131-ND
3.88" x 1.94" x 0.5"	SCP187-ND
2.56" x 3.5" x 1.75"	SCP188-ND
7" x 3.5" x 1"	SCP189-ND
10" x 8" x 2"	SCP190-ND

Description	Digi-Key Part No.	Pricing	3M Part No.
Velostat™ Single Device Carrier	SCP131-ND	5.00/10	5701SP
Hinged Container	SCP187-ND	.80 ea.	4022
Hinged Container	SCP188-ND	1.02 ea.	4023
Hinged Container	SCP189-ND	2.01 ea.	4024
Single Card Carriers	SCP190-ND	18.94 ea.	8523

Staticide®

acl incorporated

Model ACL 300B Precision Electrostatic Locator

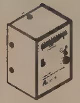


Measures static charges instantly, reliably, economically.

• Measures static charges from zero to 30,000 volts • Convenient pocket size • Designed for close-in repetitive readings • Uses standard 9 volt battery • Battery Test Feature • Low drift • Repeatability ±1%, accuracy ± 10% • One-year warranty on parts and labor

Features a unique "quick zero" function which instantly rezeroes the instrument and provides ground compensation for the user.

Model ACL 375 Pocket Resistivity Meter



Measures both surface resistivity & resistance to ground in one compact meter. It's compact and portable. Measuring only 3.8 inches by 2.4 inches by 1.3 Inches.

• Measures both surface resistivity and resistance to ground • Easy to use — no probes to adjust • Wide range of direct readings on Ohms per square for surface resistivity measurement and Ohms for resistance to ground. Utilizes the ATSM recommended electrode parallel bars as sensing element • Portable — uses 9 volt battery (battery not included)

Model ACL 400 Ionized Environment-Electrostatic Locator

Measures and monitors static in an ionized environment

• Easy to use-continuous re-zeroing is eliminated • Chopper stabilized - operates in ionized environment • Convenient pocket size/leather carrying case included • Stable operation - recorder output for continuous monitoring over several hours • Quick, accurate, repeatable measurements

Range: 1,000 volts to 10,000 volts at 1.0 inch, 3,000 volts to 30,000 volts at 4.0 inches

Model ACL 475 Portable Deluxe Surface Resistivity Meter

Measures both surface resistivity & resistance to ground

• Easy to use — no probes to adjust • Portable — rechargeable battery powered • Wide range of direct readings in Ohms per square • Designed to widely accepted ASTM-D257 standards • Includes cord for measuring resistance to ground

The ACL 475 conveniently checks resistivity specifications for static control products such as anti-static bags, static dissipative mats and conductive work surfaces.

Description	Digi-Key Part No.	Pricing 1
Model ACL 300B, Precision Electrostatic Locator..................	ST1012-ND	353.33
Model ACL 375, Pocket Resistivity Meter	ST1013-ND	298.45
Model ACL 400, Ionized Environment-Electrostatic Locator......	ST1014-ND	463.54
Model ACL 475, Deluxe Surface Resistivity Meter...............	ST1015-ND	890.98

General Purpose Staticide

(For Non-Porous Surfaces) Solves static related problems such as: • The attraction of dirt, dust and bacteria to all environmental surfaces, products and product packaging. • Charge generation on surfaces of tote boxes and carriers used to process and store electronic components. • Damage or destruction of sensitive electronic components and subassemblies during their manufacture, shipping or receiving. • Data processing "glitches" . . . memory loss, data errors, paper jams.

Heavy Duty Staticide

(For Porous Surfaces) • Ideal for eliminating costly static problems on carpeting. • Ideal for eliminating jamming or slipping of materials during printing, packaging or converting. • Ideal for eliminating ignition of combustible vapors, dust or solvents causing fire or explosion.

Staticide Conductive Cleaner

Cleans: Antistatic mats, workstation, and table tops.

Staticide Wipes

The Ultimate Towelette for Cleaning and Static Control. 24 individually packaged wipes per box. Our unique tear-away top forms a handy desk top dispenser. • Ideal for use on computer screens and keyboards, office machines and telephones. • One-step cleaning and static control. • Helps prevent dust build-up.

Industrial Size Wipes

Twice the size of a conventional wipe 11≤ x 8≤. The extra big wipe with muscle. • Ideal for use in industrial, commercial and technical environments.

Fax Machine Cleaning Kit

Ink rubs off the thermal paper onto the rollers and optics causing paper sticking and fuzzy printing. Regular cleaning of these parts will keep your fax transmissions neat and uninterrupted. Kit contains: 1-2 oz. bottle of cleaning solution, 20 lint free swabs, 1 lint free anti-static cloth wipe.

Fax Machine Cleaning Sheet

Keeps Fax messages transmitting smoothly and free of ink smears with this specially treated cleaning sheet. Easily removes dust and oily films from the paper path, rubber rollers and scanner.

Laser Printer Cleaning Kit

Paper dust, dirt and toner deposits can ruin the appearance of your documents. Keep your images crisp and clear, with no fuzzies on your final prints. Kit contains: 12 cartridge cleaning papers, 1-2 oz. bottle of cleaning solution, 20 lint free swabs, 1 lint free anti-static cloth wipe and 12 ink-remover hand wipes.

Laser Printer Cleaning Paper

Keep your images crisp and clear with Tech Essentials laser printer cleaning paper. Each sheet is used to remove paper dust, dirt and toner deposits from inaccessible parts of the machine, resulting in sharper images and a cleaner machine. It is recommended that you use laser printer cleaning paper after every toner cartridge change and always after extensive copy output.

Description	Digi-Key Part No.	Pricing
General Purpose Staticide *(quart)*............	ST1002-ND	8.15
Heavy Duty Staticide *(4 oz.)*....................	ST1001-ND	4.70
Heavy Duty Staticide *(quart)*	ST1003-ND	13.46
Staticide Conductive Cleaner *(quart)*...	ST1004-ND	6.10
Staticide Wipes *(Box of 24)*	ST1005-ND	6.59
Staticide Wipes - Bulk *(Box of 450)*...........	ST1007-ND	118.46
Staticide Industrial Wipes *(Box of 50)*.........	ST1006-ND	25.31
Fax Machine Cleaning Kit.........................	ST1008-ND	18.74
Fax Machine Cleaning Sheet	ST1009-ND	2.52
Laser Printer Cleaning Kit	ST1011-ND	31.34
Laser Printer Cleaning Paper (*Bag of 50)*	ST1010-ND	26.84

CHARLESWATER

Field Service Kits

Field service kits provide a static safe workstation for the field technician during service calls. The wrist strap provides an effective and safe means of draining static charges from personnel. The grounded vinyl mat provides a static safe work surface.

Briefcase Kit

- Solid homogeneous blue vinyl .016" thick
- Size: 22.5" x 22" with two pockets 9.5" x 9" and 12.5" x 9"
- RTG = 10^{11} ohms

Heat sealed from tough 16 mil blue vinyl. The kit includes an adjustable wirst strap and ground cord which is permanently attached so that it cannot be misplaced. The ground cord is also terminated with a large ground clip. The kit folds with a hook and loop closure to a neat 8" x 11" package that will fit into your briefcase.

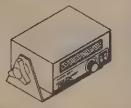
Field Service Pocket Kit

- Multi-layer red vinyl .018" thick
- Size: 15" x 20" with one pocket 4.5" x 5.25"
- RTG = 10^6 - 10^7 ohms

This kit is designed to be folded to fit into a shirt or pants pocket. The kit includes one ground snap, adjustable wrist strap and common point ground cord.

Description	Digi-Key Part No.	Pricing 1	Mfg. Part No.
Briefcase Field Service Kit	10386-ND	40.75	16430
Field Service Kit Pocket Size	10387-ND	33.40	16590

Bench Top Ionizer - Ion Pump

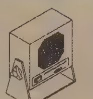


• Auto balancing ion output • Adjustable laminar air flow • Safe non-nuclear operation • Gold plated tri-metallic emitters • Fixed temperature heater • Replaceable air filter • Swivel base mounts to bench or wall • IÈC cord connection • Quiet operation • Low maintenance operation • UL listed

The ion pump utilizes the unique Faraday balance system, which allows the unit to automatically maintain a balanced ion output even in the most extreme environments.

It has been designed to emit ions in a true laminar low, which effectively reduces ion recombination, emitter contamination and gives it superior performance in neutralizing static charges at greater distances.

Personal Ionizer



The personal ionizer is a completely self-contained, auto balancing bench top ionizer. The auto balancing design ensures that ion output remain balanced, despite variations in line voltage, speed or the condition of the emitter points.

The personal ionizer's compact and lightweight design is fully portable and takes up minimal bench space. This unit is ideally suited for field service technicians or any other application where mobility is a requirement.

Description	Digi-Key Part No.	Pricing 1	Mfg. Part No.
Bench Top Ionizer	10395-ND	431.30	19500
Personal Ionizer	10396-ND	315.00	19555
Filter for Personal Ionizer	10397-ND	2.30	19554

Desiccant Pack MIL-D-3464 - Type I & II

For use with dry pack packaging of components. Helps absorb residual moisture.

Description	Digi-Key Part No.	Pricing 1	Mfg. Part No.
Desiccant, 1 unit pail of 300 pcs	10394-ND	106.25	13852

EMI Shielding Bags - Moisture Vapor Barrier

This bag combines the properties of MOISTURE-VAPOR-BARRIER with EMI-RFI-ESD shielding. Manufactured from a Type 1 Class N652-260M film which is qualified to MIL-B-81705-C.

The MVTR (Moisture Vapor Transmission Rate) also meets the requirements of MIL-B-131 and EIA-583. The configuration is basically the same as a Metal-In Bag with a metal layer five times the thickness of a standard metal-in bag between two layers. A polyethylene layer provides pull strength and a polyester layer provides puncture strength and heat seal capacity. The extra heavy metal layer provides the EMI attenuation and Water-Vapor barrier properites.

The metalized film process supplies a barrier which is softer and more flexible than the foil counterpart.

Size	Digi-Key Part No.	Pricing 25	Pricing 100	Mfg. Part No.
5" x 8"	10388-ND	6.53	17.50	13806
6" x 10"	10389-ND	9.28	24.75	13808
8" x 10"	10390-ND	11.72	31.35	13812
10" x 12"	10391-ND	18.16	48.50	13816
12" x 16"	10392-ND	27.81	74.35	13824
18" x 24"	10393-ND	55.28	147.75	13832

ESD Awareness Guide - Booklet

An introduction to ESD. This booklet uses easy to understand language and drawings to describe the causes of static electricity and the importance of an ESD program. Ideal for training personnel who handle static sensitive components.

ESD Guidelines For Employees - Video

Twelve minute training session which teaches employees and equipment operators the causes of static electricity and describes how to prevent static in their own work areas. An overview of various ESD control techniques and products available from Charleswater is provided.

Description	Digi-Key Part No.	Pricing 1	Mfg. Part No.
ESD Awareness Guide - English	10398-ND	2.10	10140
ESD Guidelines Video	10399-ND	14.50	10120

AMP

Memory Card Connectors

Material and Finish:
- **Housing and Organizer:** Liquid crystal polymer, black.
- **Contacts:** Brass; duplex plated 0.00076 minimum gold on mating area, 0.00381 minimum tin-lead on solder tails, with entire contact underplated 0.00127 minimum nickel

PC Mount Thru-hole Pin Length is 5.0mm.

Fig. 1 - Single Pin Header

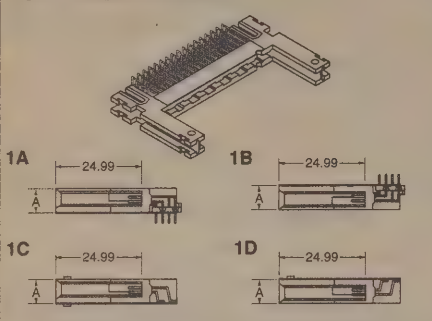


Fig. 2 - Guide Rails for Standard & Raised Profile Pin Headers

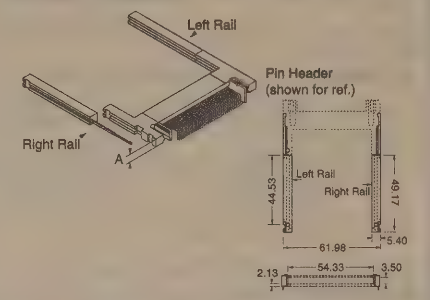


Fig. 3 - Guide Rail and ESD/EMI Rail Plate

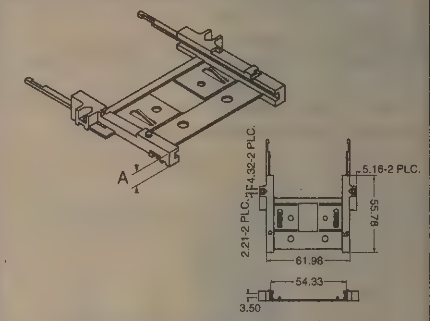


Fig. 4 - Ejector Assembly

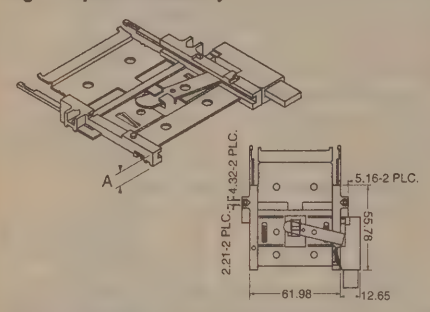


Fig. 5 - I.C. Memory Card Connector

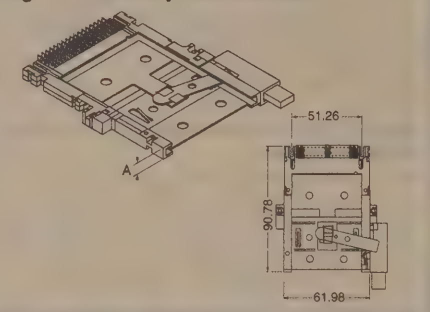


Fig. 6 - Stacked Pin Header

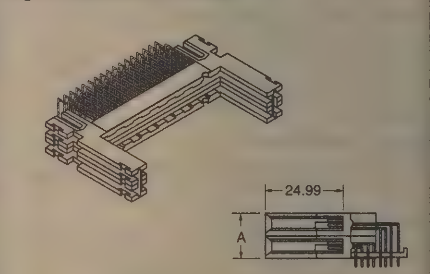


Fig. 7 - Guide for Stacked Pin Header

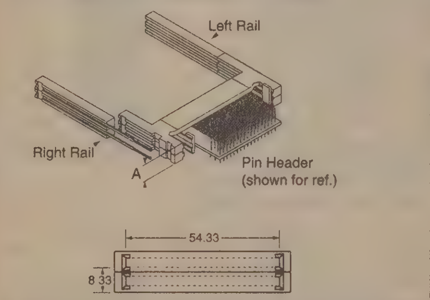


Fig. 8 - Ejector Assembly for Stacked Pin Headers

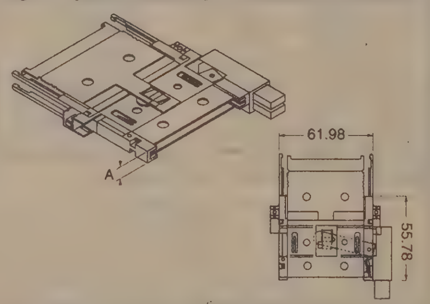


Fig. 9 - Stacked I.C. Memory Card Connector

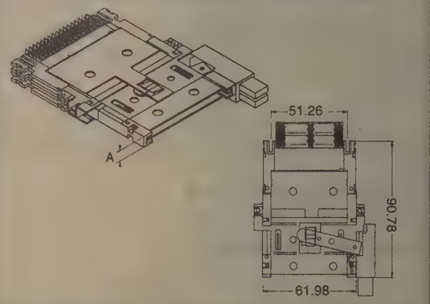


Fig. No.	No. of Pos.	Dim. A	Description	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	AMP Part No.
1A	68	6.98	Standard Profile, PC Mount Top Board Thru-Hole	A8001-ND	6.41	138.13	364.65	535653-1
1A	68	9.6	Raised Profile, Top Board Thru-Hole Mount	A8012-ND	5.51	118.75	313.50	535655-1
1B	68	6.98	Standard Profile, PC Mount Bottom Board Thru-Hole	A8003-ND	5.51	118.75	313.50	535654-1
1B	68	9.6	Raised Profile, Bottom Board Thru-Hole Mount	A8014-ND	5.51	118.75	313.50	535656-1
1C	68	6.98	Standard Profile, Pin Header, Top Board SMT	A8002-ND	6.09	131.25	346.50	535651-1
1C	68	9.6	Raised Profile, Top Board SMT	A8013-ND	6.32	136.25	359.70	535657-1
1D	68	6.98	Standard Profile, Pin Header, Bottom Board SMT	A8004-ND	6.09	131.25	346.50	535652-1
1D	68	9.6	Raised Profile, Bottom Board SMT	A8015-ND	6.32	136.25	359.70	535658-1
2	—	6.98	Standard Profile, Left Guide Rail for Pin Headers	A8005-ND	3.54	76.25	201.30	535664-1
2	—	6.98	Standard Profile, Right Guide Rail for Pin Headers	A8006-ND	3.54	76.25	201.30	535664-2
2	—	9.6	Raised Profile, Left Guide Rails for Pin Headers	A8016-ND	3.54	76.25	201.30	535661-1
2	—	9.6	Raised Profile, Right Guide Rails for Pin Headers	A8017-ND	3.54	76.25	201.30	535661-2
3	—	6.98	Standard Profile, Guide Rail and ESD/EMI Rail Plate for Pin Headers	A8007-ND	4.35	93.75	247.50	146033-1
3	—	9.6	Raised Profile, Guide Rail and ESD/EMI Rail Plate for Pin Headers	A8018-ND	4.35	93.75	247.50	146034-1
4	—	6.98	Standard Profile, Ejector Assembly for Headers, Right Button Ejector	A8008-ND	5.08	109.38	288.75	146021-1
4	—	6.98	Standard Profile, Ejector Assembly for Headers, Left Button Ejector	A8009-ND	5.08	109.38	288.75	146019-1
4	—	9.6	Raised Profile, Ejector Assembly for Headers, Right Button Ejector	A8019-ND	5.08	109.38	288.75	146022-1
4	—	9.6	Raised Profile, Ejector Assembly for Headers, Left Button Ejector	A8020-ND	5.08	109.38	288.75	146020-1
5	68	6.98	Standard Profile, with Right Button Ejector, Top Board Thru-Hole Mount	A8010-ND	11.02	237.50	627.00	146025-1
5	68	6.98	Standard Profile, with Left Button Ejector, Top Board Thru-Hole Mount	A8011-ND	11.02	237.50	627.00	146023-1
5	68	9.6	Raised Profile, with Right Button Ejector, Top Board Thru-Hole Mount	A8021-ND	11.02	237.50	627.00	146026-1
5	68	9.6	Raised Profile, with Left Button Ejector, Top Board Thru-Hole Mount	A8022-ND	11.02	237.50	627.00	146024-1
6	136	13.97	Stacked Pin Header	A8023-ND	11.75	253.13	668.25	146027-1
7	—	19.2	Standard Profile, Right Rail Guide for Stacked Pin Headers with Thru-Hole Holddowns	A8025-ND	7.11	153.13	404.25	146035-2
8	—	13.97	Standard Profile, Ejector Assembly for Stacked Pin Headers	A8026-ND	12.64	272.50	719.40	146036-1
9	136	13.97	Standard Profile, Stacked Pin Headers with Right Button Ejector Top Board Thru-Hole Mount without Holddowns	A8027-ND	22.77	490.63	1295.25	146030-1
9	136	13.97	Standard Profile, Stacked Pin Headers with Right Button Ejector Top Board Thru-Hole Mount with Holddowns	A8028-ND	22.77	490.63	1295.25	146032-1
9	136	13.97	Standard Profile, Stacked Pin Headers with Left Button Ejector Top Board Thru-Hole Mount	A8029-ND	22.77	490.63	1295.25	146029-1

HRS HIROSE
ELECTRIC
CO.,LTD.

PCMCIA I.C. Memory Card Connectors

IC1 Series — Figure 1:

The IC1 Series connectors comply with Ver. 3 and Ver. 4.2, JEIDA and PCMCIA 2.0 Standards.

Features:

• Provided with complete features of the JEIDA and PCMCIA Standards, such as polarizing method and sequence construction for circuit protection. • Surface-mount socket connectors (card side). • Off-center socket connectors are also available that allow high packaging profile. • All the pin connectors described are compatible with cards of type I and II. • Surface mount header connectors are available.

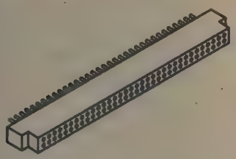


Fig. 1A

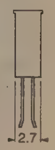


Fig. 1B

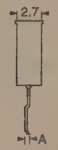


Fig. 1C

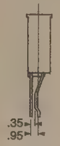


Fig. 1D

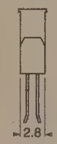
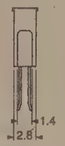


Fig. 1E

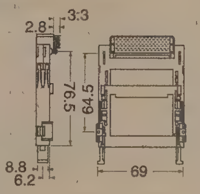


IC6 Series — Figure 2:

The IC6 Series consists of pin connectors equipped with two slots for use with JEIDA Ver. 4.2 IC memory cards.

Features:

• IC memory cards (Types I and II) can be mounted in two slots, and card eject buttons are provided on either side for easy operation. When cards are inserted, the card in the lower slot can be ejected smoothly by pressing the right eject button, the card in the upper slot by pressing the left eject button. • These connectors can be used not only with Type I and II cards, but also with JEIDA/PCMCIA Type III cards. • Equipped with frame ground pins. • The reverse type used for mounting to the back surface of the board is also now available.

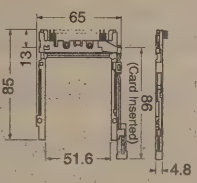


IC7 Series — Figure 3:

The IC7 Series of miniature, lightweight 68-pin connectors complies with JEIDA Ver. 4.2 and is suitable for use with PCMCIA Type III cards.

Features:

• Smaller and thinner than our previous product. • Forty-seven percent lighter than our previous product. • Equipped with an eject button for smooth removal of cards. • Two types of eject button, either left or right. • There is also a reverse type for mounting on the back surface of the board. • Equipped with a frame ground terminal. • Types available for dip and SMT board mounting methods. • The SMT type can be mounted on both sides of the board and can also be used as a 2-slot connector.



IC8 Series — Figures 4 & 5:

Two Piece, SMT, Two-Slot Connectors for PC Cards.

General Information: The development of connectors to suit the demands of the trend toward the miniaturization, high density, and surface mounting technology of a wide range of electronic equipment including office automation equipment such as personal computers is being sought. The IC8 Series of miniature SMT connectors are equipped with two slots of pin connectors for use with JEIDA Ver. 4.2-compliant PC cards and can also be used with JEIDA/PCMCIA type III cards.

Features: (1) Basically, the features of our IC6 Series (of two-slot dip type) products have been continued with this Series • For ease of operation, left and right eject buttons have been included. (The right button causes the card of the lower slot to be ejected, whereas the left button causes the card of the upper slot to be ejected.) • Connectors ear equipped with a frame ground terminal (in common with the two slots). • In addition to a low profile type, a 2.2 mm or 5 mm stand-off type is available which allows parts to be mounted in the area under the connector. • A dual-edge card ejection mechanism is used to eject the card smoothly.

(2) The external dimensions of the main body reflect the design concept and same small size of the miniaturized IC7 Series (one-slot type).

(3) A high level of contact reliability has been achieved through the use of a SMT conversion connector developed independently by Hirose Electric. (Patents pending)

(4) The connector side is equipped with JIS standard hexagonal nuts (M2 x 0.4) in four locations which permit a reduction of the number of mounting tasks.

Fig. 4

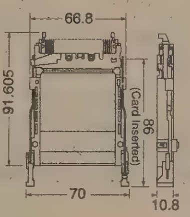
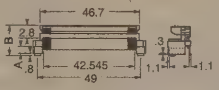


Fig. 5



Digi-Key Part No.	Dimension A	B
HR840-ND	0	10.9
HR841-ND	2.2	13.1
HR842-ND	5	15.9

Fig. No.	No. of Pins	Type	Description	Digi-Key Part No.	Pricing 1	10	Hirose Part No.
1A	68	I, II	Socket Conn. Memory Card 2.7mm Dual	HR831-ND	4.03	36.12	IC1F-68RD-1.27SH
1B	68	I, II	Socket Conn. Memory Card Single Side, A = .3mm	HR828-ND	5.40	48.38	IC1F-68RD-1.27SF
1B	68	I, II	Socket Conn. Memory Card Single Side, A = .854mm	HR829-ND	5.45	48.81	IC1F-68RD-1.27SFA
1C	68	I, II	Socket Conn. Memory Card Off-Center	HR830-ND	4.82	43.22	IC1H-68RD-1.27SH
1D	68	I, II	Socket Conn. Memory Card 2.8mm Dual	HR832-ND	4.82	43.22	IC1BB-68RD-1.27SH
1E	68	I, II	Socket Conn. Memory Card 2.8mm Dual	HR833-ND	5.66	50.74	IC1BA-68RD-1.27SH
2	136	I, II, III	Memory Card Connector Dual w/ Grounding Pin	HR811-ND	15.62	139.97	IC6-136PF-DSL-EJA-G
2	136	I, II, III	Memory Card Connector Dual w/ Grounding w/ Std 2.2mm	HR812-ND	15.62	139.97	IC6A-136PF-DSL-EJA-G
2	136	I, II, III	Memory Card Connector Dual Rev w/ Grounding	HR813-ND	15.62	139.97	IC6-136PFR-DSL-EJA-G
2	136	I, II, III	Memory Card Connector Dual Rev w/ Grounding Std 2.2mm	HR814-ND	15.62	139.97	IC6A-136PFR-DSL-EJA-G
2	136	I, II, III	Memory Card Connector Dual Rev w/ Grounding Std 5mm	HR815-ND	15.62	139.97	IC6B-136PFR-DSL-EJA-G
3	68	I, II, III	Memory Card Connector Light Weight, Right Eject	HR816-ND	7.56	67.73	IC7-68PD-1.27DS-EJR
3	68	I, II, III	Memory Card Connector Light Weight, Left Eject	HR817-ND	7.56	67.73	IC7-68PD-1.27DS-EJL
3	68	I, II, III	Memory Card Connector Light Weight, Rev Right Eject	HR818-ND	7.56	67.73	IC7-68PDR-1.27DS-EJR
3	68	I, II, III	Memory Card Connector Light Weight, Rev Left Eject	HR819-ND	7.56	67.73	IC7-68PDR-1.27DS-EJL
3	68	I, II, III	Memory Card Connector Light Weight, SMT Right Eject	HR820-ND	7.56	67.73	IC7-68PD-1.27SF-EJR
3	68	I, II, III	Memory Card Connector SMT w/ Std 2.2mm Right Eject	HR824-ND	8.86	79.34	IC7A-68PD-1.27SF-EJR
3	68	I, II, III	Memory Card Connector Light Weight, SMT Left Eject	HR821-ND	7.56	67.73	IC7-68PD-1.27SF-EJL
3	68	I, II, III	Memory Card Connector SMT w/ Std 2.2mm Left Eject	HR825-ND	8.86	79.34	IC7A-68PD-1.27SF-EJL
3	68	I, II, III	Memory Card Connector Light Weight, SMT Rev Right Eject	HR822-ND	7.56	67.73	IC7-68PDR-1.27SF-EJR
3	68	I, II, III	Memory Card Connector SMT w/ Std 2.2mm Rev Right Eject	HR826-ND	8.86	79.34	IC7A-68PDR-1.27SF-EJR
3	68	I, II, III	Memory Card Connector Light Weight, SMT Rev Left Eject	HR823-ND	7.56	67.73	IC7-68PDR-1.27SF-EJL
3	68	I, II, III	Memory Card Connector SMT w/ Std 2.2mm Rev Left Eject	HR827-ND	8.86	79.34	IC7A-68PDR-1.27SF-EJL
4	136	I, II, III	Memory Card Body SMT Dual	HR834-ND	13.87	124.27	IC8-136PF-SF-EJ
4	136	I, II, III	Memory Card Body SMT Dual w/ Std 2mm	HR835-ND	13.87	124.27	IC8A-136PF-SF-EJ
4	136	I, II, III	Memory Card Body SMT Dual w/ Std 5mm	HR836-ND	13.87	124.27	IC8B-136PF-SF-EJ
4	136	I, II, III	Memory Card Body SMT Dual Rev	HR837-ND	13.87	124.27	IC8-136PFR-SF-EJ
4	136	I, II, III	Memory Card Body SMT Dual Rev w/ Std 2.2mm	HR838-ND	13.87	124.27	IC8A-136PFR-SF-EJ
4	136	I, II, III	Memory Card Body SMT Dual Rev w/ Std 5.0mm	HR839-ND	13.87	124.27	IC8B-136PFR-SF-EJ
5	136	I, II, III	Recept Memory Card Dual SMT	HR840-ND	12.31	110.30	IC8-136RD-0.635SF
5	136	I, II, III	Recept Memory Card Dual w/ Std 2.2mm SMT	HR841-ND	12.31	110.30	IC8A-136RD-0.635SF
5	136	I, II, III	Recept Memory Card Dual w/ Std 5mm SMT	HR851-ND	10.08	90.30	IC8-136RD-0.635SF

HIROSE ELECTRIC CO.,LTD. PCMCIA I.C. Memory Card Connectors

Features: • Leading features of PCMCIA standard of mis-insertion prevention mechanism and sequencing mechanism for circuit protection, are incorporated. • Receptacle is of surface mount type. • Pushbutton switch of ejecting section has an inner spring which makes the pushbutton free from vibration.

Material: Insulator: Black. **Contact:** Selective gold plating. **Ejector:** SUS. **Electrical Specifications: Current Rating:** 0.5A per pin. **Rated Voltage:** 125V AC. **Withstanding Voltage:** 500V AC for one minute at specified value. **Insulation Resistance:** Min. 1000MΩ at 500V DC. **Contact Resistance:** Max. 40mΩ at 1mA DC.

Fig. 1

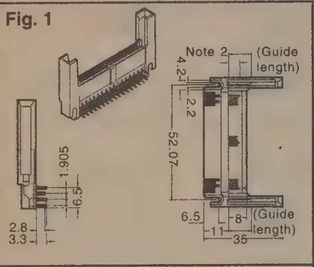


Fig. 2

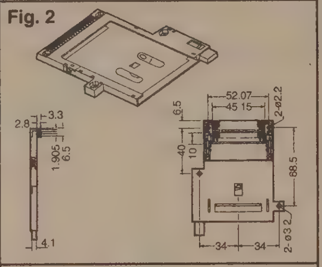


Fig. 3

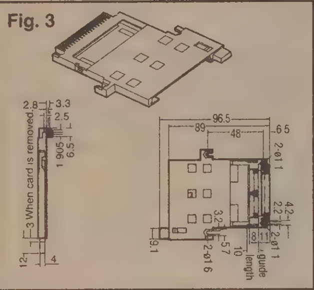


Fig. 4

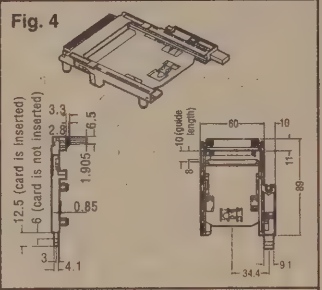


Fig. 5

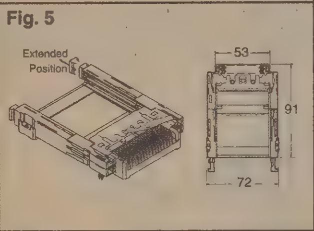


Fig. 6

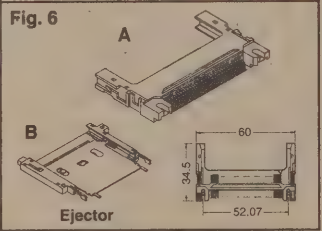


Fig.	No. of Pins	Type	Description	Digi-Key Part No.	Pricing 1	10	Hirose Part No.
1	68	I, II	Memory Card Connector	HR801-ND	5.90	52.89	IC1FA-68PD-1.27DS
2	68	I, II	Memory Card Connector w/ Ejecting Mechanism	HR802-ND	13.30	119.11	IC1G-68PD-1.27DS-EJ
2	68	I,II	With Ejector and ESD Groundings Features	HR810-ND	14.11	126.42	IC1G-68PD-1.27DS-EJ-E
3	68	I	Memory Card Connector w/ Ejecting Mechanism	HR803-ND	13.58	121.69	IC1F-68PD-1.27DS-EJ
4	68	I, II	Memory Card Connector w/ Ejecting Mech and Std-off	HR804-ND	13.15	117.82	IC1FB-68PD-1.27DS-EJ
5	136	I,II,III	Dual Slot With Ejectors No Stand Offs	HR807-ND	22.58	202.32	IC6S-136PF-DSL-EJA-G
5	136	I,II,III	Dual Slot With Ejectors 2.2mm Standoffs	HR808-ND	22.58	202.32	IC6AS-136PF-DSL-EJA-G
5	136	I,II,III	Dual Slot With Ejectors 5.0 mm Standoffs	HR809-ND	22.58	202.32	IC6BS-136PF-DSL-EJA-G
6A	68	I, II	SMT Connector Without Ejector	HR805-ND	9.29	83.21	IC1G-68PD-1.275SF
6B	68	I, II	SMT Ejector for HR805	HR806-ND	6.91	61.92	IC1G-68PD-EJ

EPSON AMERICA, INC.

PCMCIA IC Memory Cards

EPSON
Ram Card

PCMCIA

Insert an Epson memory card and suddenly your mobile computer has the data portability storage capacity and speed (about 50 times faster than floppy and hard disk drives). Your data is well protected and can't be erased by touching or magnetics.

Epson's Flash Memory requires Flash File System software loaded to the host system. ATA Flash has the internal interface controller designed for IDE Interface, built in.

Epson's hard drive memory card has a high speed access time of 12mS and an impressive interface transfer rate of 12mB per second. It's also preformatted permitting immediate use. Comes with a handsome padded carrying pouch for todays demanding mobile environment.

Features:

- Large data storage capabilities
- No mechanical moving parts
- About the size of a credit card
- Reasonably priced

Description	Digi-Key Part No.	Price
Low Power SRAM PCMCIA/JEIDA Standard, 68 Pins (Batt. Replacable Type)		
64Kx8/32Kx16, 200ns, 140mA, .6µA backup	LWB065SX20-ND	47.93
128Kx8/64Kx16, 200ns, 140mA, 1.3µA backup	LWB129SX20-ND	56.48
256Kx8/128Kx16, 200ns, 140mA, 2.5µA backup	LWB257SX20-ND	77.55
512Kx8/256Kx16, 200ns, 140mA, 5.0µA backup	LWB513SX20-ND	111.98
1Mx8/512Kx16, 200ns, 140mA, 1.2µA backup	LWB101SX20-ND	185.03
2Mx8/1Mx16, 200ns, 140mA, 56µA backup	LWB201SX20-ND	326.25
Flash Card, PCMCIA/JEIDA Standard, 68 Pins (FFS Software Required)		
256Kx8/128Kx16, 200ns, 70mA	HWB257ESX0-ND	57.75
512Kx8/256Kx16, 200ns, 70mA	HWB513ESX0-ND	72.90
1Mx8/512Kx16, 200ns, 70mA	HWB101ESX0-ND	107.70
2Mx8/1Mx16, 200ns, 70mA	HWB201S8X0-ND	108.60
4Mx8/2Mx16, 200ns, 70mA	HWB401S8X0-ND	174.98
ATA Flash Card PCMCIA (Similar to IDE with Internal Controller)		
NEW! 2.5 Mbyte ATA Flash Card EEPROM, Type II	NB70-004334-ND	299.00
NEW! 5 Mbyte ATA Flash Card EEPROM, Type II	NB70-004336-ND	359.00
NEW! 10 Mbyte ATA Flash Card EEPROM, Type II	NB70-004338-ND	559.00
Fax-Modem and Multifunction Lan Cards PCMCIA/JEIDA Standard, 68 Pins		
NEW! Ethernet 10Base-T Lan Memory Card	NB70-004504-ND	129.00
NEW! Combo Ethernet 10Base-T/10Base-2 Memory Card	NB70-004506-ND	159.00
Hard Disk Card for Mobile PCs		
NEW! 260 Mbyte Hard Drive Memory Card, Type III	NB70-004546-ND	499.00

MICROTRAN company, Inc. tamura

BANTAM™

File #E138028

SMT Modem/Telcom Transformers

For PCMCIA Type II data/fax modem card V.32 bis/V.17; 14,400 bps applications.

Turns ratio: 1:1 ±2% Impedance: pri: 600 Ohms, sec: 346 Ohms

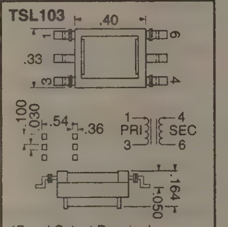
Frequency response: $^{+.15}_{-.35}$ dB 300-3500 Hz; REf. 1KHz

D.C. resistance at 20°C: Pri: 127 Ohms ±15%, Sec: 150 Ohms ±15% • **Insertion loss:** 2.7 dB ± .4 dB at 1 KHz • **D.C. Unbalance:** 0MA • **Longitudinal balance:** 60 dB min 200-4000 Hz (FCC part 68) • **Dielectric rating:** 1000VAC, 1 min (FCC part 68) • **Return loss:** 25 dB min at 300-3500 Hz • **Total harmonic distortion:** -76 dB max. at 600 Hz and -10 dBM • **Terminal coplanarity:** 0.004" • **Flammability:** UL 94V-0 • **Solderability:** per MIL-STD-202 • **Finish:** Varnish • **Weight:** .036 oz. (1gr) • **Marking:** TSL103

*TSL103 must be mounted through a circuit board cutout .4" X .33".
†TSL203 Above board surface mount component.

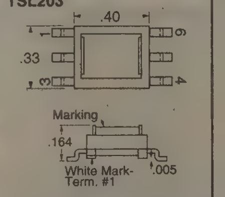
MT4121-ND*(TSL103) **$13.48/each, $119.80/10**
MT4122-ND†(TSL203) **$13.48/each, $119.80/10**

TSL103

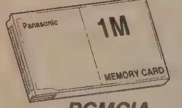


*Panel Cutout Required

TSL203



Panasonic. PCMCIA IC Memory Cards



PCMCIA

• An IC memory card is almost essential today in order to make system equipment smaller and lighter. Since IC memory cards do not require mechanical drive systems, equipment designed to use these cards can be made thinner and lighter.

• While only the size of a credit card, the IC memory card is not affected by temperature, bending, magnetic fields or other external influences. The IC memory card also provides the convenience of fitting in your pocket.

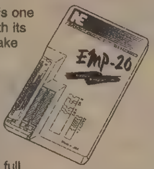
• The ***PCMCIA (Personal Computer Mem. Card International Assoc.)*** and the JEIDA (Japan Electronic Industry Devel. Assoc.) have jointly defined standard specifications for an IC memory card system interface. Now the card can be used as a general purpose media for exchanging data between systems. • **Long-Term Battery-Powered Operation:** Because chips which consume little power are used in the IC memory card, and because no mechanical drive system is required, the IC memory card can operate on battery power for long periods of time. • **Permits High-Speed Processing:** since the memory bus is directly assigned to the system interface, access time for the IC memory card is equivalent to that of semiconductor memory devices. • **Can Be Used as General-Purpose Storage Media:** The JEIDA (Japan Electronic Industry Development Association) and the ***PCMCIA (Personal Computer Memory Card International Association)*** have jointly defined standard specifications for an IC memory card system interface. Now the IC memory card can be used as general-purpose media for exchanging data between systems. For example, some systems, although designed to use IC memory cards, lack an interface for personal computers. Now that problem has been solved, and IC memory cards are being used to expand the scope of system networks.

Description	Digi-Key Part No.	Price
SRAM Card (Batt. Replacable Type) MATSUSHITA Standard, 34 Pins		
32Kx8, 150ns, 75mA, 5 yr. backup	BN-032MCE-ND	36.92
SRAM Card (Batt. Replacable Type) PCMCIA/JEIDA Standard, 68 Pins		
64Kx8/32Kx16, 200ns, 150mA, 5 yr. backup	BN-064HMCE-ND	48.75
512Kx8/256Kx16, 200ns, 150mA, 5 yr. backup	BN-512HMCE-ND	120.00
1Mx8/512Kx16, 200ns, 150mA, 5 yr. backup	BN-01MHMCE-ND	210.00
Flash Card, PCMCIA/JEIDA Standard, 68 Pins		
256Kx8/128Kx16, 250ns, 70mA	BN-256HFRE-ND	91.50
512Kx8/256Kx16, 250ns, 70mA	BN-512HFRE-ND	121.50
1Mx8/512Kx16, 250ns, 70mA	BN-01MHFRE-ND	163.80
2Mx8/1Mx16, 250ns, 70mA	BN-02MHFRE-ND	308.00
4Mx8/2Mx16, 250ns, 70mA	BN-04MHFRE-ND	656.50

Needham's Electronics

EMP-20 Programmer

Programs: Eproms, Gals, Microcontrollers, PLD, Flash, EEproms, Serial EEproms.



The new "Emp 20" from Needhams is one of a kind. Versatile and compact with its speed and ease of programming make it untouchable by the competition.

• Very fast programming, for example: 27C10A in 23 seconds — 27C040 in only 90 seconds. • Supports Intel Hex, Mots, Jedec Binary, ASC II Formats. • Easy to read menus with mouse or cursor control make programming enjoyable. • Contains full screen editor with search and fill, entry in Hex, Binary or ASC II. • Free software upgrades and 1 year warranty. • All programming voltages and algorithms are automatically loaded in when you select a part number to work with.

Emp 20 comes complete with 4 family modules. Each module supports a group of devices. The "Family Modules" allows for rerouting of VCC, VPP and ground pins, when changing to different device groups. The "Family Modules" are simple to snap in and each module supports two groups of devices. The concept of family modules provides support for a wide variety of devices. Needham will be able to provide future support as new devices become available for a minimal cost to the customer.

System Requirements: PC with 512K memory, 1 Standard parallel I/O port, MS Dos 2.11 or greater and a standard centronix 36 pin parallel cable.

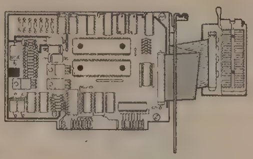
• Software, power supply and literature included with the Emp20. Dimensions 9.5 x 5.75 x 1.25 • Eproms: 2716 through 27C080, 27C210 through 27C240, 27C400 through 27C800 • Flash: 28F256A through 28F020 • GAL, PLD, PALCE: 16V8, 20V8, 22V10 • Microcontrollers: 8741, 42, 48, 49, C51, C51FX, 8751, 87C751, 87C752, PIC16C5X, PIC16C71 • EEproms and Serial EEproms • Xilinx — XC1736A & D, XC1765 & D, XC17128

EMP20-ND.................................**$449.50/each**

Needham's Electronics

Eprom Programmer –

PC Eprom Programmer & Optional Adapters



For use with EPROMS and OTP Eproms. See "Integrated Circuits" in Product Index.

PC EPROM PROGRAMMER:

• Automatically sets programming voltage • Reads, verifies, and programs 2716, 32, 32A, 64, 64A, 128, 128A, 256, 512, 513, 010, 011, 301, 2 MEG, 4 MEG, 2532, 2564 & more. • Load and save buffer to disk. • Supports binary, Intel Hex, and Motorola S formats. • Board size is 6" x 4" approx. • Minimum Memory Requirement for operating software 512K • New intelligent averaging algorithm. Programs 64A in 10 sec., 256 in 1 min., 1 Meg in 1 min. 32 sec., 2 Meg in 3 min. • All chips socketed • Editor with different entry modes, including string and hex • Split & set • MACROS

ADAPTER MODULES FOR PC PROGRAMMER:

• Easy to read menus • Simple keystroke commands • Cursor or mouse controlled • Full screen editor with search and fill • Entry modes in Hex, Binary and ASCII • Manufacturer specific menus with algorithm & pgm voltage auto selected • Extensive on line "help" system provides text and graphics • Encryption table provided for 8751 family of processors.

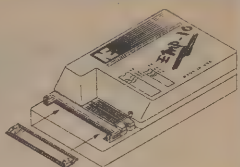
Type	Description	Digi-Key Part No.	Pricing 1	Needham's Part No.
	Programmer			
PC Eprom Programmer	Internal Card for PC, XT, AT, 386, 486 or compatible..................	NE001-ND	139.94	PB-10
	Adapter Modules			
Micro Adapter	Programs: 8751, 2, C51, 51F-A-B-C, TMS7742, 8748(H), 49(H), 55..........	NE002-ND	50.00	PB-8748
87C751 Adapter	Programs 87C751 & 87C752, Locks Security Bits	NE003-ND	50.00	PB-751
210 Adapter	Programs 27210, 271024, and 57C1024	NE004-ND	50.00	PB-210

(All software included with PC Eprom Programmer)

Needham's Electronics

NEW! EMP-10 Programmer

Programs: Eproms, Gal, Microcontrollers, Flash, EEproms



The new "EMP-10" from Needhams is one of a kind. Versatile and compact with its speed and ease of programming make it untouchable by the competition.

Very fast programming. Supports Intel Hex, Mots. Jedec Binary, ASCII Formats. Easy to read menus with mouse or cursor control. Contains full screen editor with search and fill entry in Hex, Binary or ASCII. Free software upgrades and 1 year warranty. Programming voltages and algorithms automatically loaded.

EMP-10 comes complete with 3 "Family Modules". Each module supports a group of devices. The "Family Modules" allow for rerouting VCC, VPP and ground, when changing to different device groups. The "Family Modules" are simple to snap in and each module supports two device groups. The concept of "Family Modules" provides support for a wide variety of devices. Needham's will be able to provide future support as new devices become available for a minimal cost to the customer.

System Requirements: PC with 512K memory, 1 standard parallel I/O port. MS DOS 2.11 or greater and a standard Centronix 36 pin parallel cable.

Software, power supply and literature included with the EMP-10.

Dimensions: 4.6" x 7.75" x 1.65"

Eproms: 2716 through 27C080, 27C210 through 27C240

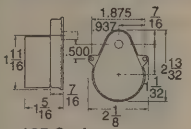
Flash: 28F256A through 28F020,29C256-040

Gal: 22V10, 22V10B

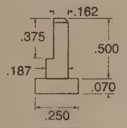
Micros: C51, C51FX, 8751, 87C751, PIC16C5X EEproms, 89C5X

NE005-ND.......................................**$219.95/each**

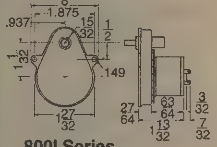
CRAMER COMPANY AC/DC Geared Motors



105 Series



Flatted Round Shaft



800I Series

105 Series: Unidirectional operation assured by ball and slot "no-back" system. Motors listed are all clockwise rotation when facing the output shaft. **Characteristics:** Rotor Speed 600RPM,115V AC, 60 Hz Coil, 2.7 watts, -20°C to +55°C Operating Temperature. Heat rise +54°C nominal. Motor develops 300 oz. in. Torque starting & running at 1 RPM. Motors shown utilize standard gearing rated for 30 oz. in. max. load. To determine torque available on motors shown, divide 300 oz. in. by listed motor speed.

800I Series DC Gearmotor: Basic 2400 and 4800 armature speed used. Geartrain rating 30 oz. in. dynamic, 90 oz. in. static. All DC motors shown will produce 30 oz. in. start and run torque. Input power 2 watts. Motor output speed will be higher if load is less than 30 oz. in. Voltages offered 12V DC and 24V DC. DC motors are reversible by reversing polarity at terminals. Operating these motors at voltages greater than 10% of nominal, could possibly cause premature motor failure.

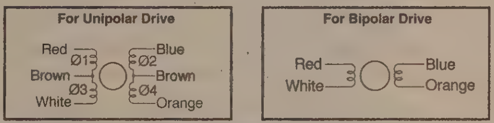
Voltage	RPM	Digi-Key Part No.	Pricing 1	10	50	100	Cramer Part No.
			105 Series				
110VAC	12	CRA101-ND	26.22	229.08	1035.00	1932.00	MBA08AA24AABT542X
110VAC	10	CRA102-ND	26.22	229.08	1035.00	1932.00	MBA08AA13MADT542X
110VAC	6	CRA103-ND	26.22	229.08	1035.00	1932.00	MBA08AA24FAAT542X
110VAC	2	CRA104-ND	26.22	229.08	1035.00	1932.00	MBA08AA1A5ABT542X
110VAC	1	CRA105-ND	26.22	229.08	1035.00	1932.00	MBA08AA1C5ABT542X
110VAC	1/2	CRA106-ND	26.22	229.08	1035.00	1932.00	MBA08AA26HAAT542X
110VAC	1/30	CRA107-ND	26.22	229.08	1035.00	1932.00	MBA08AA19CABT542X
			800I Series				
12VDC	1	CRA201-ND	46.55	406.70	1837.50	3430.00	DC3275
12VDC	10	CRA202-ND	46.55	406.70	1837.50	3430.00	DC3276
12VDC	30	CRA203-ND	46.55	406.70	1837.50	3430.00	DC3277
24VDC	1	CRA204-ND	46.55	406.70	1837.50	3430.00	DC3278
24VDC	10	CRA205-ND	46.55	406.70	1837.50	3430.00	DC3279
24VDC	30	CRA206-ND	46.55	406.70	1837.50	3430.00	DC3280

EPSON AMERICA, INC. Stepping Motors

CW Excitation Mode ***(Output Shaft View)***

Step / Phase	1 Phase Excit Mode 1	2	3	4	2 Phase Excit Mode 1	2	3	4
1 Red	●				●			●
2 Blue		●			●	●		
3 White			●			●	●	
4 Orange				●			●	●

Connection Diagrams

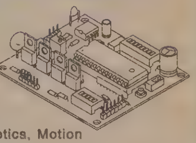


For Unipolar Drive

For Bipolar Drive

Angle of Rot. per Step	No. of Phases	Drive System	Volt. for Motor Drive (V)	Winding Res. (Ohms)	Current (Two phases holding) (mA)	Detent Torque (gxcm)	Holding Torque (gxcm)	Approx. Weight (g)	Dimensions (mm) A = Mounting Hole Space; B = Mounting Hole Dia.; C = Shaft Dia.; D = Shaft Length; E = Motor Dia.; F = Motor Height						Digi-Key Part No.	Pricing			Seiko Epson Part No.
									A	B	C	D	E	F		1	5	10	
18°	2	Bipolar	5	20	500	4	25	10	20	2.2	1.5	3.5	15	11.5	STP200-ND	15.50	69.75	124.00	STP-15NI20SE-20
18°	4	Unipolar	5	20	500	9	50	25	25	2.2	1.5	6.35	20	20.15	STP201-ND	15.75	70.88	126.00	STP-20NI20LE-20
18°	4	Unipolar	5	20	500	6	40	20	25	2.2	1.5	10.15	20	16.35	STP202-ND	15.63	70.31	125.00	STP-20NI20SE-20
7.5°	4	Unipolar	12	50	480	30	175	35	34	3.3	2	9.5	25	17	STP203-ND	17.63	79.31	141.00	STP-25NI48LVE-50
15°	4	Unipolar	12	50	480	25	130	35	34	3.3	2	9.5	25	17	STP204-ND	17.38	78.19	139.00	STP-25NI24LE-50
7.5°	4	Unipolar	24	100	480	35	390	65	42	3.3	2	10	35	16.5	STP206-ND	17.38	78.19	139.00	STP-35NI48SE-100
7.5°	4	Unipolar	12	50	480	130	830	120	49.5	3.5	3	9.6	42	24	STP208-ND	19.38	87.19	155.00	STP-42ND48LVE-50
7.5°	4	Unipolar	24	100	480	130	1200	120	49.5	3.5	3	9.6	42	24	STP209-ND	19.38	87.19	155.00	STP-42ND48LVE-100
7.5°	4	Unipolar	12	50	480	80	530	80	49.5	3.5	3	10.1	42	17	STP210-ND	19.13	86.06	153.00	STP-42ND48SVE-50
7.5°	4	Unipolar	24	100	480	80	700	80	49.5	3.5	3	10.1	42	17	STP211-ND	19.13	86.06	153.00	STP-42ND48SVE-100
18°	2	Bipolar	5	20	500	3	23	5	14	2.2	1.5	3.5	10	11.5	STP120-ND	16.25	73.13	130.00	STP-10NI20SE-20
7.5°	4	Unipolar	12	50	480	20	170	30	34	3.3	2	8.4	25	13.7	STP118-ND	17.50	78.75	140.00	STP-25NI48SVE-50
7.5°	4	Unipolar	24	100	480	55	550	70	49.5	3.5	2	9.5	35	15.5	STP119-ND	17.38	78.19	139.00	STP-35NI48SVE-100

Unipolar Stepper Motor Driver Board



The MTSD-V1 can be used as a stand-alone unipolar stepper motor driver board, or in conjunction with a PC or programmable controller for greater flexibility.

Applications: Robotics, Motion Control, Education, Light Duty Industrial • Adjustable On-Board Step Clock (15-1500 hz) • Continuous Run or Pre-settable Step Count from 0-255 steps • Pushbutton Repeat (pre-set step count) • LED Phase/Step Indicators • .1" SIP Header Connectors (.025" square pins)

"Stand Alone" Functions (Dip Switch Selectable):

- Disable/Enable
- CW/CCW Direction
- Single/Dual Phase Drive
- Locked/Free Motor during Disable
- Continuous Run/Pre-set Step Count (0-225 steps)

Programmable Controller Input Functions:

- Disable/Enable
- CW/CCW Direction
- Pre-set Step Count Repeat
- Logic OUTOUT pin to ID end of pre-set step count
- External Clock Input (10 KHz max)

Power Requirements:

Logic Supply: 5 volts DC @ 50mA
Motor Supply: Maximum of 24 volts DC @ 1.85 amps draw

Board Dimensions: 3.125" x 2.75" x .875"

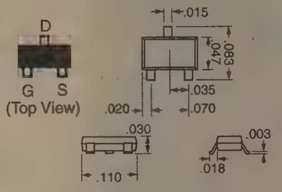
MTSD-V1-ND.........................**$79.94/each**

National Semiconductor™

NEW! Surface Mount and Through-Hole Power Mosfets

Fig.	Type	V_{DS} (V)	$R_{DS(on)}$ Max (Ω) V_{GS} @ 10V	V_{GS} @ 4.5V	V_{GS} @ 2.7V	I_D (A)	P_D (W)	Config. or Pkg.	Digi-Key Part No	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing
SuperSOT™-3 High Drain Current (SOT-23 / TO-236AB)														
1	N-Chan.	30	—	0.25	—	1.1	0.5	Single	NDS351NCT-ND	1.80	13.50	90.00	NDS351NTR-ND	1620.00/3,000
1		30	—	0.125	—	1.6	0.5	Single	NDS355NCT-ND	2.40	18.00	120.00	NDS355NTR-ND	2160.00/3,000
1	P-Chan.	-20	—	0.5	—	-0.85	0.5	Single	NDS352PCT-ND	1.98	14.85	99.00	NDS352PTR-ND	1782.00/3,000
1		-20	—	0.3	—	-1.1	0.5	Single	NDS356PCT-ND	2.64	19.80	132.00	NDS356PTR-ND	2376.00/3,000
SOT-23 (TO236AB)														
1	N-Chan.	50	3.5	6	—	0.22	0.36	Single	BSS138CT-ND	1.14	8.55	57.00	BSS138TR-ND	1026.00/3,000
1		60	7.5	—	—	0.115	0.2	Single	2N7002NCT-ND	.84	6.30	42.00	2N7002TR-ND	756.00/3,000
1		60	5	—	—	0.5	0.3	Single	MMBF170CT-ND	.84	6.30	42.00	MMBF170TR-ND	756.00/3,000
1		60	2	—	—	0.28	0.3	Single	NDS7002ACT-ND	1.20	9.00	60.00	NDS7002ATR-ND	1080.00/3,000
1		100	6	—	—	0.17	0.36	Single	BSS123NCT-ND	.84	6.30	42.00	BSS123NTR-ND	756.00/3,000
1	P-Chan.	-50	10	—	—	-0.13	0.3	Single	BSS84CT-ND	1.32	9.90	66.00	BSS84TR-ND	1188.00/3,000
1		-60	5	7.5	—	-0.18	0.36	Single	NDS0605CT-ND	1.50	11.25	75.00	NDS0605TR-ND	1350.00/3,000
1		-60	10	—	—	-0.12	0.36	Single	NDS0610CT-ND	1.32	9.90	66.00	NDS0610TR-ND	1188.00/3,000
SuperSOT™-6 (SOT-6)														
2	N-Chan.	30	0.06	0.09	—	3.2	1.6	Single	NDC651NCT-ND	2.10	15.75	105.00	NDC651NTR-ND	1890.00/3,000
3		50	2	—	—	0.35	0.5	Dual	NDC7002NCT-ND	1.32	9.90	66.00	NDC7002NTR-ND	1188.00/3,000
2	P-Chan.	-30	0.11	0.18	—	-2.4	1.6	Single	NDC652PCT-ND	2.16	16.20	108.00	NDC652PTR-ND	1944.00/3,000
3		-50	5	—	—	-0.22	0.5	Dual	NDC7003PCT-ND	1.50	11.25	75.00	NDC7003PTR-ND	1350.00/3,000
3	N-Chan.	50	2	—	—	0.35	0.5	Compl.	NDC7001CCT-ND	1.38	10.35	69.00	NDC7001CTR-ND	1242.00/3,000
3	P-Chan.	-50	5	—	—	-0.22	0.5							
SuperSOT™-8 (SOT-8)														
4	N-Chan.	30	0.03	0.045	—	5.8	1.8	Single	NDH8436CT-ND	3.12	23.40	156.00	NDH8436TR-ND	2808.00/3,000
4	P-Chan.	-30	0.053	0.095	—	-4.4	1.8	Single	NDH8447CT-ND	3.30	24.75	165.00	NDH8447TR-ND	1980.00/2,000
SO16 (Complementary N-P Channel 3 Phase Brushless Motor Driver)														
5	N-Chan.	30	0.08	—	—	+/-3.4	3	Compl.	NDM3000CT-ND	11.94	89.55	597.00	NDM3000TR-ND	8955.00/2,500
5	P-Chan.	-30	0.16	—	—	+/-3.4	3							
Power MOSFET (SO-8)														
8	N-Chan.	20	—	0.05	0.07	4.5	2	Dual	NDS8926CT-ND	9.18	68.85	459.00	NDS8926TR-ND	6885.00/2,500
7		30	0.015	0.02	—	10.0	2.5	Single	NDS8410CT-ND	7.08	53.10	354.00	NDS8410TR-ND	5310.00/2,500
8		30	0.037	0.055	—	5.3	2	Dual	NDS8936CT-ND	6.78	50.85	339.00	NDS8936TR-ND	5085.00/2,500
6		30	0.028	0.042	—	7.3	2.5	Single	NDS9410ACT-ND	6.00	45.00	300.00	NDS9410ATR-ND	4500.00/2,500
8		30	0.05	0.08	—	5	2	Dual	NDS9936CT-ND	6.00	45.00	300.00	NDS9936TR-ND	4500.00/2,500
8		30	0.08	0.11	—	3.7	2	Dual	NDS9956ACT-ND	4.68	35.10	234.00	NDS9956ATR-ND	3510.00/2,500
8		50	0.13	0.2	—	3	2	Dual	NDS9955CT-ND	4.80	36.00	240.00	NDS9955TR-ND	3600.00/2,500
8		50	0.3	0.5	—	2	2	Dual	NDS9959CT-ND	4.08	30.60	204.00	NDS9959TR-ND	3060.00/2,500
8		60	0.1	0.2	—	3.5	2	Dual	NDS9945CT-ND	5.40	40.50	270.00	NDS9945TR-ND	4050.00/2,500
8		60	0.16	0.25	—	2.6	2	Dual	NDS9957CT-ND	4.68	35.10	234.00	NDS9957TR-ND	3510.00/2,500
7	P-Chan.	-20	—	0.035	0.05	-6.7	2.5	Single	NDS8434CT-ND	7.68	57.60	384.00	NDS8434TR-ND	5760.00/2,500
6		-20	0.1	0.16	—	-4.3	2.5	Single	NDS9405CT-ND	6.42	48.15	321.00	NDS9405TR-ND	4815.00/2,500
7		-20	0.06	0.115	—	-5.3	2.5	Single	NDS9430CT-ND	6.90	51.75	345.00	NDS9430TR-ND	5175.00/2,500
8		-20	—	0.11	0.19	-3.2	2	Dual	NDS9933CT-ND	4.80	36.00	240.00	NDS9933TR-ND	3600.00/2,500
8		-20	0.1	0.19	—	-3.5	2	Dual	NDS9947CT-ND	6.54	49.05	327.00	NDS9947TR-ND	4905.00/2,500
7		-30	0.028	0.045	—	-7.0	2.5	Single	NDS8435CT-ND	4.92	36.90	246.00	NDS8435TR-ND	3690.00/2,500
8		-30	0.065	0.1	—	-4.0	2	Dual	NDS8947CT-ND	4.80	36.00	240.00	NDS8947TR-ND	3600.00/2,500
6		-30	0.13	0.2	—	-3.6	2.5	Single	NDS9400ACT-ND	3.72	27.90	186.00	NDS9400ATR-ND	2790.00/2,500
7		-30	0.05	0.09	—	-5.3	2.5	Single	NDS9435ACT-ND	6.00	45.00	300.00	NDS9435ATR-ND	4500.00/2,500
8		-30	0.13	0.2	—	-2.9	2	Dual	NDS9953ACT-ND	4.68	35.10	234.00	NDS9953ATR-ND	3510.00/2,500
7		-60	0.15	0.24	—	-3.3	2.5	Single	NDS9407CT-ND	7.68	57.60	384.00	NDS9407TR-ND	5760.00/2,500
8		-60	0.25	0.5	—	-2.3	2	Dual	NDS9948CT-ND	5.70	42.75	285.00	NDS9948TR-ND	4275.00/2,500

Fig. 1 SOT-23 (TO-236AB)



SuperSOT™-6

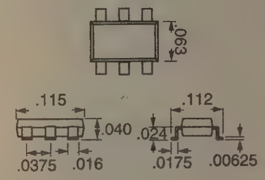
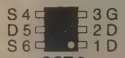
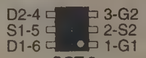


Fig. 2



SOT-6
(Top View)

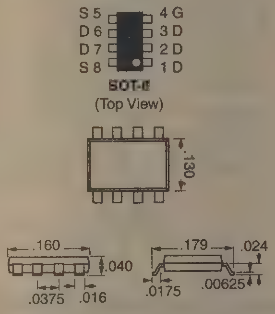
Fig. 3



SOT-6
(Top View)

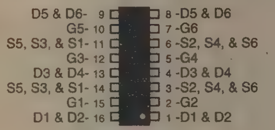
NDC7001CCT:
G1, S1, D1 are P-Chan

Fig. 4 SuperSOT™-8



SOT-8
(Top View)

Fig. 5 SO-16

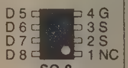


SOIC-16
COMMON SOURCE
(TOP VIEW)

1, 3, 5
are P-Chan

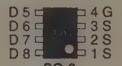
2, 4, 6
are N-Chan

Fig. 6



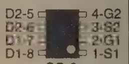
SO-8
(Top View)

Fig. 7



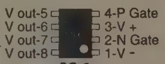
SO-8
(Top View)

Fig. 8



SO-8
(Top View)
1, 2, 7, 8 are P-Chan

Fig. 9



SO-8
(Top View)

Fig.	Type	V_{DS} (V)	$R_{DS(on)}$ Max (Ω)			I_D (A)	P_D (W)	Config. or Pkg.	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing
			V_{GS} @ 10V	V_{GS} @ 4.5V	V_{GS} @ 2.7V					1	10	100		
PowerSOT (SOT-223)														
10	N-Chan.	30	0.05	0.08	—	5.5	3	Single	NDT451NCT-ND	3.36	25.20	168.00	NDT451NTR-ND	2520.00/2,500
10		30	0.037	0.055	—	7.1	3	Single	NDT451ANCT-ND	2.22	16.65	111.00	NDT451ANTR-ND	1665.00/2,500
10		30	0.028	0.042	—	8	3	Single	NDT453NCT-ND	6.00	45.00	300.00	NDT453NTR-ND	4500.00/2,500
10		30	0.015	0.02	—	11.5	3	Single	NDT455NCT-ND	4.44	33.30	222.00	NDT455NTR-ND	3330.00/2,500
10		60	0.2	—	—	2.7	3	Single	NDT014CT-ND	2.28	17.10	114.00	NDT014TR-ND	1710.00/2,500
10		60	0.12	—	—	3.7	3	Single	NDT3055CT-ND	3.36	25.20	168.00	NDT3055TR-ND	2520.00/2,500
10		60	—	0.15	—	3.5	3	Single	NDT3055LCT-ND	3.36	25.20	168.00	NDT3055LTR-ND	2520.00/2,500
10	P-Chan.	-30	0.18	0.32	—	-3	3	Single	NDT452PCT-ND	3.36	25.20	168.00	NDT452PTR-ND	2520.00/2,500
10		-30	0.035	0.05	—	-7.3	3	Single	NDT456PCT-ND	4.20	31.50	210.00	NDT456PTR-ND	3150.00/2,500
10		-60	0.3	0.5	—	-2.5	3	Single	NDT2955CT-ND	3.48	26.10	174.00	NDT2955TR-ND	2610.00/2,500
Power MOSFET (SO-8) (Complementary N-P Channel 3 Phase Brushless Motor Driver)														
8	N-Chan.	20	0.125	0.25	—	3	2	Compl.	NDS9942CT-ND	5.40	40.50	270.00	NDS9942TR-ND	4050.00/2,500
8	P-Chan.	-20	0.2	0.4	—	-2.5	2							
8	N-Chan.	20	0.125	0.25	—	3	2	Compl.	NDS9943CT-ND	6.42	48.15	321.00	NDS9943TR-ND	4815.00/2,500
8	P-Chan.	-20	0.16	0.3	—	-2.8	2							
8	N-Chan.	20	0.1	0.15	—	3.5	2	Compl.	NDS9958CT-ND	6.54	49.05	327.00	NDS9958TR-ND	4905.00/2,500
8	P-Chan.	-20	0.1	0.19	—	-3	2							
8	N-Chan.	30	0.037	0.055	—	5.3	2	Compl.	NDS8958CT-ND	4.92	36.90	246.00	NDS8958TR-ND	3690.00/2,500
8	P-Chan.	-30	0.065	0.10	—	-4.0	2							
8	N-Chan.	30	0.08	0.11	—	4	2	Compl.	NDS9952ACT-ND	5.34	40.05	267.00	NDS9952ATR-ND	4005.00/2,500
8	P-Chan.	-30	0.13	0.2	—	-2.9	2							
Power MOSFET (SO-8) (Complementary MOSFETS Half Bridge)														
9	N-Chan.	30	0.037	0.055	—	6.3	2.5	Compl.	NDS8858HCT-ND	4.92	36.90	246.00	NDS8858HTR-ND	3690.00/2,500
9	P-Chan.	-30	0.065	0.10	—	-4.8	2.5							
9	N-Chan.	30	0.08	0.11	—	4.3	2.5	Compl.	NDS8852HCT-ND	5.52	41.40	276.00	NDS8852HTR-ND	4140.00/2,500
9	P-Chan.	-30	0.13	0.2	—	-3.4	2.5							
Power MOSFET (TO-263AB)														
11	N-Chan.	30	0.022	0.04	—	25	50	TO-263AB	NDB603ALCT-ND	4.62	34.65	231.00	NDB603ALTR-ND	1108.80/800
11		50	0.1	—	—	15	50	TO-263AB	NDB4050CT-ND	3.60	27.00	180.00	NDB4050TR-ND	864.00/800
11		50	—	—	0.1	15	50	TO-263AB	NDB4050LCT-ND	3.72	27.90	186.00	NDB4050LTR-ND	892.80/800
11		50	0.015	—	—	75	150	TO-263AB	NDB7050CT-ND	13.80	103.50	690.00	NDB7050TR-ND	3312.00/800
11		50	—	—	0.015	75	150	TO-263AB	NDB7050LCT-ND	15.36	115.20	768.00	NDB7050LTR-ND	3686.40/800
11		60	0.1	—	—	15	50	TO-263AB	NDB4060CT-ND	3.60	27.00	180.00	NDB4060TR-ND	864.00/800
11		60	—	—	0.1	15	50	TO-263AB	NDB4060LCT-ND	3.72	27.90	186.00	NDB4060LTR-ND	892.80/800
11		60	0.025	—	—	48	100	TO-263AB	NDB6060CT-ND	5.40	40.50	270.00	NDB6060TR-ND	1296.00/800
11		60	—	—	0.025	48	100	TO-263AB	NDB6060LCT-ND	5.40	40.50	270.00	NDB6060LTR-ND	1296.00/800
11		60	0.015	—	—	75	150	TO-263AB	NDB7060CT-ND	13.80	103.50	690.00	NDB7060TR-ND	3312.00/800
11		60	—	—	0.015	75	150	TO-263AB	NDB7060LCT-ND	10.80	81.00	540.00	NDB7060LTR-ND	2592.00/800

Fig.	Type	V_{DS} (V)	$R_{DS(on)}$ Max (Ω)			I_D (A)	P_D (W)	Config. or Pkg.	Digi-Key Part No.	Pricing		
			V_{GS} @ 10V	V_{GS} @ 4.5V	V_{GS} @ 2.7V					1	10	100
Through-Hole Power MOSFET (TO-220AB)												
12	N-Chan.	30	0.022	0.04	—	25	50	TO-220AB	NDP603AL-ND	3.06	23.80	180.88
12		50	0.1	—	—	15	50	TO-220AB	NDP4050-ND	1.31	10.15	77.14
12		50	—	—	0.1	15	50	TO-220AB	NDP4050L-ND	1.35	10.50	79.80
12		50	0.015	—	—	75	150	TO-220AB	NDP7050-ND	4.79	37.28	283.29
12		50	—	—	0.015	75	150	TO-220AB	NDP7050L-ND	4.55	35.35	268.66
12		60	0.1	—	—	15	50	TO-220AB	NDP4060-ND	1.37	10.68	81.13
12		60	—	—	0.1	15	50	TO-220AB	NDP4060L-ND	1.44	11.20	85.12
12		60	0.025	—	—	48	100	TO-220AB	NDP6060-ND	1.85	14.35	109.06
12		60	—	—	0.025	48	100	TO-220AB	NDP6060L-ND	1.85	14.35	109.06
12		60	0.015	—	—	75	150	TO-220AB	NDP7060-ND	5.00	38.85	295.26
12		60	—	—	0.015	75	150	TO-220AB	NDP7060L-ND	4.55	35.35	268.66
Through-Hole Power MOSFET (TO-92)												
13	N-Chan.	60	5	—	—	0.2	0.4	TO-92	2N7000-ND	.38	2.98	22.61
13	N-Chan.	60	5	—	—	0.5	0.83	TO-92	BS170-ND	.38	2.98	22.61
13	N-Chan.	100	6	—	—	0.22	0.63	TO-92	BSS100-ND	.50	3.85	29.26
13	P-Chan.	-50	10	—	—	-0.17	0.8	TO-92	BSS110-ND	.41	3.15	23.94
13	P-Chan.	-60	10	—	—	-0.18	0.8	TO-92	NDF0610-ND	.72	5.60	42.56

Fig. 10 SOT-223

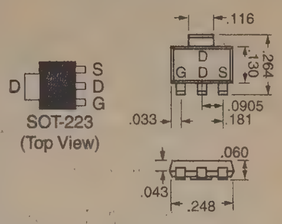


Fig. 11 TO-263AB

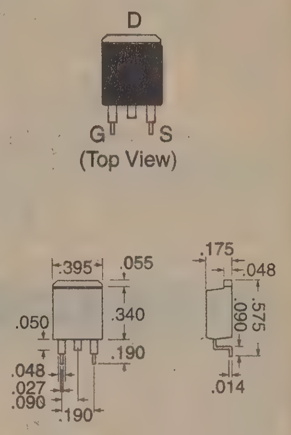


Fig. 12 TO-220AB

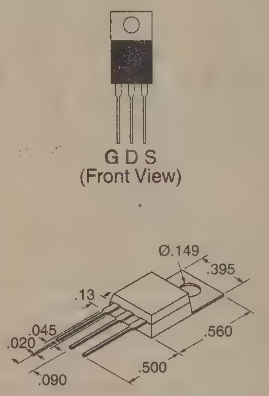
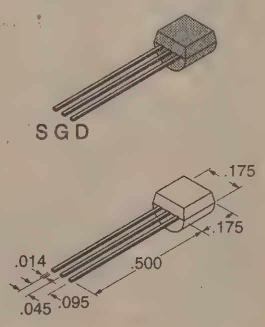
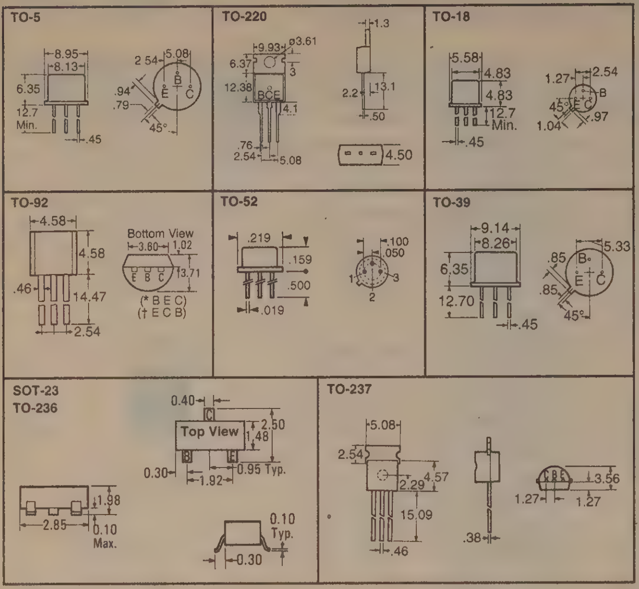


Fig. 13 TO-92



Transistors



National Semiconductor NPN Transistors

Digi-Key Part No.	Description	Min. HFE	Pkg.	Pricing 1	10	100	1,000
2N697-ND	NPN GP, 45V, 150mA	40	TO-39	1.37	11.90	101.50	665.00
2N2219A-ND	NPN GP Ampl SW, 40V, 500mA	100	TO-39	1.52	11.20	92.80	608.00
2N2221-ND	NPN GP Ampl SW, 30V, 500mA	40	TO-18	.82	6.06	50.17	328.70
2N2222-ND	NPN GP Ampl SW, 30V, 500mA	100	TO-18	.90	6.65	55.10	361.00
2N2222A-ND	NPN GP Ampl SW, 40V, 500mA	100	TO-18	.95	7.00	58.00	380.00
2N2369-ND	NPN GP Ampl SW, 15V, 100mA	20	TO-18	1.09	8.05	66.70	437.00
2N2369A-ND	NPN GP Ampl SW, 15V, 100mA	40	TO-18	1.09	8.05	66.70	437.00
2N2484-ND	NPN GP Ampl SW, 60V, 1mA	250	TO-18	1.57	11.55	95.70	627.00
2N3013-ND	NPN Saturated SW, 15V, 300mA	30	TO-18	.93	6.86	56.84	372.40
2N3014-ND	NPN Saturated SW, 20V, 100mA	30	TO-18	.93	6.86	56.84	372.40
2N3108-ND	NPN Medium Pwr, 60V, 500mA	40	TO-39	1.75	12.88	106.72	699.20
2N3117-ND	NPN Medium Pwr, 60V, 1mA	400	TO-18	1.52	11.20	92.80	608.00
2N3440-ND	NPN Medium Pwr, 250V, 20mA	40	TO-39	1.90	14.00	116.00	760.00
2N3704-ND†	NPN GP Ampl SW, 30V, 500MA	100	TO-92	.38	2.80	23.20	152.00
2N3724-ND	NPN Saturated SW, 30V, 1A	60	TO-39	2.14	15.75	130.50	855.00
2N3725-ND	NPN High Speed SW, 50V 500mA	60	TO-39	2.14	15.75	130.50	855.00
2N3903-ND	NPN SS GP Ampl, 40V, 100	50	TO-92	.37	2.93	15.60	97.50
2N3904-ND	NPN SSGP, 40V, 100mA	100	TO-92	.29	2.33	12.40	77.50
2N4123-ND	NPN SS GP Ampl, 30V, 50mA	50	TO-92	.29	2.33	12.40	77.50
2N4124-ND	NPN SSGP, 25V, 50mA	60	TO-92	.30	2.40	12.80	80.00
2N4237-ND	NPN Power SW, 40V, 250mA	30	TO-39	2.20	19.18	163.56	1071.60
2N4238-ND	NPN Power SW, 60V, 500mA	30	TO-39	2.73	23.80	203.00	1330.00
2N4400-ND	NPN SS GP Ampl, 40V, 500mA	50	TO-92	.30	2.40	12.80	80.00
2N4401-ND	NPN SSGP, 40V, 500mA	100	TO-92	.29	2.33	12.40	77.50
2N4410-ND	NPN LLGP, 80V, 10mA	60	TO-92	.63	5.40	40.50	171.00
2N5088-ND	NPN LL LN Ampl, 30V, 10mA	350	TO-92	.49	4.20	31.50	133.00
2N5089-ND	NPN LL LN Ampl, 25V, 10mA	450	TO-92	.42	3.60	27.00	114.00
2N5210-ND	NPN LLGP, 50V, 10mA	250	TO-92	.42	3.60	27.00	114.00
2N5224-ND	NPN Saturated SW, 12V, 100mA	40	TO-92	.36	3.12	23.40	98.80
2N5320-ND	NPN Power GP, 100V, 500mA	30	TO-39	2.73	23.80	203.00	1330.00
2N5550-ND	NPN SS GP Ampl, 140V, 50mA	60	TO-92	.68	5.82	43.65	184.30
2N5769-ND	NPN Saturated SW, 15V, 10mA	40	TO-92	.63	5.40	40.50	171.00
2N5770-ND	NPN RF Ampl, 15V,50mA	20	TO-92	.63	5.40	40.50	171.00
2N5772-ND	NPN Saturated SW, 15V, 300mA	30	TO-92	.70	6.00	45.00	190.00
2N5830-ND	NPN SS GP Ampl, 100V, 50mA	80	TO-92	.86	6.30	52.20	342.00
2N5961-ND	NPN LL Ampl, 60V, 10mA	150	TO-92	.57	4.20	34.80	228.00
2N6714-ND	NPN GP Ampl, 30V, 1000mA	50	TO-237	.76	5.60	46.40	304.00
2N6715-ND	NPN Silicon Audio Power (92P001A)	—	TO-237	.81	5.95	49.30	323.00
2N6719-ND	NPN Power Amp, 300V, 30mA	40	TO-237	.86	6.30	52.20	342.00
2N6724-ND	NPN Darlington, 40V, 1Amp	25K	TO-237	.94	6.93	57.42	376.20
2N6725-ND	NPN Darlington, 1A	25K	TO-237	1.05	7.70	63.80	418.00
MPS2924-ND	NPN SS GP Ampl, 25V, 2mA	150	TO-92	.32	2.84	25.20	104.58
MPS3392-ND	NPN SS GP Ampl, 25V, 2mA	100	TO-92	.41	3.65	32.40	134.46
MPS6514-ND	NPN SS GP Ampl, 25V, 100mA	150	TO-92	.30	2.70	24.00	99.60
MPS6515-ND	NPN SS GP Ampl, 25V, 100mA	250	TO-92	.30	2.70	24.00	99.60
MPS6561-ND	NPN SS GP Ampl, 20V, 300mA	50	TO-92	.29	2.61	23.20	96.28
MPSA06-ND	NPN SS GP Ampl, 80V, 50mA	50	TO-92	.26	2.30	20.40	84.66
MPSA10-ND	NPN SS GP Ampl, 40V, 5mA	40	TO-92	.32	2.84	25.20	104.58
MPSA12-ND	NPN Darlington, 20V, 10mA	20K	TO-92	.40	3.60	32.00	132.80
MPSA13-ND	NPN Darlington, 30V, 100mA	10K	TO-92	.30	2.70	24.00	99.60
MPSA14-ND	NPN Darlington, 30V, 100mA	20K	TO-92	.35	3.15	28.00	116.20
MPSA42-ND	NPN Medium Power, 300V, 30mA	40	TO-92	.40	3.60	32.00	132.80
MPSA43-ND	NPN Medium Power, 200V, 30mA	50	TO-92	.65	5.85	52.00	215.80
MPSH10-ND*	NPN RF Ampl, 25V, 50mA	60	TO-92	.55	4.95	44.00	182.60
PN2222-ND	NPN SSGP, 30V, 500mA	100	TO-92	.19	1.79	16.00	80.00
PN2222A-ND	NPN SSGP, 40V, 500mA	100	TO-92	.20	1.85	16.50	82.50
PN2369-ND	NPN Saturated SW, 15V, 10mA	20	TO-92	.25	2.35	21.00	105.00
PN2369A-ND	NPN Saturated, 15V, 100mA	40	TO-92	.26	2.46	22.00	110.00
PN2484-ND	NPN LL Ampl, 60V, 10mA	250	TO-92	.54	5.04	45.00	225.00
PN3565-ND	NPN LLGP, 25V, 1mA	150	TO-92	.35	3.25	29.00	145.00
PN3566-ND	NPN SSGP, 30V, 100mA	150	TO-92	.54	5.04	45.00	225.00
PN3567-ND	NPN SSGP, 40V, 150mA	40	TO-92	.46	4.26	38.00	190.00
PN3569-ND	NPN SSGP, 40V, 150mA	100	TO-92	.22	2.02	18.00	90.00
PN4275-ND	NPN SSHS, 15V, 100mA	35	TO-92	.42	3.92	35.00	175.00
PN5133-ND	NPN LL Ampl, 18V, 1mA	60	TO-92	.24	2.24	20.00	100.00
PN5134-ND	NPN Saturated SW, 10V, 30mA	20	TO-92	.35	3.30	29.50	147.50
PN5135-ND	NPN SSGP Ampl, 25V, 100mA,	50	TO-92	.24	2.24	20.00	100.00

National Semiconductor PNP Transistors

Digi-Key Part No.	Description	Min. HFE	Pkg.	Pricing 1	10	100	1,000
2N2904-ND	PNP GP Ampl SW, 40, 500mA	40	TO-39	1.52	11.20	92.80	608.00
2N2905-ND	PNP GP Ampl SW, 40, 500mA	100	TO-39	1.52	11.20	92.80	608.00
2N2905A-ND	PNP GP Ampl SW, 60, 500mA	100	TO-39	1.52	11.20	92.80	608.00
2N2906-ND	PNP GP Ampl SW, 40, 500mA	40	TO-18	.62	4.55	37.70	247.00
2N2906A-ND	PNP GP Ampl SW, 60, 500mA	40	TO-18	.87	6.44	53.36	349.60
2N2907-ND	PNP GP Ampl SW, 40, 500mA	100	TO-18	.95	7.00	58.00	380.00
2N2907A-ND	PNP GP Ampl SW, 60, 500mA	100	TO-18	.95	7.00	58.00	380.00
2N3905-ND	PNP SS GP Ampl, 40, 100mA	50	TO-92	.29	2.33	12.40	77.50
2N3906-ND	PNP SSGP, 40V, 100mA	100	TO-92	.29	2.33	12.40	77.50
2N3962-ND	PNP LL LN Ampl, 60, 1mA	100	TO-18	1.09	8.05	66.70	437.00
2N4033-ND	PNP SS GP Ampl, 80, 1A	100	TO-39	1.81	13.30	110.20	722.00
2N4036-ND	PNP SS GP Ampl, 85, 500mA	40	TO-39	1.81	13.30	110.20	722.00
2N4125-ND	PNP SS GP Ampl, 25, 50mA	120	TO-92	.30	2.40	12.80	80.00
2N4126-ND	PNP SSGP, 25V, 50mA	60	TO-92	.30	2.40	12.80	80.00
2N4208-ND	PNP Saturated SW, 12, 50mA	30	TO-18	3.90	26.00	208.00	1950.00
2N4209-ND	PNP Saturated SW, 15, 50mA	50	TO-18	3.90	26.00	208.00	1950.00
2N4234-ND	PNP Power SW, 40, 250mA	30	TO-39	1.88	16.42	140.07	917.70
2N4402-ND†	PNP SS GP Ampl, 40, 500mA	50	TO-92	.30	2.40	12.80	80.00
2N4403-ND	PNP SSGP, 40V, 500mA	100	TO-92	.29	2.33	12.40	77.50
2N5087-ND	PNP LLGP, 50V, 10mA	250	TO-92	.56	4.80	36.00	152.00
2N5226-ND	PNP SS GP Ampl, 25, 100mA	30	TO-92	.35	2.78	14.80	92.50
2N5322-ND	PNP Power GP, 75, 500mA	30	TO-39	2.34	20.40	174.00	1140.00
2N5323-ND	PNP Power GP, 50, 500mA	40	TO-39	1.90	14.00	116.00	760.00
2N5400-ND	PNP SS GP Ampl, 120, 50mA	40	TO-92	.60	5.10	38.25	161.50
2N5401-ND	PNP SS GP Ampl, 150, 50mA	60	TO-92	.60	5.10	38.25	161.50
2N5415-ND	PNP Power GP, 200V, 50mA	30	TO-39	2.73	23.80	203.00	1330.00
2N5679-ND	PNP Power GP, 100V, 250mA	40	TO-39	2.29	19.96	170.23	1115.30
2N5680-ND	PNP Power GP, 120V, 250mA	40	TO-39	2.65	23.12	197.20	1292.00
2N5771-ND	PNP HS SW, 15V, 10mA	50	TO-92	2.45	16.40	131.00	1225.00
2N6726-ND	PNP GP Ampl, 30V, 1000mA	50	TO-237	.94	8.04	60.30	254.60
2N6727-ND	PNP SSGP, 40V, 1A	80	TO-237	.70	6.12	52.20	342.00
PN3638A-ND	PNP SSGP, 25V, 300mA	30	TO-92	.35	3.15	28.00	116.20
MPSA56-ND	PNP High Current Dr, 80V, 500mA	50	TO-92	.29	2.61	23.20	96.28
MPSA92-ND	PNP High V Amp, 300V, 500mA	25	TO-92	.40	3.60	32.00	132.80
MPSA93-ND	PNP Medium Power, 200V, 30mA	40	TO-92	.40	3.60	32.00	132.80
MPSL51-ND	PNP SS GP Ampl, 100V, 50mA	40	TO-92	.43	3.83	34.00	141.10
PN2907-ND	PNP SSGP, 40V, 500mA	100	TO-92	.19	1.79	16.00	80.00
PN2907A-ND	PNP SSGP, 60V, 500mA	100	TO-92	.20	1.85	16.50	82.50
PN3251-ND	PNP SS GP Ampl, 40V, 50mA	100	TO-92	.36	3.36	30.00	150.00
PN3640-ND	PNP Saturated SW, 12V, 50mA	30	TO-92	1.68	15.68	140.00	700.00
PN3644-ND	PNP SSGP, 45V, 300mA	100	TO-92	.48	4.48	40.00	200.00
PN3645-ND	PNP SSGP, 60V, 300mA	100	TO-92	.42	3.92	35.00	175.00
PN4121-ND	PNP SSGP, 40V, 50mA	70	TO-92	.36	3.36	30.00	150.00
PN4122-ND	PNP SSGP, 40V, 50mA	150	TO-92	.48	4.48	40.00	200.00
PN4249-ND	PNP LLLN, 60V, 1mA	300	TO-92	.42	3.92	35.00	175.00
PN4250-ND	PNP LLLN, 40V, 1mA	250	TO-92	.30	2.80	25.00	125.00
PN4250A-ND	PNP LLLN, 60V, 1mA	250	TO-92	.33	3.08	27.50	137.50
PN4888-ND	PNP SS GP Ampl, 150V, 10mA	40	TO-92	.28	2.58	23.00	115.00
PN4917-ND	PNP SSGP Ampl, 30V, 50mA	150	TO-92	.42	3.92	35.00	175.00
PN5138-ND	PNP LL Ampl, 30V, 10mA	50	TO-92	.36	3.36	30.00	150.00
PN5139-ND	PNP SSGP Ampl, 20V, 50mA	40	TO-92	.22	2.07	18.50	92.50
PN5142-ND	PNP SS GP Ampl, 20V, 300mA	30	TO-92	.31	2.91	26.00	130.00

National Semiconductor N-Channel J-FET Transistors

Digi-Key Part No.	Description	Pkg.	Pricing 1	10	100	1,000
2N4392-ND	N-Channel JFet, 40V, 75mA	TO-18	1.95	17.00	145.00	950.00
2N5434-ND	N-Channel JFet, 25V, 30mA	TO-52	5.93	51.68	440.80	2888.00
2N5457-ND	N-Channel JFet GP Amp	TO-92	.81	5.95	49.30	323.00
MPF102-ND	N-Channel JFet VHF Amp & Mixer	TO-92	.56	4.96	43.20	265.60

HARRIS SEMICONDUCTOR NPN Transistors

Digi-Key Part No.	Description	Pkg.	Pricing 1	10	100	1,000
TIP29GE-ND	NPN, 1A, 40V	TO-220	.98	8.75	73.50	525.00
TIP29AGE-ND	NPN, 1A, 60V	TO-220	1.01	9.00	75.60	540.00
TIP29CGE-ND	NPN, 1A, 100V	TO-220	1.06	9.50	79.80	570.00
TIP31CGE-ND	NPN, 3A, 100V	TO-220	1.06	9.50	79.80	570.00

DIODES LITEON NPN Transistors

Description	Min. HFE	Pkg.	Digi-Key Part No.	Pricing 10	100	Digi-Key Part No.	Pricing*
NPN Gen. Purp., 40V, 100mA	30	TO-92	2N3904DICT-ND	1.60	12.80	2N3904DITB-ND‡	256.00/4M
NPN Gen. Purp., 60V, 150mA	100	TO-92	2N4401DICT-ND	1.65	13.20	2N4401DITB-ND‡	166.00/2M
NPN Gen. Purp., 160V, 50mA	80	TO-92	2N5551DICT-ND	2.00	16.00	2N5551DITB-ND‡	160.00/2M
NPN Gen. Purp., 60V, 100mA, 0.25	50	TO-92	MPSA05DICT-ND	2.08	15.60	MPSA05DITB-ND‡	208.00/2M
NPN Gen. Purp., 80V, 100mA, 0.25	50	TO-92	MPSA06DICT-ND	2.08	15.60	MPSA06DITB-ND‡	208.00/2M
NPN Darlington, 30V, 100mA	10K	TO-92	MPSA13DICT-ND	2.08	15.60	MPSA13DITB-ND‡	208.00/2M
NPN Darlington, 30V, 100mA	20K	TO-92	MPSA14DICT-ND	2.08	15.60	MPSA14DITB-ND‡	208.00/2M
NPN SMD 350mW, 40V, 1.0	100	SOT-23	MMBT2222ADICT-ND	2.29	16.48	MMBT2222ADITR-ND*	285.00/3M
NPN SMD 350mW, 40V, 0.3	50	SOT-23	MMBT3903DICT-ND	1.45	10.46	MMBT3903DITR-ND*	180.00/3M
NPN SMD 350mW, 40V, 0.3	100	SOT-23	MMBT3904DICT-ND	1.89	13.63	MMBT3904DITR-ND*	234.00/3M
NPN SMD 350mW, 40V, 0.75	100	SOT-23	MMBT4401DICT-ND	2.29	16.48	MMBT4401DITR-ND*	285.00/3M
NPN Gen Purp, 160V, 10mA, 0.25	250	TO-236	MMBT5551DICT-ND	2.90	23.20	MMBT5551DITR-ND*	348.00/3M
NPN Gen. Purp., 60V, 100mA, 0.25	50	TO-236	MMBTA05DICT-ND	3.10	24.80	MMBTA05DITR-ND*	372.00/3M
NPN Gen. Purp., 80V, 100mA, 0.25	50	TO-236	MMBTA06DICT-ND	3.10	24.80	MMBTA06DITR-ND*	372.00/3M
NPN Darlington Amp. 30V, 100mA	10K	TO-236	MMBTA13DICT-ND	3.10	24.80	MMBTA13DITR-ND*	372.00/3M
NPN Darlington Amp. 30V, 100mA	20K	TO-236	MMBTA14DICT-ND	3.10	24.80	MMBTA14DITR-ND*	372.00/3M
NPN Gen. Purp., 40V, 150mA ***NEW!***	100	TO-92	PN2222ADICT-ND	1.75	14.00	PN2222ADITB-ND‡	176.00/2M

*TR = Tape & Reel ‡TB = Tape & Box

DIODES LITEON PNP Transistors

Description	Min. HFE	Pkg.	Digi-Key Part No.	Pricing 10	100	Digi-Key Part No.	Pricing*
PNP Gen. Purp., 40V, 100mA ***NEW!***	30	TO-92	2N3906DICT-ND	1.60	12.80	2N3906DITB-ND‡	256.00/4M
PNP Gen. Purp., 40V, 150mA ***NEW!***	100	TO-92	2N4403DICT-ND	1.65	13.20	2N4403DITB-ND‡	166.00/2M
PNP Gen. Purp., 150V, 10mA	40	TO-92	2N5401DICT-ND	2.10	16.80	2N5401DITB-ND‡	168.00/2M
PNP Gen. Purp., 60V, 100mA	50	TO-92	MPSA55DICT-ND	1.88	14.10	MPSA55DITB-ND‡	208.00/2M
PNP Gen. Purp., 80V, 100mA	50	TO-92	MPSA56DICT-ND	2.08	15.60	MPSA56DITB-ND‡	208.00/2M
PNP SMD 350mW, 40V, 0.4	50	SOT-23	MMBT3905DICT-ND	1.50	10.78	MMBT3905DITR-ND*	186.00/3M
PNP SMD 350mW, 40V, 0.4	100	SOT-23	MMBT3906DICT-ND	1.89	13.63	MMBT3906DITR-ND*	234.00/3M
PNP SMD 350mW, 40V, 0.75	50	SOT-23	MMBT4402DICT-ND	1.58	11.41	—	—
PNP SMD 350mW, 40V, 0.75	100	SOT-23	MMBT4403DICT-ND	2.29	16.48	MMBT4403DITR-ND*	285.00/3M
PNP SMD Gen. Purp., 60V, 100mA	50	TO-236	MMBTA55DICT-ND	3.10	24.80	MMBTA55DITR-ND*	372.00/3M
PNP SMD Gen. Purp., 80V, 100mA	50	TO-236	MMBTA56DICT-ND	3.10	24.80	MMBTA56DITR-ND*	372.00/3M
PNP SMD Gen. Purp., 60V, 150mA	300	TO-236	MMBT2907ADICT-ND	2.60	20.80	MMBT2907ADITR-ND*	312.00/3M
PNP SMD Gen. Purp., 150V, 1mA	200	TO-236	MMBT5401DICT-ND	2.90	23.20	MMBT5401DITR-ND*	348.00/3M
PNP Gen. Purp., 60V, 150mA ***NEW!***	50	TO-92	PN2907ADICT-ND	1.75	14.00	PN2907ADITB-ND‡	176.00/2M

*TR = Tape & Reel ‡TB = Tape & Box

DIODES LITEON N-Channel Mosfets

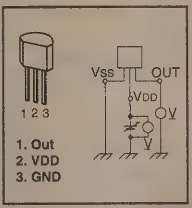
Description	RDS (on) type	Pkg.	Digi-Key Part No.	Pricing 10	100	Digi-Key Part No.	Pricing*
N-channel Enhancement, 60V, 0.2A	1.2Ω	TO-92	2N7000DICT-ND	6.50	52.00	2N7000DITB-ND‡	1040.00/4M
N-channel Enhancement, 60V, 0.3A,	3.5Ω	TO-92	BS170DICT-ND	7.50	60.00	BS170DITB-ND‡	1200.00/4M
N-channel Enhancement, 60V, 0.115A	1.2Ω	TO-236	2N7002DICT-ND	6.50	52.00	2N7002DITR-ND*	780.00/3M

*TR = Tape & Reel ‡TB = Tape & Box

Panasonic. Voltage Detectors

Highly Reliable, Easy-to-Use CMOS LS Is for Voltage Detection

The MN1380 Series is a series of devices with functions for: • Monitoring the power supply voltage supplied to microcomputers and to LSI systems • Generating the RESET signal for carrying out initialization when the power supply is turned ON • Preventing runaway in systems when the power supply voltage fluctuates. Recently, there has been an increase in the number of battery-driven products such as cordless telephones, notebook-type personal computers, etc. In these products, highly accurate monitoring of the power supply voltage is an important point in terms of system operation and data backup. While maintaining the voltage detection precision of similar voltage detection devices so far, the MN1380 Series of devices consumes 1/10 the current. In addition, users can choose from one of three output formats: CMOS output, N-ch open drain and inverted CMOS output.



1. Out
2. VDD
3. GND

Item	Symbol	Rating	Unit
Drain Supply Voltage	VDD	7.0	V
Output voltage	V0	-0.3 ~ VDD + 0.3	V
Operating Ambient Temperature	Ta	-20 ~ +70	°C
Storage Temperature	Tstg	-55 ~ +125	°C
Detection Voltage Hysteresis Max		300	MV

9198B-ND MN1380 Series Data Booklet **$1.95**

Output Type	Detection Voltage at Drain Supply (Trigger V) Min	Max	Reset Time (µs) tOH	tOL	Digi-Key Part No.	Pricing 1	10	100
CMOS	2.0	2.2	3.0	250	MN1381-C-ND	1.08	9.68	71.68
	2.2	2.4	3.0	250	MN1381-E-ND	1.08	9.68	71.68
	2.4	2.6	3.0	115	MN1381-G-ND	1.08	9.68	71.68
	2.6	2.9	3.0	115	MN1381-J-ND	1.08	9.68	71.68
	3.0	3.3	2.0	15	MN1381-L-ND	1.08	9.68	71.68
	3.4	3.7	2.0	15	MN1381-N-ND	1.08	9.68	71.68
	3.8	4.1	2.0	15	MN1381-Q-ND	1.08	9.68	71.68
	4.2	4.5	2.0	15	MN1381-S-ND	1.08	9.68	71.68
	4.6	4.9	—	—	MN1381-U-ND	1.08	9.68	71.68
N Channel O.D.	2.0	2.2	2.5	160	MN13811-C-ND	1.08	9.68	71.68
	2.2	2.4	2.5	160	MN13811-E-ND	1.08	9.68	71.68
	2.4	2.6	3.0	100	MN13811-G-ND	1.08	9.68	71.68
	3.0	3.3	4.0	35	MN13811-L-ND	1.08	9.68	71.68
	3.4	3.7	4.0	35	MN13811-N-ND	1.08	9.68	71.68
	3.8	4.1	4.0	35	MN13811-Q-ND	1.08	9.68	71.68
	4.2	4.5	4.0	35	MN13811-S-ND	1.08	9.68	71.68
	4.6	4.9	—	—	MN13811-U-ND	1.08	9.68	71.68
CMOS Inverted	2.0	2.2	230	3.0	MN13812-C-ND	1.08	9.68	71.68
	2.2	2.4	230	3.0	MN13812-E-ND	1.08	9.68	71.68
	2.4	2.6	100	3.0	MN13812-G-ND	1.08	9.68	71.68
	3.0	3.3	30	3.0	MN13812-L-ND	1.08	9.68	71.68
	3.4	3.7	30	3.0	MN13812-N-ND	1.08	9.68	71.68
	3.8	4.1	30	3.0	MN13812-Q-ND	1.08	9.68	71.68
	4.2	4.5	30	3.0	MN13812-S-ND	1.08	9.68	71.68
	4.6	4.9	30	3.0	MN13812-U-ND	1.08	9.68	71.68

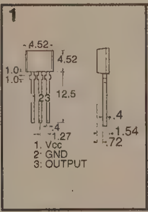
Panasonic. Hall Effect Sensor IC's

Panasonic's Hall IC is a combination of a Hall element, amplifier, Schmidt circuit, and stabilized power supply/temperature compensator integrated on an identical chip by using the IC technology. It amplifies Hall element output at the amplifier, converts into a digital signal through the Schmidt circuit, and drives the TTL or MOS IC directly.

• **Features:** • Stable temperature characteristics due to the additional temperature compensator • TTL and MOS ICs directly drivable by output • Semipermanent service life due to no contact parts • Small change of the operating flux density against mechanical stress • Provided with the output pull-up resistors (typ. 27kΩ) or open collector output (see chart) • Operating Temperature: -40°C to 100°C (-40°C to 85°C for DN6851 - DN6853) • Supply Current Max: 6 mA • Output Circuit Max: 20 mA

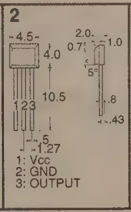
• **Applications:** • Speed Sensors • Position Sensors • Rotation Sensors • Keyboard Switches • Microswitches

1



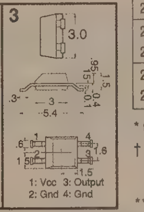
1. Vcc
2. GND
3: OUTPUT

2



1: Vcc
2: GND
3: OUTPUT

3



1: Vcc 3: Output
2: Gnd 4: Gnd

9208B-ND Panasonic Hall Effect Sensor Data Book **$2.50**

Fig. No.	Supply Voltage Range (V)	Oper.** Flux Density (Gauss) (L-H)	(H-L)	Output* Type	Oper.† Type	Pkg.	Digi-Key Part No.	Pricing 1	10	100
1	4.5 – 16	-175	175	Pullup	Bi-Dir	3-Sip	DN6847SE-ND	1.69	15.20	112.64
2	4.5 – 16	5	220	OC	Uni-Dir	3-Sip	DN6848-ND	.86	7.77	57.58
3	4.5 – 16	5	220	OC	Uni-Dir	SOH-4D	DN6848S-ND	.86	7.77	57.58
2	4.5 – 16	-175	175	OC	Bi-Dir	3-Sip	DN6849-ND	1.69	15.20	112.64
3	4.5 – 16	-175	175	OC	Bi-Dir	SOH-4D	DN6849S-ND	1.69	15.20	112.64
1	4.5 – 16	-175	175	OC	Bi-Dir	3-Sip	DN6849SE-ND	1.69	15.20	112.64
2	3.6 – 16	-200	200	Pullup	Bi-Dir	3-Sip	DN6851A-ND	.75	6.76	50.06
2	3.6 – 16	100	450	OC	Uni-Dir	3-Sip	DN6852A-ND	.86	7.77	57.58
2	3.6 – 16	-200	200	OC	Bi-Dir	3-Sip	DN6853A-ND	1.13	10.14	75.09
2	4.5 – 16	-120	120	Pullup	Bi-Dir	3-Sip	DN8897-ND	1.69	15.20	112.64
2	4.5 – 16	-120	120	OC	Bi-Dir	3-Sip	DN8899-ND	1.69	15.20	112.64

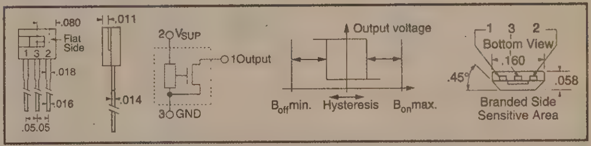
* Output Type: Pull-up Resistors = 27K Internal; OC = open collector.

† Where Uni-Dir Refers to unidirectional and is only sensitive to either north or southside of magnetic; Bi-Dir refers to Bidirectional and is sensitive to an alternatingmagnetic fields of both north and south sides.

** To convert Gauss to millitesla, divide by 10

DIODES LITEON Hall Effect Sensor IC's

FEATURES: • Open-drain output switch • Operates with magnetic fields from DC to 50 kHz • On-chip temperature compensation circuitry minimizes shifts in on and off points and hysteresis over temperature and supply voltage • Ideal sensor for ignition timing, anti-lock brake systems and speed measurement in hostile automotive and industrial environments.

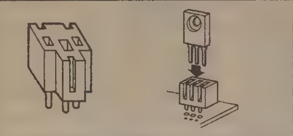


SPECIFICATIONS: • The five types differ according to the magnetic flux density values of the switching points and the mode of switching **HAL100, HAL101, HAL102:** • Bipolar switching • Output low with magnetic south pole on branded side of package **HAL103:** • Latch switching • Output low with magnetic south pole on branded side of package • Output state does not change if magnetic field is removed **HAL104:** • Unipolar switching • Output low with magnetic southpole on branded side of package • Output high if magnetic field is removed

Supply Voltage Min(V)	Max(V)	Supply Current Max mA	Peak Output Current mA	Output Time Typical Rise nS	Fall nS	On Point B on 25°C Max *mT	Off Point B off Min *mT	Hysteresis Typical *mT	Digi-Key Part No.	Pricing 1	10	100	500
-.3	13.5	12	250	50	10	15.0	-15	13.5	HAL101-ND	1.15	10.35	82.80	345.00
-.3	13.5	12	250	50	10	6.5	-6.5	4.5	HAL102-ND	1.25	11.25	90.00	375.00
-.3	13.5	12	250	50	10	11.0	-11	13.5	HAL103-ND	1.25	11.25	90.00	375.00

* mT = Milli Tesla, 1mT = 10 Gauss

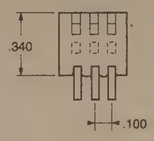
TO-220 Solder Tail Transistor Sockets


WM2550-ND WM2551-ND & WM2252-ND

These three circuit transistor sockets are preassembled and ready for soldering to a P.C. Board. The proven double cantilever design eliminates circuit failure due to thermal expansion and/or mechanical tolerances. Linear movement of the transistor leads in the socket does not affect contact reliability.

MATERIAL: Tin-Plated Brass, 94V-2 Rated Nylon

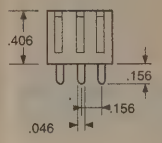
P.C. Board Mount



- .100" Center

WM2551-ND $1.69/1
$12.26/10
$109.00/100
$817.50/1,000

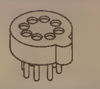
P.C. Board Mount

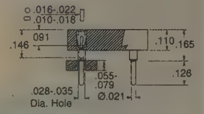


- With Heat Sink Slots
- .156" Center

WM2552-ND $1.11/1
$8.03/10
$71.40/100
$535.50/1,000

Transistor Sockets



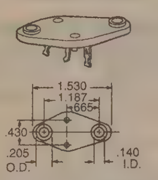


Plating: Sleeve (Pin) — 200µ" Sn.
Contact (Clip) — 30µ" Au.

No. of Pins	Digi-Key Part No.	Price 1	10	100	Mfg. Part No.
TO-5 Package					
3	ED2150-ND	.58	4.90	40.05	917-93-103-41-005
4	ED2151-ND	.77	6.49	53.10	917-93-104-41-005
8	ED2152-ND	1.48	12.49	102.15	917-93-108-41-005
TO-100 Package					
8	ED2153-ND	1 48	12.49	102.15	917-93-208-41-005
10	ED2154-ND	1.77	14.96	122.40	917-93-210-41-005

TO-3 Power Transistor Sockets

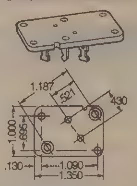
Chassis Mount



- Top Plate: Molded Nylon
- Base: Phenolic
- Dimensions: 1.53"x.073"
- Standoffs: 0.09"

4601K-ND ....$.74/1
$6.68/10
$59.40/100

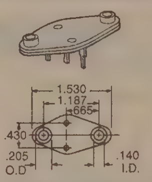
Chassis Mount



- Top Plate: Phenolic
- Base: Phenolic
- Dimensions: 1.35"x1.00"
- Standoffs: None

4606K-ND.........$.82/1
$7.36/10
$65.44/100

P.C. Board Mount



- Top Plate: Molded Nylon
- Base: Phenolic
- Dimensions: 1.53"x0.73"
- Standoffs: 0.09"

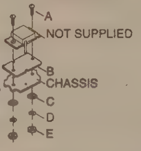
4600K-ND.........$.86/1
$7.73/10
$68.72/100

TRANSISTOR MOUNTING HARDWARE

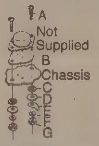
TO-220 Complete Mounting Kit (A, B, C, D, E)
4724K-ND.............**$.90/1; $8.55/10; $74.70/100**

TO-3 Complete Mounting Kit (A, B, C, D, E, F, G)
4725K-ND.............**$.90/1; $8.55/10; $74.70/100**

6-20 Mounting Screws (A Only, 2 Required)
4706K-ND.....................**$2.36/20; $13.68/200**



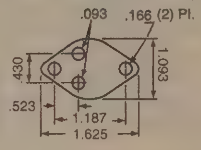
4724K-ND



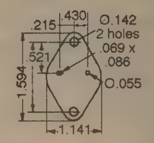
4725K-ND

MICA INSULATORS FOR TRANSISTOR MOUNTING

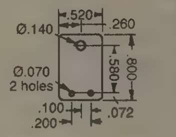
These precision stamped MICA Insulators provide good thermal conductivity (.009 watts per square inch per °C per inch in thickness). Excellent thermal resistance 1100°F. Dielectric constant of 7 at 1000KHz. Specifications: .003 thick MICA ±.001.



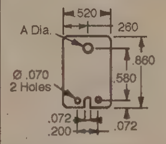
4651K-ND ....$.53/10
$4.79/100
$38.34/1,000



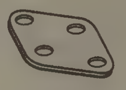
4662K-ND........$.58/10
$5.24/100
$41.94/1,000



4671K-ND.......$.68/10
$4.78/100
$20.81/1,000



A Dimension
4672K .... .141" Dia.
4673K .... .115" Dia.
4672K-ND 4673K-ND
$.52/10; $3.70/100; 16.10/1,000



THE BERGQUIST COMPANY Heat Sink Pads

Fig. 1

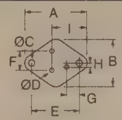


Fig. 2

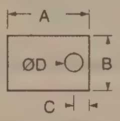


Fig. 3

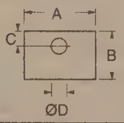


Fig. 4

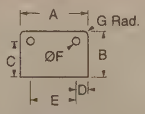
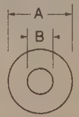


Fig. 5



Sil-Pad 600® is an alumina/boron nitride loaded silicone elastomer which provides higher thermal performance than standard materials while remaining cost competitive.

Q-Pad 3® is a thermally conductive, non electrically isolating, fiberglass reinforced pad. Q-Pad 3® may be installed prior to soldering and cleaning without worry of contamination of assemblies and reflow solder baths. When exposed to modest heat and pressure, the elastomer conforms to surface textures forming an air-free component/heat sink interface.

Sil-Pad K-10® is a high performance insulator which combines Kapton MT Polyimide film with boron nitride filled silicone rubber. K-10 is designed to replace ceramic insulators.

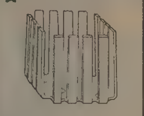
Bergquist CPU Pad® is a thermally conductive, electrically insulating double coated tape. Pad consists of high performance acrylic, pressure sensitive adhesive on both sides of Kapton MT film. Ideal for mounting heat sinks to a CPU without clips.

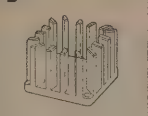
Fig. No.	Device Type	Dimensions A	B	C	D	E	F	G	Digi-Key Part No.	Pricing 5	25	50	100	500	1,000	Bergquist Part No.
1	TO-3	1.65	1.14	.140	.093	1.187	.430	.072	BER100-ND	1.61	6.90	12.65	20.06	98.44	189.52	SP600-05
1	TO-3	1.78	1.25	.140	.093	1.187	.430	.072	BER101-ND	1.82	7.80	14.30	22.67	111.28	214.24	SP600-02
1	TO-3	1.65	1.14	.140	.093	1.187	.430	.072	BER111-ND	5.06	21.68	39.74	63.00	309.23	595.34	K10-05
1	TO-3	1.78	1.25	.140	.093	1.187	.430	.072	BER112-ND	5.85	25.05	45.93	72.81	357.38	688.04	K10-02
1	TO-3	1.65	1.14	.140	.093	1.187	.430	.072	BER122-ND	.63	2.70	4.95	7.85	38.52	74.16	Q3-05
1	TO-3	1.78	1.25	.140	.093	1.187	.430	.072	BER123-ND	.68	2.93	5.36	8.50	41.73	80.34	Q3-02
2	TO-3P	1.000	.750	.300	.140	—	—	—	BER109-ND	.88	3.75	6.88	10.90	53.50	103.00	SP600-104
2	TO-3P	1.000	.750	.300	.140	—	—	—	BER120-ND	2.40	10.28	18.84	29.87	146.59	282.22	K10-104
2	TO-3P	1.000	.750	.300	.140	—	—	—	BER131-ND	.42	1.80	3.30	5.23	25.68	49.44	Q3-104
2	TO-220	750	.500	.187	.125	—	—	—	BER102-ND	.61	2.63	4.81	7.63	37.45	72.10	SP600-58
2	TO-220	.750	.500	.187	.147	—	—	—	BER103-ND	.61	2.63	4.81	7.63	37.45	72.10	SP600-54
2	TO-220	.750	.500	—	—	—	—	—	BER110-ND	.61	2.63	4.81	7.63	37.45	72.10	SP600-43
2	TO-220	.750	.500	.187	.125	—	—	—	BER113-ND	1.47	6.30	11.55	18.31	89.88	173.04	K10-58
2	TO-220	.750	.500	.187	.147	—	—	—	BER114-ND	1.47	6.30	11.55	18.31	89.88	173.04	K10-54
2	TO-220	.750	.500	—	—	—	—	—	BER121-ND	1.47	6.30	11.55	18.31	89.88	173.04	K10-43
2	TO-220	.750	.500	.187	.125	—	—	—	BER124-ND	.35	1.50	2.75	4.36	21.40	41.20	Q3-58
2	TO-220	.750	.500	.187	.147	—	—	—	BER125-ND	.35	1.50	2.75	4.36	21.40	41.20	Q3-54
2	TO-220	.750	.500	—	—	—	—	—	BER132-ND	.35	1.50	2.75	4.36	21.40	41.20	Q3-43
2	TO-218	.860	.740	.200	.160	—	—	—	BER108-ND	.79	3.38	6.19	9.81	48.15	92.70	SP600-90
2	TO-218	.860	.740	.200	.160	—	—	—	BER119-ND	2.10	9.00	16.50	26.16	128.40	247.20	K10-90
2	TO-218	.860	.740	.200	.160	—	—	—	BER130-ND	.40	1.73	3.16	5.01	24.61	47.38	Q3-90
3	MULTI	.945	.827	.196	.150	—	—	—	BER107-ND	.89	3.83	7.01	11.12	54.57	105.06	SP600-114
3	MULTI	.945	.827	.196	.150	—	—	—	BER118-ND	2.45	10.50	19.25	30.52	149.80	288.40	K10-114
3	MULTI	.945	.827	.196	.150	—	—	—	BER129-ND	.42	1.80	3.30	5.23	25.68	49.44	Q3-114
4	SIP	1.450	.838	.612	.245	.960	.170	.120	BER106-ND	1.19	5.10	9.35	14.82	72.76	140.08	SP600-105
4	SIP	1.450	.838	.612	.245	.960	.170	.120	BER117-ND	3.52	15.08	27.64	43.82	215.07	414.06	K10-105
4	SIP	1.450	.838	.612	.245	.960	.170	.120	BER128-ND	.51	2.18	3.99	6.32	31.03	59.74	Q3-105
5	DO-4	.625	.200	—	—	—	—	—	BER104-ND	.63	2.70	4.95	7.85	38.52	74.16	SP600-22
5	DO-4	.625	.200	—	—	—	—	—	BER115-ND	1.49	6.38	11.69	18.53	90.95	175.10	K10-22
5	DO-4	.625	.200	—	—	—	—	—	BER126-ND	.35	1.50	2.75	4.36	21.40	41.20	Q3-22
5	DO-5	1.00	.260	—	—	—	—	—	BER105-ND	1.03	4.43	8.11	12.86	63.13	121.54	SP600-25
5	DO-5	1.00	.260	—	—	—	—	—	BER116-ND	2.98	12.75	23.38	37.06	181.90	350.20	K10-25
5	DO-5	1.00	.260	—	—	—	—	—	BER127-ND	.47	2.03	3.71	5.89	28.89	55.62	Q3-25
—	—	.63	.63	—	—	—	—	—	BER133-ND	.86	3.68	6.74	10.68	52.43	100.94	CPU .63X.63
—	—	1.75	1.75	—	—	—	—	—	BER134-ND	5.29	22.65	41.53	65.84	323.14	622.12	CPU 1.75X1.75
—	—	1.375	1.375	—	—	—	—	—	BER135-ND	2.00	8.55	15.68	24.85	121.98	234.84	CPU 1.375X1.375

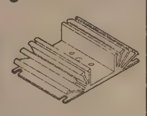
AAVID
THERMAL TECHNOLOGIES, INC.

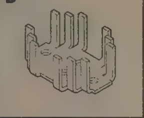
Heat Sinks

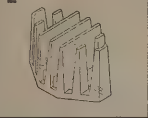
Unless Otherwise Noted All Heat Sinks Are Black Anodized Aluminum.

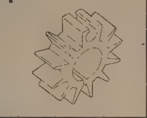
A


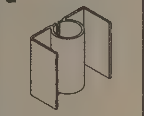
B


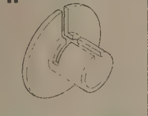
C


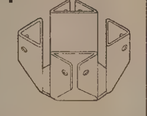
D


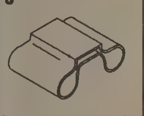
E


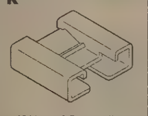
F


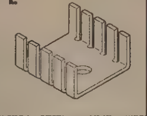
G


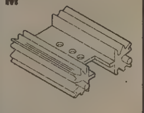
H


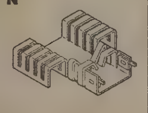
I


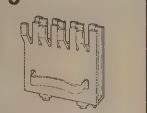
J


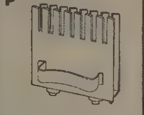
K


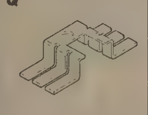
L


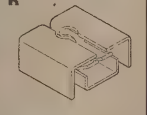
M


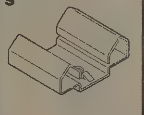
N


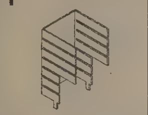
O


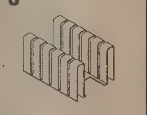
P


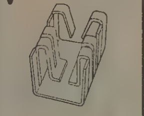
Q


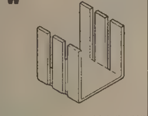
R


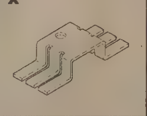
S


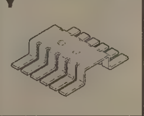
T


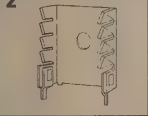
U


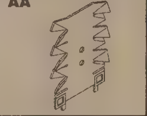
V


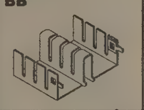
W


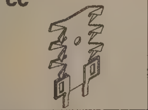
X


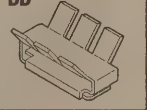
Y


Z


AA


BB


CC


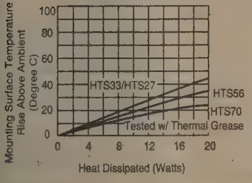
DD


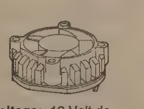
		Dimensions (In.)			Digi-Key	Pricing			Aavid
Fig.	Description	L	W	H	Part No.	1	10	100	Part No.
A	TO-3 .500" Compact Heat Sink	1.880	1.400	.500	HS148-ND	.83	7.47	58.14	501303B00000
A	TO-3 .750" Compact Heat Sink	1.880	1.400	.750	HS149-ND	.80	7.18	55.84	501403B00000
A	TO-3 1.25" Compact Heat Sink	1.880	1.400	1.250	HS110-ND	1.26	11.31	87.99	501603B00000
B	TO-3 1.25" High For 25 Watts	1.810	1.810	1.250	HS103-1.25-ND	5.40	48.60	378.00	568303B00000
B	TO-3 5" High For 17 Watts	1.810	1.810	.500	HS103-0.5-ND	8.15	73.35	570.50	568003B00000
C	TO-3 Power Cooler For 50 Watts	3.000	4.125	1.000	HS117-ND	8.04	72.38	562.99	198540B00000
D	TO-3 Space Saver .75" High For 6 Watts	—	—	—	HS140-ND	1.57	14.09	109.62	502203B00000
D	TO-3 Space Saver 1.00" High For 8 Watts	—	—	—	HS141-ND	1.63	14.63	113.75	502303B00000
D	TO-3 Space Saver 1.25" High For 12 Watts	—	—	—	HS142-ND	1.70	15.30	119.00	502403B00000
E	TO-3 Space Saver For 5 Watts	1.560	1.062	1.000	HS102-ND	2.36	21.22	165.03	542703X00000
I	TO-3 Standard For 20 Watts	1.830	1.830	1.310	HS110-3-ND	1.25	11.21	87.19	569003B00000
F	TO-5 Case For 2 Watt	.750	.750	.250	HS101-ND	.98	8.84	68.74	323005B00000
G	TO-5 Snap-On Cooler	.830	.395	.500	HS217-ND	.30	2.74	21.28	578205B00000
G	TO-5 Snap-On Cooler	.830	.395	.750	HS218-ND	.34	3.07	23.91	578305B00000
H	TO-18 And TO-92 Cases For 1 Watt	.500	.500	.235	HS100-ND	.90	8.13	63.25	322400B00000
I	TO-66 Standard For 20 Watts	1.830	1.830	1.310	HS110-66-ND	1.72	14.32	114.58	569006B00000
J	TO-126 Vertical Mount Clip-On	.775	.320	.520	HS216-ND	.35	3.15	24.47	577500B00000
K	TO-202 Clip-On Cooler WithTabs	1.020	.390	.900	HS196-ND	.63	5.63	43.77	574204B03300
L	TO-202 Trim, Low Profile	.520	.375	.750	HS214-ND	.29	2.58	20.09	577304B00000
L	TO-202 Trim, Low-Profile	.520	.500	.750	HS215-ND	.29	2.64	20.51	577404B00000
M	TO-218 Extruded With Pins, Up To 10W	1.380	.500	2.000	HS185-ND	1.38	12.42	96.62	513201B02500
M	TO-218 Extruded With Pins, Up To 20W	1.650	1.000	1.500	HS187-ND	2.00	18.00	140.02	529801B02500
N	TO-218 Spring-Action, 12 Watts	—	—	—	HS134-ND	1.30	11.71	91.11	592201B03400
O	TO-218 .830" Staggered High Rise Heat Sink	1.750	.500	1.750	HS153-ND	1.59	14.31	111.28	530401B00150
P	TO-218 .830" Twisted High Rise Heat Sink	1.750	.500	1.750	HS109-ND	1.59	14.31	111.28	530101B00150
L	TO-220 .250" Compact Heat Sink	.750	.520	.250	HS105-ND	.28	2.53	19.67	577002B00000
L	TO-220 .375" Compact Heat Sink	.750	.520	.375	HS106-ND	.25	2.25	17.47	577102B00000
L	TO-220 .500" Compact Heat Sink	.750	.520	.500	HS107-ND	.25	2.29	17.83	577202B00000
O	TO-220 .720" Staggered High Rise Heat Sink	1.750	.500	1.750	HS151-ND	1.59	14.31	111.28	530402B00150
P	TO-220 .720" Twisted High Rise Heat Sink	1.750	.500	1.750	HS152-ND	1.59	14.31	111.28	530102B00150
Q	TO-220 2 Watt Extender For HS112 And HS114	.700	1.750	.500	HS113-ND	.32	2.88	22.44	507102B00000
R	TO-220 Clip-On Cooler For 5 Watts	.750	.860	.395	HS111-ND	.32	2.88	22.44	574102B00000
S	TO-220 Clip-On Cooler For 5 Watts	.750	1.120	.435	HS116-ND	.45	4.06	31.57	575102B00000
K	TO-220 Clip-On Cooler For 5 Watts	.900	1.020	.390	HS119-ND	.32	2.86	22.26	574204B00000
L	TO-220 Compact For Limited Space With Tab	.520	.250	.750	HS212-ND	.40	3.62	28.14	577002B04000
L	TO-220 Compact For Limited Space With Tab	.520	.375	.750	HS213-ND	.37	3.31	25.74	577102B04000
M	TO-220 Extruded, Pins, Heavy Duty	1.380	.500	1.000	HS190-ND	1.40	12.57	97.79	531002B02500
M	TO-220 Extruded, Pins, Heavy Duty	1.380	.500	1.500	HS191-ND	1.51	13.62	105.93	531102B02500
M	TO-220 Extruded With Pins, Up To 10W	1.380	.500	1.500	HS184-ND	.95	8.55	66.50	513102B02500
M	TO-220 Extruded With Pins, Up To 20W	1.650	1.000	1.500	HS188-ND	2.00	18.00	140.02	529802B02500
T	TO-220 High Performance With Tabs	1.000	1.000	1.675	HS222-ND	.86	7.75	60.25	590102B03600
U	TO-220 Horizontal Mount	1.000	.787	1.450	HS193-ND	.64	5.75	44.70	551002B00000
R	TO-220 Horizontal Mount, Clip-On W/Tabs	.860	.395	.750	HS197-ND	.54	4.85	37.71	574402B03200
V	TO-220 Horizontal Plug-In Heat Sink W/Tabs	.750	.500	.500	HS150-ND	.64	5.75	44.70	576802B03100
W	TO-220 Light Weight	1.000	.500	.710	HS189-ND	.32	2.88	22.44	530714B00000
L	TO-220 Low Cost Vertical Mount	1.000	.500	1.180	HS206-ND*	1.63	14.66	114.05	575002T00000
L	TO-220 Low Cost Vertical Mount With Tabs	1.000	.500	1.180	HS186-ND*	1.80	16.21	126.07	523002T00000
L	TO-220 Low Profile Power Cooler For 4.5 Watts	.750	.750	.375	HS115-ND	.23	2.08	16.19	507302B00000
V	TO-220 Plug-In Heat Sink	.750	.500	.500	HS121-ND	.44	3.95	30.71	576802B00000
W	TO-220 Power Cooler 1.45" High For 10 Watts	1.450	.700	.850	HS104-2-ND	.47	4.23	32.92	504222B00000
M	TO-220 Power Cooler 1.5", Gold Screw Mount	1.380	.500	1.500	HS131-ND	1.27	11.41	88.71	531102C00000
M	TO-220 Power Cooler 1.5", Gold With Mount Pins	1.380	.500	1.500	HS131-P-ND	1.40	12.57	97.79	531102C02500
M	TO-220 Power Cooler 2.0", Gold Screw Mount	1.380	.500	2.000	HS132-ND	1.29	11.65	90.62	531202C00000
M	TO-220 Power Cooler 2.0", Gold With Mount Pins	1.380	.500	2.000	HS132-P-ND	1.48	13.28	103.29	531202C02500
M	TO-220 Power Cooler 2.5", Gold Screw Mount	1.380	.500	2.500	HS133-ND	1.55	13.95	108.50	531302C00000
X	TO-220 Power Cooler For 6 Watts	.700	1.750	.375	HS112-ND	.29	2.65	20.60	507002B00000
M	TO-220 Power Cooler 2.5", Gold With Mount Pins	1.380	.500	2.500	HS133-P-ND	1.38	12.45	96.85	531302C02500
W	TO-220 Power Cooler .7" High For 6 Watts	.700	.700	.850	HS104-1-ND	.34	3.07	23.91	504102B00000
Y	TO-220 Power Cooler For 10 Watts	1.450	1.750	.375	HS114-ND	.34	3.07	23.91	507222B00000
S	TO-220 Snap-Down With Clip	.975	.440	.750	HS220-ND	.39	3.47	27.02	579302B00000
S	TO-220 Snap-Down With Clip for Tapered	.975	.440	.750	HS221-ND	.37	3.32	25.83	579402B00000
I	TO-220 Standard For 20 Watts (2 Fit)	1.830	1.830	1.310	HS110-220-ND	1.43	12.89	100.26	569022B00000
Z	TO-220 Twisted Fin Heat Sink	.500	1.000	1.180	HS120-ND	.91	8.16	63.46	593002B03400
L	TO-220 Vertical Mount	1.000	.500	1.180	HS194-ND	.42	3.76	29.24	563002B00000
L	TO-220 Vertical Mount	1.000	.500	1.180	HS195-ND*	2.10	18.86	146.65	563002T00000
L	TO-220 Vertical Mount	1.000	.500	.950	HS207-ND	.45	4.02	31.27	576602B00000
L	TO-220 Vertical Mount	1.000	.500	.950	HS208-ND*	1.56	14.07	109.43	576602T00000
AA	TO-220 Vertical Mount With Clip and Tabs	1.380	.490	2.000	HS192-ND	.89	7.99	62.16	534302B03553
R	TO-220 Vertical Mount Clip-On	.860	.395	.750	HS198-ND	.32	2.86	22.26	574502B00000
V	TO-220 Vertical Mount Clip-On With Tabs	.500	.500	.750	HS209-ND	.68	6.08	47.27	576802B03700
V	TO-220 Vertical Mount Clip-On With Tabs	.500	.500	.750	HS210-ND	.57	5.09	39.55	576802B03900
V	TO-220 Vertical Mount Clip-On With Tabs	.500	.500	.750	HS211-ND	.63	5.70	44.33	576802B04100
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	.750	HS199-ND	.54	4.85	37.71	574502B03200
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	.750	HS200-ND	.60	5.44	42.30	574502B03300
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	.750	HS201-ND	.54	4.85	37.71	574502B03700
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	.750	HS202-ND	.60	5.42	42.12	574502B04800
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	.690	HS203-ND	.70	6.30	49.02	574602B03700
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	1.375	HS204-ND	.83	7.47	58.12	574902B03300
R	TO-220 Vertical Mount Clip-On With Tabs	.860	.395	1.375	HS205-ND	.81	7.25	56.35	574902B04300
BB	TO-220 Vertical Mount-Dual, With Tabs	1.480	.500	1.030	HS219-ND	.85	7.62	59.29	578622B03200
V	TO-220 Vertical Mount With Install Tabs	.570	.500	.750	HS223-ND	.73	6.53	50.77	591302B02800
AA	TO-220 Vertical Mount Space Saver With Tabs	1.380	.500	2.000	HS225-ND	.99	8.89	69.16	593202B03500
CC	TO-220 Vertical Mount With Tabs	.875	.250	1.250	HS224-ND	.76	6.85	53.31	592502B03400
V	TO-220 Vertical Plug-In Heat Sink "Solder Tab"	.750	.500	.500	HS122-ND	.61	5.49	42.67	576802B04000
DD	Slide-On Dip Cooler 14 Or 16 Pin, Gold	.887	.600	.410	HS125-ND	.41	3.69	28.70	580200G00000
DD	Slide-On Dip Cooler 14 Or 16 Pin, Black Anodized	.887	.600	.410	HS179-ND	.44	4.00	31.08	580200B00000
DD	Slide-On Dip Cooler 18 Pin, Black Anodized	1.125	.700	.556	HS180-ND	.72	6.48	50.37	580300B00000
DD	Slide-On Dip Cooler 20 Pin, Red	1.125	.700	.556	HS127-ND	.46	4.12	32.03	580400R00000
DD	Slide-On Dip Cooler 20 Pin, Black Anodized	1.125	.700	.556	HS181-ND	.67	6.06	47.11	580400B00000
DD	Slide-On Cooler 24 Pin, Gold	1.460	1.008	.580	HS128-ND	.56	5.06	39.38	580500G00000
DD	Slide-On Cooler 24 Pin, Black Anodized	1.460	1.008	.580	HS182-ND	.67	6.06	47.11	580500B00000
DD	Slide-On Dip Cooler 40 Pin, Black Anodized	2.256	.980	.590	HS183-ND	.73	6.55	50.94	580700B00000

* Dielectric Coating

VEMALINE®
Patented

Cool Snap™
Fan – Heat Sink Assemblies
For 486 and Pentium* Processors

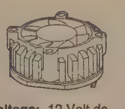


A


- **Voltage:** 12 Volt dc
- **Fan Size:** 40 x 40 x 10mm
- **Air Flow:** 9.0 CFM
- **Diameter:** 2(50.80)

B

- **Voltage:** 12 Volt dc
- **Fan Size:** 40 x 40 x 10mm
- **Air Flow:** 6.5 CFM
- **Diameter:** 2-1/2(63.50)

C


- **Voltage:** 12 Volt dc
- **Fan Size:** 52 x 52 x 15mm
- **Air Flow:** 9.0 CFM
- **Diameter:** 2-1/2(63.50)

Eliminates self adhesive tape, glue, and difficult to install compression clips. Assembly connector slides onto processor, threaded cooler is then screwed down to lock on to the chip. (Assemblies come with thermal grease).

Material: Aluminum alloy **Standard Finish:** Black anodized **Thermal Grease:** Vemaline 1381

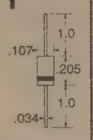
Fig.		Digi-Key	Pricing			Vemaline
No.	Description	Part No	1	25	50	Part No.
A	Fan for P90/54C IC †	HTS27-P-ND	30.34	672.25	957.50	HTS27-P
A	Fan for 486 IC †	HTS33-P-ND	30.34	672.25	957.50	HTS33-P
B	Fan for P60 Pentium*	HTS56-ND	34.22	803.00	1326.50	HTS56
B	Fan for P60 Pentium*†	HTS56-P-ND	34.22	758.08	1079.75	HTS56-P
C	Fan for P60 Pentium*	HTS70-ND	32.63	737.75	1151.00	HTS70
C	Fan for P60 Pentum*†	HTS70-P-ND	32.63	722.94	1029.70	HTS70-P

* Trademark of Intel Corp.

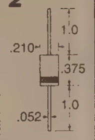
† Assembly mounting connector made of high temperature plastic for reduced thermal expansion.

GI General Instrument Diodes-Bridge Rectifiers

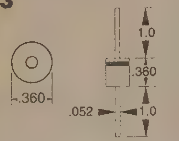
1



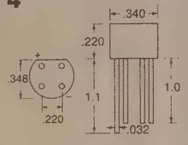
2



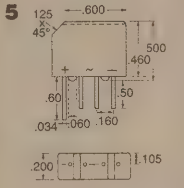
3



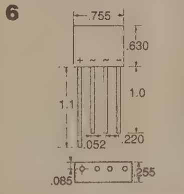
4



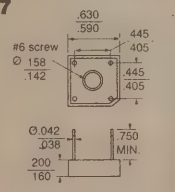
5



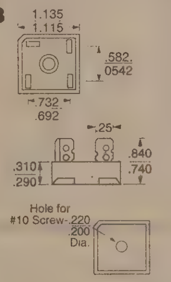
6



7



8



9

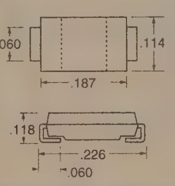


Fig.	Max. Avg. Rect. Current (A)	Max. Peak Reverse Voltage (V)	Peak Forward Surge Current 8.3ms (A)	Max. Instant. Forward Voltage (V)	Typ. Reverse Recovery Time (µS)	Oper. Junction Temp. (°C)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel Pricing 800	Tape & Reel Pricing 1,400	Tape & Reel Pricing 5,500
Silicon Rectifiers														
1	1.0	50	30	1.1	30	-50 to 175	1N4001GICT-ND	—	.60	4.80	1N4001GITR-ND	—	—	24.00/M
		100	30	1.1	30	-50 to 175	1N4002GICT-ND	—	.60	4.80	1N4002GITR-ND	—	—	24.00/M
		200	30	1.1	30	-50 to 175	1N4003GICT-ND	—	.60	4.80	1N4003GITR-ND	—	—	24.00/M
		400	30	1.1	30	-50 to 175	1N4004GICT-ND	—	.60	4.80	1N4004GITR-ND	—	—	24.00/M
		600	30	1.1	30	-50 to 175	1N4005GICT-ND	—	.68	5.40	1N4005GITR-ND	—	—	27.00/M
		800	30	1.1	30	-50 to 175	1N4006GICT-ND	—	.68	5.40	1N4006GITR-ND	—	—	27.00/M
		1000	30	1.1	30	-50 to 175	1N4007GICT-ND	—	.68	5.40	1N4007GITR-ND	—	—	27.00/M
2	3.0	50	200	1.2	—	-50 to 170	1N5400GICT-ND	.47	3.47	25.20	1N5400GITR-ND	—	158.00/M	—
		100	200	1.2	—	-50 to 170	1N5401GICT-ND	.53	3.85	28.00	1N5401GITR-ND	—	175.00/M	—
		200	200	1.2	—	-50 to 170	1N5402GICT-ND	.60	4.40	32.00	1N5402GITR-ND	—	200.00/M	—
		400	200	1.2	—	-50 to 170	1N5404GICT-ND	.64	4.68	34.00	1N5404GITR-ND	—	213.00/M	—
		600	200	1.2	—	-50 to 170	1N5406GICT-ND	.75	5.50	40.00	1N5406GITR-ND	—	250.00/M	—
		800	200	1.2	—	-50 to 170	1N5407GICT-ND	.83	6.05	44.00	1N5407GITR-ND	—	275.00/M	—
		1000	200	1.2	—	-50 to 170	1N5408GICT-ND	.94	6.88	50.00	1N5408GITR-ND	—	313.00/M	—
3	6.0	50	400	0.90	—	-50 to 150	GI750CT-ND	.58	4.98	41.50	GI750TR-ND	220.80	—	—
		100	400	0.90	—	-50 to 150	GI751CT-ND	.60	5.10	42.50	GI751TR-ND	225.60	—	—
		200	400	0.90	—	-50 to 150	GI752CT-ND	.63	5.40	45.00	GI752TR-ND	239.20	—	—
		400	400	0.90	—	-50 to 150	GI754CT-ND	.76	6.48	54.00	GI754TR-ND	287.20	—	—
		600	400	0.90	—	-50 to 150	GI756CT-ND	.88	7.50	62.50	GI756TR-ND	332.00	—	—
		800	400	0.90	—	-50 to 150	GI758CT-ND	1.01	8.64	72.00	GI758TR-ND	382.40	—	—
Fast Recovery Diodes														
1	1.0	50	30	1.2	0.2	-50 to 150	1N4933GICT-ND	.20	1.45	11.60	1N4933GITR-ND	—	—	58.00/M
		100	30	1.2	0.2	-50 to 150	1N4934GICT-ND	.20	1.45	11.60	1N4934GITR-ND	—	—	58.00/M
		200	30	1.2	0.2	-50 to 150	1N4935GICT-ND	.21	1.50	12.00	1N4935GITR-ND	—	—	60.00/M
		400	30	1.2	0.2	-50 to 150	1N4936GICT-ND	.25	1.80	14.40	1N4936GITR-ND	—	—	72.00/M
		600	30	1.2	0.2	-50 to 150	1N4937GICT-ND	.29	2.10	16.80	1N4937GITR-ND	—	—	84.00/M
2	3.0	50	100	1.1	0.2	-50 to 150	GI850CT-ND	.39	3.30	30.25	GI850TR-ND	—	193.00/M	—
		100	100	1.1	0.2	-50 to 150	GI851CT-ND	.40	3.42	31.35	GI851TR-ND	—	200.00/M	—
		200	100	1.1	0.2	-50 to 150	GI852CT-ND	.42	3.60	33.00	GI852TR-ND	—	210.00/M	—
		400	100	1.1	0.2	-50 to 150	GI854CT-ND	.50	4.32	39.60	GI854TR-ND	—	252.00/M	—
		600	100	1.1	0.2	-50 to 150	GI856CT-ND	.59	5.04	46.20	GI856TR-ND	—	294.00/M	—
3	5.0	50	300	1.05	0.2	-50 to 150	GI820CT-ND	.81	6.90	63.25	GI820TR-ND	322.40	—	—
		100	300	1.05	0.2	-50 to 150	GI821CT-ND	.83	7.14	65.45	GI821TR-ND	333.60	—	—
		200	300	1.05	0.2	-50 to 150	GI822CT-ND	.88	7.50	68.75	GI822TR-ND	350.40	—	—
		400	300	1.05	0.2	-50 to 150	GI824CT-ND	1.05	9.00	82.50	GI824TR-ND	420.00	—	—
		600	300	1.05	0.2	-50 to 150	GI826CT-ND	1.23	10.50	96.25	GI826TR-ND	490.40	—	—
		800	300	1.05	0.2	-50 to 150	GI828CT-ND	1.40	12.00	110.00	GI828TR-ND	560.00	—	—
Schottky Barrier Rectifiers														
1	1.0	20	25	.45	—	-65 to 125	1N5817GICT-ND	.60	4.40	32.00	1N5817GITR-ND	—	—	152.00/M
		30	25	.55	—	-65 to 125	1N5818GICT-ND	.68	4.95	36.00	1N5818GITR-ND	—	—	171.00/M
		40	25	.60	—	-65 to 125	1N5819GICT-ND	.75	5.50	40 00	1N5819GITR-ND	—	—	190.00/M
2	3.0	20	80	.475	—	-65 to 125	1N5820GICT-ND	.83	6.05	44.00	1N5820GITR-ND	—	209.00/M	—
		30	80	.500	—	-65 to 125	1N5821GICT-ND	.90	6.60	48.00	1N5821GITR-ND	—	228.00/M	—
		40	80	.525	—	-65 to 125	1N5822GICT-ND	.98	7.15	52.00	1N5822GITR-ND	—	247.00/M	—
2	5.0	20	150	0.55	—	-65 to 125	SB520CT-ND	.56	4.80	40.00	SB520TR-ND	—	256.00/M	—
		30	150	0.55	—	-65 to 125	SB530CT-ND	.60	5.10	42.50	SB530TR-ND	—	272.00/M	—
		40	150	0.55	—	-65 to 125	SB540CT-ND	.63	5.40	45.00	SB540TR-ND	—	288.00/M	—
		50	150	0.67	—	-65 to 125	SB550CT-ND	.74	6.30	52.50	SB550TR-ND	—	336.00/M	—
		60	150	0.67	—	-65 to 125	SB560CT-ND	.81	6.90	57.50	SB560TR-ND	—	368.00/M	—

Fig.	Max. Avg. Rect. Current (A)	Max. Peak Reverse Voltage (V)	Peak Forward Surge Current 8.3ms (A)	Max. Instant. Forward Voltage (V)	Oper. Junction Temp. (°C)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 300	Pricing 500	Pricing 1,000
Silicon and Glass Passivated Bridge Rectifiers												
4	1.5	50	50	1.0	-55 to 150	W005G-ND	.42	3.60	30.00	—	120.00	199.20
		100	50	1.0	-55 to 150	W01G-ND	.44	3.75	31.25	—	125.00	207.50
		200	50	1.0	-55 to 150	W02G-ND	.49	4.20	35 00	—	140.00	232.40
		400	50	1.0	-55 to 150	W04G-ND	.54	4.65	38.75	—	155.00	257.30
		600	50	1.0	-55 to 150	W06G-ND	.67	5.70	47.50	—	190.00	315.40
		800	50	1.0	-55 to 150	W08G-ND	.74	6.30	52.50	—	210.00	348.60
		1000	50	1.0	-55 to 150	W10G-ND	.88	7.50	62.50	—	250.00	415.00
5	2.0	50	30	1.1	-55 to 165	2KBP005M-ND	.85	7.29	60.75	—	243.00	—
		100	30	1.1	-55 to 165	2KBP01M-ND	.87	7.47	62.25	—	249 00	—
		200	30	1.1	-55 to 165	2KBP02M-ND	.90	7.71	64.25	—	257.00	—
		400	30	1.1	-55 to 165	2KBP04M-ND	.95	8.10	67.50	—	270.00	—
		600	30	1.1	-55 to 165	2KBP06M-ND	1 09	9.33	77.75	—	311.00	—
		800	30	1.1	-55 to 165	2KBP08M-ND	1 23	10.53	87.75	—	351.00	—
		1000	30	1.1	-55 to 165	2KBP10M-ND	1.42	12.15	101.25	—	405.00	—
6	4.0	50	200	1.1	-50 to 150	KBL005-ND	1 86	16.97	155 25	372.60	—	—
		100	200	1.1	-50 to 150	KBL01-ND	1.90	17.34	158.63	380.70	—	—
		200	200	1.1	-50 to 150	KBL02-ND	1.97	17.92	163.88	393.30	—	—
		400	200	1.1	-50 to 150	KBL04-ND	2.07	18.86	172.50	414.00	—	—
		600	200	1.1	-50 to 150	KBL06-ND	2.38	21.69	198.38	476.10	—	—
		800	200	1.1	-50 to 150	KBL08-ND	2.69	24.52	224.25	538.20	—	—
		1000	200	1.1	-50 to 150	KBL10-ND	3.11	28.29	258.75	621.00	—	—
7	6.0	50	175	1.0	-55 to 150	GBPC6005-ND	2.21	18.90	157.50	—	630.00	1045.80
		100	175	1.0	-55 to 150	GBPC601-ND	2.25	19.32	161.00	—	644.00	1069.04
		200	175	1.0	-55 to 150	GBPC602-ND	2.33	19.95	166.25	—	665.00	1103.90
		400	175	1.0	-55 to 150	GBPC604-ND	2.45	21.00	175.00	—	700.00	1162.00
		600	175	1.0	-55 to 150	GBPC606-ND	2.82	24.15	201.25	—	805.00	1336.30
		800	175	1.0	-55 to 150	GBPC608-ND	3.19	27.30	227.50	—	910.00	1510.60
		1000	175	1.0	-55 to 150	GBPC610-ND	3.68	31.50	262.50	—	1050.00	1743.00

9137B-ND General Instruments Data Book (Power Semiconductor Division) **$3.95**

General Instrument Diodes-Bridge Rectifiers

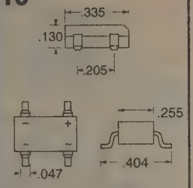
Fig.	Max. Avg. Rect. Current (A)	Max. Peak Reverse Voltage (V)	Peak Forward Surge Current 8.3ms (A)	Max. Instant. Forward Voltage (V)	Oper. Junction Temp. (°C)	Digi-Key Part No.	Pricing 1	10	100	1,000
8	12	50	200	1.1	-55 to 150	GBPC12005-ND	4.73	40.50	337.50	2241.00
		100	200	1.1	-55 to 150	GBPC1201-ND	3.50	30.00	250.00	1660.00
		200	200	1.1	-55 to 150	GBPC1202-ND	3.68	31.50	262.50	1743.00
		400	200	1.1	-55 to 150	GBPC1204-ND	3.85	33.00	275.00	1826.00
		600	200	1.1	-55 to 150	GBPC1206-ND	6.06	51.90	432.50	2871.80
		800	200	1.1	-55 to 150	GBPC1208-ND	6.83	58.50	487.50	3237.00
		1000	200	1.1	-55 to 150	GBPC1210-ND	5.95	51.00	425.00	2822.00
8	25	50	300	1.1	-55 to 150	GBPC25005-ND	4.73	40.50	337.50	2241.00
		100	300	1.1	-55 to 150	GBPC2501-ND	4.90	42.00	350.00	2324.00
		200	300	1.1	-55 to 150	GBPC2502-ND	5.15	44.10	367.50	2440.20
		400	300	1.1	-55 to 150	GBPC2504-ND	5.25	45.00	375.00	2490.00
		600	300	1.1	-55 to 150	GBPC2506-ND	6.06	51.90	432.50	2871.80
		800	300	1.1	-55 to 150	GBPC2508-ND	6.83	58.50	487.50	3237.00
		1000	300	1.1	-55 to 150	GBPC2510-ND	8.75	75.00	625.00	4150.00
8	35	50	400	1.1	-55 to 150	GBPC35005-ND	5.04	43.20	360.00	2390.40
		100	400	1.1	-55 to 150	GBPC3501-ND	5.15	44.16	368.00	2443.52
		200	400	1.1	-55 to 150	GBPC3502-ND	5.32	45.60	380.00	2523.20
		400	400	1.1	-55 to 150	GBPC3504-ND	5.60	48.00	400.00	2656.00
		600	400	1.1	-55 to 150	GBPC3506-ND	6.44	55.20	460.00	3054.40
		800	400	1.1	-55 to 150	GBPC3508-ND	7.28	62.40	520.00	3452.80
		1000	400	1.1	-55 to 150	GBPC3510-ND	8.40	72.00	600.00	3984.00

Fig.	Max. Avg. Rect. Current (A)	Max. Peak Reverse Voltage (V)	Peak Forward Surge Current 8.3ms (A)	Max. Instant. Forward Voltage (V)	Typ. Reverse Recovery Time (µS)	Oper. Junction Temp. (°C)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 750	1,500	1,800	5,000
Glass Passivated Surface Mount Rectifier — DO-214BA															
9	1.0	50	30	1.1	2.0	-65 to 175	GF1AGICT-ND	.28	2.40	20.00	GF1AGITR-ND	—	120.00/M	—	—
		100	30	1.1	2.0	-65 to 175	GF1BGICT-ND	.28	2.40	20.00	GF1BGITR-ND	—	120.00/M	—	—
		200	30	1.1	2.0	-65 to 175	GF1DGICT-ND	.28	2.40	20.00	GF1DGITR-ND	—	120.00/M	—	—
		400	30	1.1	2.0	-65 to 175	GF1GGICT-ND	.35	3.00	25.00	GF1GGITR-ND	—	150.00/M	—	—
		1000	30	1.2	2.0	-65 to 175	GF1MGICT-ND	.35	3.00	25.00	GF1MGITR-ND	—	150.00/M	—	—
Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifier															
10	1.0	200	50	1.1	5.0	-55 to 150	DF02SGICT-ND	.84	7.20	60.00	DF02SGITR-ND	—	360.00/M	—	—
		400	50	1.1	5.0	-55 to 150	DF04SGICT-ND	.88	7.50	62.50	DF04SGITR-ND	—	375.00/M	—	—
		600	50	1.1	5.0	-55 to 150	DF06SGICT-ND	.91	7.80	65.00	DF06SGITR-ND	—	390.00/M	—	—
Surface Mount Rectifier — DO-214AA															
11	1.5	50	50	1.15	1.0	-55 to 150	S2AGICT-ND	.35	3.00	25.00	S2AGITR-ND	112.50	—	—	—
		100	50	1.15	1.0	-55 to 150	S2BGICT-ND	.35	3.00	25.00	S2BGITR-ND	112.50	—	—	—
		200	50	1.15	1.0	-55 to 150	S2DGICT-ND	.35	3.00	25.00	S2DGITR-ND	112.50	—	—	—
		600	50	1.15	1.0	-55 to 150	S2JGICT-ND	.35	3.00	25.00	S2JGITR-ND	112.50	—	—	—
		1000	50	1.15	1.0	-55 to 150	S2MGICT-ND	.35	3.00	25.00	S2MGITR-ND	112.50	—	—	—
Surface Mount Schottky Barrier Rectifier — DO-214AC															
12	1.0	20	30	0.50	0.5	-65 to 125	SS12GICT-ND	.35	3.00	25.00	SS12GITR-ND	—	—	150.00/M	—
		60	30	0.75	0.5	-65 to 150	SS16GICT-ND	.35	3.00	25.00	SS16GITR-ND	—	—	150.00/M	—
Surface Mount Schottky Rectifier — DO-213AB															
13	1.0	20	30	0.50	0.5	-55 to 125	SGL41-20GICT-ND	.49	4.20	35.00	SGL41-20GITR-ND	—	210.00/M	—	—
		40	30	0.50	0.5	-55 to 125	SGL41-40GICT-ND	.49	4.20	35.00	SGL41-40GITR-ND	—	210.00/M	—	—
		60	30	0.70	0.5	-55 to 150	SGL41-60GICT-ND	.49	4.20	35.00	SGL41-60GITR-ND	—	210.00/M	—	—
Surface Mount Glass Passivated Junction Rectifier — DO-213AB															
13	1.0	50	30	1.1	10.0	-65 to 175	GL41AGICT-ND	.18	1.50	12.50	GL41AGITR-ND	—	—	—	75.00/M
		100	30	1.1	10.0	-65 to 175	GL41BGICT-ND	.18	1.50	12.50	GL41BGITR-ND	—	—	—	75.00/M
		200	30	1.1	10.0	-65 to 175	GL41DGICT-ND	.18	1.50	12.50	GL41DGITR-ND	—	—	—	75.00/M
		400	30	1.1	10.0	-65 to 175	GL41GGICT-ND	.18	1.50	12.50	GL41GGITR-ND	—	—	—	75.00/M
		1000	30	1.2	10.0	-65 to 175	GL41MGICT-ND	.35	3.00	25.00	GL41MGITR-ND	—	—	—	150.00/M

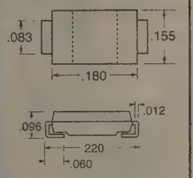
Fig.	Max. Avg. Rect. Current (A)	Max. Peak Reverse Voltage (V)	Peak Forward Surge Current 8.3ms (A)	Max. Instant. Forward Voltage (V)	Typ. Reverse Recovery Time (µS)	Oper. Junction Temp. (°C)	Digi-Key Part No.	Pricing 1	10	100	500	1000
Miniature Glass Passivated Single-Phase Bridge Rectifier												
14	1.0	200	50	1.1	—	-55 to 150	DF02MGI-ND	.51	4.35	36.25	145.00	240.70
		400	50	1.1	—	-55 to 150	DF04MGI-ND	.54	4.65	38.75	155.00	257.30
		600	50	1.1	—	-55 to 150	DF06MGI-ND	.63	5.40	45.00	180.00	298.80
		1000	50	1.1	—	-55 to 150	DF10MGI-ND	.77	6.60	55.00	220.00	365.20
Fast Efficient Glass Passivated Rectifier — TO-220AB												
15	16.0	100	200	0.95	35ns	-55 to 155	FEP16BTGI-ND	1.68	16.07	126.00	525.00	840.00
		150	200	0.95	35ns	-55 to 155	FEP16CTGI-ND	1.72	16.45	129.00	537.50	860.00
		200	200	0.95	35ns	-55 to 155	FEP16DTGI-ND	1.76	16.83	132.00	550.00	880.00
		400	200	1.3	50ns	-55 to 155	FEP16GTGI-ND	1.80	17.21	135.00	562.50	900.00
Schottky Rectifier — TO-220AC & T0-247AD												
16	10.0	45	150	0.57	—	-65 to 150	MBR1045GI-ND	.77	6.40	43.52	—	—
16	10.0	60	150	0.80	—	-65 to 150	MBR1060GI-ND	.77	6.40	43.52	—	—
17	30.0	45	200	0.76	—	-65 to 150	MBR3045PTGI-ND	2.40	20.00	136.00	—	—
17	40.0	45	400	0.70	—	-65 to 150	MBR4045PTGI-ND	2.88	24.00	163.20	—	—

9137B-ND General Instruments Data Book (Power Semiconductor Division) **$3.95**

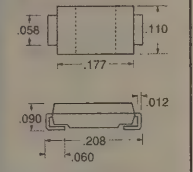
10



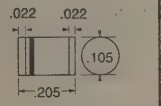
11



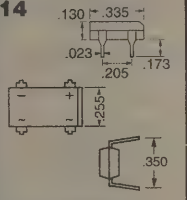
12



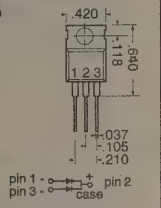
13



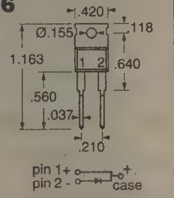
14



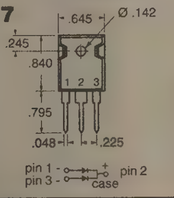
15



16



17

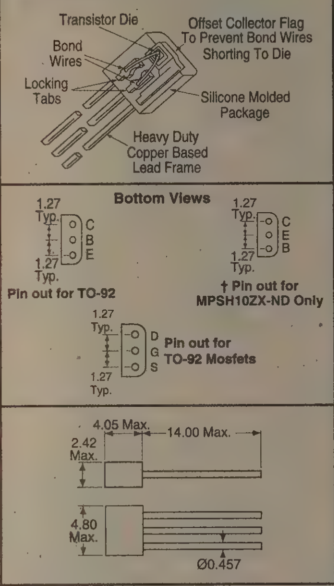


ZETEX Super E-Line Transistors — Modified TO-92 Package

ST303-ND	***NEW!*** Zetex Through-Hole Data Book	**$6.40**
ST317-ND	***NEW!*** Zetex Surface Mount Data Book	**$9.60**
ST320-ND	***NEW!*** Zetex Linear Data Book	**$3.60**

Type	V_{CEO} V	V_{CBO} V	I_C A	Max. I_{CM} A	V_{CE}(Sat.)		I_B mA	h_{FE} at Min.	Min. f_T MHz	Digi-Key Part No.	Pricing			
					Max. V	@ I_C mA					1	10	100	1,000
Medium Power Transistors — 1,000mW														
NPN	400	400	0.3	0.5	0.5	50	6	100	50	ZTX458-ND	.55	4.10	27.50	185.00
	140	160	1	2	0.7	150	15	100	100	ZTX455-ND	.48	3.60	24.00	160.00
	100	120	1	2	0.7	150	15	40	150	ZTX453-ND	.48	3.60	24.00	160.00
	60	80	1	2	0.35	150	15	50	150	ZTX451-ND	.48	3.60	24.00	160.00
	45	60	1	2	0.25	150	15	100	150	ZTX450-ND	.48	3.60	24.00	160.00
	30	50	1	2	0.5	1000	100	100	150	ZTX449-ND	.48	3.60	24.00	160.00
PNP	-400	-400	-0.2	-0.5	-0.5	-50	-6	100	50	ZTX558-ND ***NEW!***	.54	4.50	27.00	180.00
	-200	-200	-1	-2	-0.3	-100	-10	50	100	ZTX576-ND	.48	3.60	24.00	160.00
	-300	-300	-0.5	-1	-0.3	-50	-5	50	75	ZTX557-ND	.48	3.60	24.00	160.00
	-150	-160	-1	-2	-0.3	-100	-10	50	100	ZTX555-ND	.48	3.60	24.00	160.00
	-100	-120	-1	-2	-0.25	-150	-15	40	150	ZTX553-ND	.48	3.60	24.00	160.00
	-60	-80	-1	-2	-0.35	-150	-15	50	150	ZTX551-ND	.48	3.60	24.00	160.00
	-45	-60	-1	-2	-0.25	-150	-15	100	150	ZTX550-ND	.48	3.60	24.00	160.00
	-30	-35	-1	-2	-0.5	-1000	-100	100	100	ZTX549-ND	.51	3.85	25.50	170.00
High Performance Transistors — 1,000mW														
NPN	400	400	0.5	1	0.5	100	10	50	50	ZTX658-ND	.91	6.75	45.50	305.00
	300	300	0.5	1	0.5	100	10	50	30	ZTX657-ND	.78	5.85	39.00	260.00
	200	200	0.5	1	0.5	100	10	50	30	ZTX656-ND	.78	5.85	39.00	260.00
	150	150	1	2	0.5	1000	200	50	30	ZTX655-ND	.78	5.85	39.00	260.00
	100	120	2	6	0.5	2000	200	100	140	ZTX653-ND	.78	5.85	39.00	260.00
	60	80	2	6	0.5	2000	200	100	140	ZTX651-ND	.78	5.85	39.00	260.00
	25	35	2	6	0.5	2000	200	100	150	ZTX649-ND	.78	5.85	39.00	260.00
PNP	-400	-400	-0.5	-1	-0.5	-100	-10	50	50	ZTX758-ND ***NEW!***	.78	6.50	39.00	260.00
	-300	-300	-0.5	-1	-0.5	-100	-10	40	30	ZTX757-ND	.78	5.85	39.00	260.00
	-200	-200	-1	-2	-0.5	-500	-50	50	30	ZTX776-ND	.78	5.85	39.00	260.00
	-150	-150	-1	-2	-0.5	-1000	-200	50	30	ZTX755-ND	.78	5.85	39.00	260.00
	-100	-120	-2	-6	-0.5	-2000	-200	100	100	ZTX753-ND	.78	5.85	39.00	260.00
	-60	-80	-2	-6	-0.5	-2000	-200	100	100	ZTX751-ND	.78	5.85	39.00	260.00
	-25	-35	-2	-6	-0.5	-2000	-200	100	100	ZTX749-ND	.78	5.85	39.00	260.00
High Gain Transistors — 1,000mW														
NPN	180	180	0.5	1	0.25	200	5	500	70	ZTX696B-ND	.91	6.75	45.50	305.00
	160	200	3	6	0.3	3000	200	30	100	ZTX1056A-ND ***NEW!***	1.09	9.00	54.50	365.00
	120	175	3	6	0.31	3000	150	50	100	ZTX1055A-ND ***NEW!***	1.09	9.00	54.50	365.00
	120	120	0.5	1	0.5	400	5	400	130	ZTX694B-ND	.91	6.75	45.50	305.00
	75	150	3	10	0.25	3000	100	100	100	ZTX1053A-ND ***NEW!***	1.09	9.00	54.50	365.00
	70	70	1	2	0.5	1000	10	400	150	ZTX692B-ND	.91	6.75	45.50	305.00
	45	45	2	6	0.5	1000	5	400	150	ZTX690B-ND	.91	6.75	45.50	305.00
	40	150	4	10	0.21	4000	100	190	100	ZTX1051A-ND ***NEW!***	1.09	9.00	54.50	365.00
	30	80	4	15	0.18	2000	10	300	100	ZTX1049A-ND ***NEW!***	1.09	9.00	54.50	365.00
	20	20	3	8	0.5	2000	10	400	150	ZTX689B-ND	.91	6.75	45.50	305.00
	20	20	3.5	10	0.255	3500	50	170	100	ZTX618-ND ***NEW!***	1.09	9.00	54.50	365.00
	17.5	50	4	20	0.21	4000	20	220	50	ZTX1048A-ND ***NEW!***	1.09	9.00	54.50	365.00
	10	35	4	20	0.19	4000	20	240	50	ZTX1047A-ND ***NEW!***	1.09	9.00	54.50	365.00
PNP	-200	-200	-0.5	-1	-0.3	-200	-20	300	100	ZTX796A-ND	.91	6.75	45.50	305.00
	-140	-140	-0.5	-1	-0.3	-200	-5	250	100	ZTX795A-ND	.91	6.75	45.50	305.00
	-70	-75	-2	-4	-0.5	-1000	-25	250	100	ZTX792A-ND	.91	6.75	45.50	305.00
	-40	-50	-2	-6	-0.75	-2000	-50	200	100	ZTX790A-ND	.91	6.75	45.50	305.00
	-25	-25	-3	-8	-0.45	-2000	-20	200	100	ZTX789A-ND	.91	6.75	45.50	305.00
	-20	-20	-2.5	-6	-0.26	-2500	-200	150	150	ZTX718-ND ***NEW!***	1.09	9.00	54.50	365.00
	-15	-15	-3	-8	-0.45	-2000	-10	300	100	ZTX788B-ND	.91	6.75	45.50	305.00
	-15	-20	-3	-10	-0.35	-2000	-20	250	100	ZTX788A-ND	.91	6.75	45.50	305.00
High Performance Darlington Transistors — 1,000mW														
NPN	160	180	1	4	1.2	1000	10	2K-100K	150	ZTX601-ND	.78	5.85	39.00	260.00
	160	180	1	4	1.2	1000	10	10K-100K	150	ZTX601B-ND	.78	5.85	39.00	260.00
	140	160	1	4	1.2	1000	10	10K-100K	150	ZTX600B-ND	.78	5.85	39.00	260.00
	120	140	1	4	1.5	1000	1	5K	150	ZTX605-ND	.78	5.85	39.00	260.00
	100	120	0.8	2	1.25	800	8	5K	—	ZTX614-ND	.55	4.10	27.50	185.00
	80	100	1	4	1.0	1000	1	5K	150	ZTX603-ND	.78	5.85	39.00	260.00
PNP	-120	-140	-1	-4	-1.3	-1000	-1	3K	160	ZTX705-ND	.78	5.85	39.00	260.00
	-60	-80	-0.8	-2	-1.25	-800	-8	5K	—	ZTX712-ND	.61	4.55	30.50	200.00
RF Transistors														
NPN	25	30	2	25	0.5	4	4	60	650	MPSH10ZX-ND†	.55	4.10	27.50	185.00
	12	20	1.5	—	—	—	—	25	900	MPS5179-ND	.57	4.30	28.50	190.00
	15	30	2	—	—	—	—	20	1300	ZTX325-ND	.75	5.65	37.50	250.00
	15	30	1	—	0.4	10	1	20	600	ZTX320-ND	.42	3.16	21.00	140.00
	30	55	—	0.4	1.0	100	20	15	15	ZTX327-ND	.76	5.63	38.39	250.00
High Current Transistors — 1.2 Watt														
NPN	300	330	3	10	0.25	3000	600	100	80	ZTX857-ND	1.32	9.90	66.00	440.00
	150	250	4	10	0.26	4000	400	100	90	ZTX855-ND	1.32	9.90	66.00	440.00
	100	200	4	10	0.20	4000	100	100	130	ZTX853-ND	1.32	9.90	66.00	440.00
	60	25	5	20	0.22	5000	100	250	100	ZTX869-ND ***NEW!***	1.32	11.00	66.00	440.00
	60	150	5	20	0.25	5000	200	100	130	ZTX851-ND	1.32	9.90	66.00	440.00
	30	80	5	20	0.22	5000	200	100	100	ZTX849-ND	1.32	9.90	66.00	440.00
PNP	-15	-12	-4.5	-20	-0.30	-5000	-200	300	85	ZTX968-ND ***NEW!***	1.50	12.50	75.00	500.00
	-30	-50	-4.5	-20	-0.32	-5000	-300	100	100	ZTX949-ND	1.50	11.25	75.00	500.00
	-40	-20	-4.5	-20	-0.31	-5000	-300	100	80	ZTX948-ND ***NEW!***	1.50	12.50	75.00	500.00
	-60	-100	-4	-15	-0.30	-4000	-400	100	120	ZTX951-ND	1.50	11.25	75.00	500.00
	-100	-140	-3.5	-10	-0.33	-4000	-400	100	125	ZTX953-ND	1.50	11.25	75.00	500.00
	-200	-220	-2	-5	-0.25	-2000	-400	100	110	ZTX956-ND	1.50	11.25	75.00	500.00
	-330	-300	-1	-2	-0.20	-1000	-300	100	85	ZTX957-ND ***NEW!***	1.50	12.50	75.00	500.00
	-400	-400	-0.5	-1.5	-0.40	-500	-100	100	85	ZTX958-ND	1.50	11.25	75.00	500.00
Avalanche Mode Transistors														
NPN	100	260	—	60	0.25	250	—	25	40	ZTX415-ND	24.00	180.00	1200.00	8000.00
	50	150	—	50	0.31	130	—	50	150	ZTX413-ND	19.50	146.25	975.00	6500.00
High Current Low Saturation Voltage — TO-126														
NPN	30	80	5	20	0.28	5000	200	100	100	ZBD849-ND ***NEW!***	3.00	25.00	150.00	1000.00
	100	200	4	10	0.25	4000	400	50	130	ZBD853-ND ***NEW!***	3.00	25.00	150.00	1000.00
	300	330	3	6	0.31	3000	600	15	80	ZBD857-ND ***NEW!***	3.00	25.00	150.00	1000.00
PNP	-50	-30	-5.0	-20	0.45	-5000	-300	100	100	ZBD949-ND	3.33	25.00	166.67	1111.11
	-100	-140	-4	-10	-0.47	-4000	-400	30	125	ZBD953-ND ***NEW!***	3.00	25.00	150.00	1000.00
	-300	-330	-1	-2	-0.29	-1000	-300	90	85	ZBD957-ND ***NEW!***	3.00	25.00	150.00	1000.00

Super E-Line — TO-92



Super E-Line

The standard lead formation is collector-base-emitter (c-b-e) "in-line". The Zetex Super E-Line range brings together advanced chip technology and assembly techniques to give superior performance in a TO-92 style package. Parallel studies into chip design and assembly techniques have been combined to produce the outstanding features of the Super E-Line.

High Current Gain:

A major objective of the chip design was to produce a range of transistors with improved gain properties at high current levels. By utilizing advanced power efficient geometries and diffusion techniques, *minimum gains of 75 have been achieved at collector currents of 2 amps (without a heat sink!)*

Low Saturation Voltage Complementary Pairs:

Selective chip design has produced excellent gain linearity, ideal for consumer applications including audio amplifiers and complementary drivers.

High Current Handling Capability:

Improvements in equalizing current distribution across the chip (avoiding 'hot spots') has produced a continuous current (IC) rating of 5 amps and peak pulse currents (ICM) of 10 amps. This makes the ZTX650 and ZTX750 series ideal for applications such as solenoids, actuators, relays, lamp drivers, motor drivers and photo flash units. The ZETEX SUPER E-LINE gives performance and reliability beyond standard TO-92 products and metal-can transistors. The package is approved over and beyond the full military temperature range. Zetex E-Line transistors are currently in use in many military applications and have been approved for 20 years application use in telecommunication equipment.

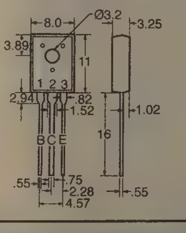
Environmental Protection:

The silicone plastic used for the Zetex E-Line encapsulation protects the active semiconductor chip from exposure to corrosive agents, moisture and extreme environmental conditions. The absence of ionic contamination in the silicone allows chip operation up to 200°C without risk of failure. In regular tests conducted by the Quality Assurance Dept., E-Line devices are operated at T_{amb} = 230°C under reverse bias conditions. All devices must survive without degradation. This presents the wide operating and storage temperature range normally associated only with metal-can devices.

Operating and Storage Temperature Range:

-55 to +200°C.

TO-126



ZETEX Transistors — SOT-23 Package

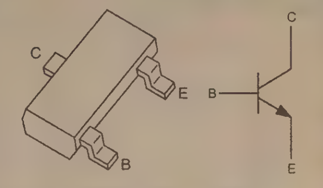
ST303-ND ***NEW!*** Zetex Through-Hole Data Book . . . $6.40
ST317-ND ***NEW!*** Zetex Surface Mount Data Book . . $9.60
ST320-ND ***NEW!*** Zetex Linear Data Book $3.60

Type	V_{CBO} V	V_{CEO} V	I_C mA	h_{FE} Min./Max.	h_{FE} @ I_C/V_{CE} mA/V	V_{CE} (Sat.) Max. @ V	V_{CE} (Sat.) I_C mA	V_{CE} (Sat.) I_B mA	f_T Typ. MHz	Digi-Key Part No.	Pricing 1	Pricing 10	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 3,000
General Purpose — 330mW														
NPN	60	40	200	100/300	10/1	0.2	10	1	300	FMMT3904CT-ND	.43	3.15	FMMT3904TR-ND	126.00/M
	45	45	200	380/630	2/5	0.35	10	0.25	250	BCX70KCT-ND	.36	2.70	BCX70KTR-ND	108.00/M
	32	32	200	380/630	2/5	0.35	10	0.25	250	BCW60DCT-ND	.36	2.70	BCW60DTR-ND	108.00/M
	40	30	200	50/150	2/1	0.3	50	5	250	FMMT4123CT-ND	.43	3.15	FMMT4123TR-ND	126.00/M
PNP	-60	-40	-200	100/300	-10/-1	-0.2	-10	-1.0	300	FMMT3906CT-ND	.43	3.15	FMMT3906TR-ND	126.00/M
	-45	-45	-200	380/630	-2/-5	-0.25	-10	-0.25	180	BCX71KCT-ND	.36	2.70	BCX71KTR-ND	108.00/M
	-32	-32	-200	380/630	-2/-5	-0.25	-10	-0.25	180	BCW61DCT-ND	.36	2.70	BCW61DTR-ND	108.00/M
Switching Transistors — 330mW														
NPN	75	40	600	100/300	150/10	0.3	150	15	300	FMMT2222ACT-ND	.43	3.15	FMMT2222ATR-ND	126.00/M
	60	40	600	100/300	150/1	0.4	150	15	200	FMMT4401CT-ND	.43	3.15	FMMT4401TR-ND	126.00/M
	30	25	200	120/360	2/1	0.3	50	5	300	FMMT4124CT-ND	.43	3.15	FMMT4124TR-ND	126.00/M
	40	15	200	40/120	10/1	0.25	10	1	500	FMMT2369CT-ND	.43	3.15	FMMT2369TR-ND	126.00/M
PNP	-60	-60	-600	100/300	-150/-10	-0.4	-150	-15	200	FMMT2907ACT-ND	.46	3.40	FMMT2907ATR-ND	135.00/M
	-40	-40	-600	100/300	-150/-1	-0.4	-150	-15	200	FMMT4403CT-ND	.46	3.40	FMMT4403TR-ND	135.00/M
	-30	-30	-200	50/150	-2/-1	-0.4	-50	-5	200	FMMT4125CT-ND	.43	3.15	FMMT4125TR-ND	126.00/M
	-25	-25	-200	120/360	-2/-1	-0.4	-50	-5	250	FMMT4126CT-ND	.43	3.15	FMMT4126TR-ND	126.00/M
RF Transistors														
NPN	30	25	25	60/–	4/10	0.5	4	0.4	650	FMMTH10CT-ND ***NEW!***	.61	5.00	FMMTH10TR-ND ***NEW!***	180.00/M
	20	12	50	25/250	3/1	0.4	10	1	900	FMMT5179CT-ND ***NEW!***	.55	4.00	FMMT5179TR-ND ***NEW!***	160.00/M
	30	15	100	20/–	3/1	0.4	10	1	600	FMMT918CT-ND	.48	3.60	FMMT918TR-ND	144.00/M
	30	20	25	40/–	7/10	—	—	—	450	BFS20CT-ND ***NEW!***	.48	4.00	BFS20TR-ND ***NEW!***	144.00/M
	30	15	25	25/150	2/1	—	—	—	1300	BFS17CT-ND	.78	5.85	BFS17TR-ND	234.00/M
High Voltage — 330mW														
NPN	300	300	200	40/–	30/10	0.5	20	2.0	50	FMMTA42CT-ND	.48	3.60	FMMTA42TR-ND	144.00/M
	180	160	400	80/250	10/5	0.4	50	5	200	FMMT5551CT-ND	.46	3.40	FMMT5551TR-ND	135.00/M
	120	80	100	20/–	10/1	0.15	4	0.4	100	BSS64ZXCT-ND	.46	3.40	BSS64ZXTR-ND	135.00/M
PNP	-300	-300	-200	25/–	-30/-10	-0.5	-20	-2.0	50	FMMTA92CT-ND	.48	3.60	FMMTA92TR-ND	135.00/M
	-160	-150	-600	60/240	-10/-5	-0.5	-50	-5	200	FMMT5401CT-ND	.39	2.95	FMMT5401TR-ND	117.00/M
	-110	-100	-100	30/–	-10/-1	-0.25	-25	-2.5	85	BSS63ZXCT-ND	.46	3.40	BSS63ZXTR-ND	135.00/M
Darlington — 330mW														
NPN	80	60	300	10K/–	500/5	1.25	800	8.0	100	FMMT38CCT-ND	.48	3.60	FMMT38CTR-ND	144.00/M
	30	30	300	10K/–	10/5	1.5	100	0.1	100	FMMTA14CT-ND	.48	3.60	FMMTA14TR-ND	144.00/M
	30	30	300	5K/–	10/5	1.5	100	0.1	100	FMMTA13CT-ND	.48	3.60	FMMTA13TR-ND	144.00/M
PNP	-30	-30	-500	10K/–	-10/-5	-1.5	-100	-0.1	150	FMMTA63CT-ND	.48	3.60	FMMTA63TR-ND	144.00/M
	-30	-30	-500	20K/–	-10/-5	-1.5	-100	-0.1	150	FMMTA64CT-ND	.48	3.60	FMMTA64TR-ND	144.00/M
High Performance — 500mW														
NPN	400	400	400	100/300	50/10	0.2	20	2	50	FMMT458CT-ND ***NEW!***	.66	4.95	FMMT458TR-ND ***NEW!***	198.00/M
	300	300	500	100/300	100/10	0.2	100	10	75	FMMT497CT-ND	.51	3.85	FMMT497TR-ND	153.00/M
	170	150	1000	100/300	250/10	0.2	250	25	100	FMMT495CT-ND	.51	3.85	FMMT495TR-ND	153.00/M
	140	120	1000	100/300	250/10	0.2	250	25	100	FMMT494CT-ND	.51	3.85	FMMT494TR-ND	153.00/M
	120	100	1000	100/300	250/10	0.25	500	50	150	FMMT493CT-ND	.51	3.85	FMMT493TR-ND	153.00/M
	120	100	500	5K/–	500/5	1.0	500	5	100	FMMT614CT-ND ***NEW!***	.63	4.75	FMMT614TR-ND ***NEW!***	189.00/M
	80	60	1000	50/150	150/10	0.35	150	15	150	FMMT451CT-ND	.51	3.85	FMMT451TR-ND	153.00/M
	80	60	1000	100/300	500/5	0.3	500	50	150	FMMT491CT-ND	.51	3.85	FMMT491TR-ND	153.00/M
	40	40	1000	300/900	500/5	0.3	500	50	150	FMMT491ACT-ND	.51	3.85	FMMT491ATR-ND	153.00/M
	50	30	1000	100/300	1000/2	0.3	1000	100	150	FMMT489CT-ND	.51	3.85	FMMT489TR-ND	153.00/M
	35	30	1000	100/300	500/2	0.5	1000	100	150	FMMT449CT-ND	.48	3.60	FMMT449TR-ND	144.00/M
PNP	-400	-400	-150	100/300	-50/-10	-0.2	-20	-2	50	FMMT558CT-ND ***NEW!***	.66	4.95	FMMT558TR-ND ***NEW!***	198.00/M
	-300	-300	-500	100/–	-100/-10	-0.25	-100	-20	75	FMMT597CT-ND	.55	4.10	FMMT597TR-ND	162.00/M
	-220	-200	-500	100/300	-250/-10	-0.35	-250	-25	150	FMMT596CT-ND	.55	4.10	FMMT596TR-ND	162.00/M
	-120	-100	-1000	100/300	-500/-10	-0.3	-500	-50	150	FMMT593CT-ND	.55	4.10	FMMT593TR-ND	162.00/M
	-80	-60	-1000	100/300	-500/-5	-0.3	-500	-50	150	FMMT591CT-ND	.55	4.10	FMMT591TR-ND	162.00/M
	-80	-60	-1000	50/150	-150/-10	-0.35	-150	-15	150	FMMT551CT-ND	.51	3.85	FMMT551TR-ND	153.00/M
	-50	-30	-1000	80/–	-1000/-2	-0.35	-1000	-100	100	FMMT589CT-ND	.55	4.10	FMMT589TR-ND	162.00/M
	-40	-40	-1000	250/–	-500/-5	-0.35	-500	-20	150	FMMT591ACT-ND	.55	4.10	FMMT591ATR-ND	162.00/M
	-35	-30	-1000	100/300	-500/-2	-0.5	-1000	-100	100	FMMT549CT-ND	.51	3.85	FMMT549TR-ND	153.00/M
Medium Power — 330mW														
NPN	80	80	500	50/–	100/10	0.25	100	10	100	FMMTA06CT-ND	.46	3.40	FMMTA06TR-ND	135.00/M
	75	45	800	250/630	100/1	0.3	100	10	100	BCW66HCT-ND	.36	2.70	BCW66HTR-ND	108.00/M
	60	32	800	250/630	100/1	0.3	100	10	100	BCW65CCT-ND	.36	2.70	BCW65CTR-ND	108.00/M
	50	45	500	100/600	100/1	0.62	500	50	200	BCX19CT-ND	.43	3.15	BCX19TR-ND	126.00/M
PNP	-80	-80	-500	50/–	-100/-1	-0.25	-100	-10	100	FMMTA56CT-ND	.46	3.40	FMMTA56TR-ND	135.00/M
	-60	-45	-800	250/630	-100/-1	-0.3	-100	-10	100	BCW68HCT-ND	.46	3.40	BCW68HTR-ND	135.00/M
	-50	-45	-800	100/600	-100/-1	-0.62	-500	-50	100	BCX17CT-ND	.46	3.40	BCX17TR-ND	135.00/M
	-45	-30	-800	250/630	-100/-1	-0.3	-100	-10	100	BCW67CCT-ND	.46	3.40	BCW67CTR-ND	135.00/M
Super Sots — 625mW														
NPN	15	15	3000	200/–	3000/2	0.1	1000	10	120	FMMT617CT-ND ***NEW!***	.99	8.25	FMMT617TR-ND ***NEW!***	297.00/M
	20	20	2500	200/—	2000/2	0.2	2500	50	140	FMMT618CT-ND	.99	7.45	FMMT618TR-ND	297.00/M
	50	50	2000	100/—	2000/2	0.2	1000	10	165	FMMT619CT-ND	.99	7.45	FMMT619TR-ND	297.00/M
	125	125	1000	100/—	1000/10	0.25	1000	50	155	FMMT624CT-ND	.99	7.45	FMMT624TR-ND	297.00/M
	150	150	1000	30/300	200/10	0.3	1000	50	135	FMMT625CT-ND	.99	7.45	FMMT625TR-ND	297.00/M
PNP	-12	-12	-2500	180/–	-2500/-2	-0.17	-1500	-50	110	FMMT717CT-ND ***NEW!***	1.05	8.75	FMMT717TR-ND ***NEW!***	315.00/M
	-20	-20	-1500	150/—	-2000/-2	-0.20	-1000	-20	150	FMMT718CT-ND	1.05	7.90	FMMT718TR-ND	315.00/M
	-40	-40	-1500	150/—	-1000/-2	-0.25	-1000	-50	150	FMMT720CT-ND	1.05	7.90	FMMT720TR-ND	315.00/M
	-70	-70	-1500	150/—	-1000/-5	-0.30	-500	-20	150	FMMT722CT-ND	1.05	7.90	FMMT722TR-ND	315.00/M
	-100	-100	-1000	200/—	-500/-20	-0.20	-500	-50	150	FMMT723CT-ND	1.05	7.90	FMMT723TR-ND	315.00/M

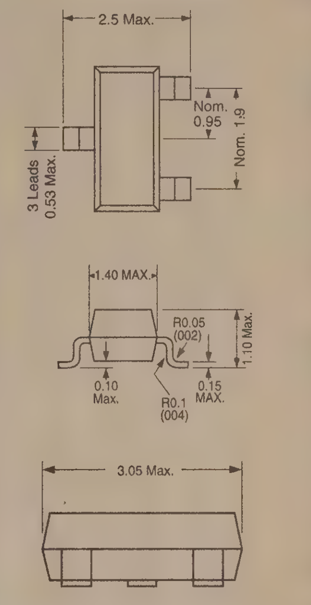
Type	V_{CBO} V	V_{CEO} V	I_C mA	h_{FE} Min./Max.	h_{FE} @ I_C/V_{CE} mA/V	V_{CE} (Sat.) Max. @ V	V_{CE} (Sat.) I_C mA	V_{CE} (Sat.) I_B mA	f_T Typ. MHz	Digi-Key Part No.	Pricing 1	Pricing 10	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 1,000
SOT-89 — 1 Watt														
NPN	25	20	1000	85/375	500/1	0.5	1000	100	60	BC868CT-ND	.90	6.75	BC868TR-ND	300.00
	40	30	500	20,000	100/5	1.0	100	0.1	150	BCV29CT-ND*	.96	7.20	BCV29TR-ND*	320.00
	60	60	1000	40/250	150/2	0.5	500	50	150	BCX5516CT-ND	.91	6.75	BCX5516TR-ND	305.00
	80	60	500	1000/—	150/10	1.3	500	.5	—	BST51CT-ND	.96	7.20	BST51TR-ND	320.00
	80	60	1000	100/300	500/5	0.5	1000	100	150	FCX491CT-ND	1.02	7.65	FCX491TR-ND	340.00
	100	80	1000	40/250	150/2	0.5	500	50	150	BCX5616CT-ND	.80	6.00	BCX5616TR-ND	305.00
	400	350	500	40/—	20/10	0.5	50	4	70	BST39CT-ND	.96	7.20	BST39TR-ND	320.00
PNP	-25	-20	-1000	85/375	-500/-1	-0.5	-1000	-100	60	BC869CT-ND	.90	6.75	BC869TR-ND	300.00
	-60	-60	-1000	40/250	-150/-2	-0.5	-500	-50	150	BCX5216CT-ND	.91	6.75	BCX5216TR-ND	305.00
	-70	-60	-1000	100/300	-100/-5	-0.5	-500	-50	100	BSR31CT-ND	.96	7.20	BSR31TR-ND	320.00
	-80	-60	-500	2,000	-500/-10	-1.3	-500	-50	200	BST61CT-ND*	.96	7.20	BST61TR-ND*	320.00
	-100	-80	-1000	40/250	-150/-2	-0.5	-500	-50	150	BCX5316CT-ND	.91	6.75	BCX5316TR-ND	305.00
	-200	-200	-500	30/150	-50/-10	-2.5	-50	-5	15	BST15CT-ND	.96	7.20	BST15TR-ND	320.00

* Darlington

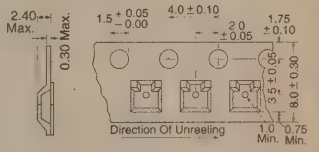
SOT-23 Conventional



SOT-23 Package Outline

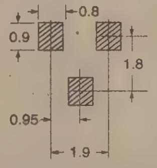


SOT-23 Tape Specs

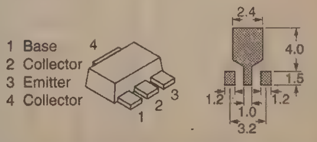


SOT-23 Tape and Reel Information:
Tape packaging also has special attractions for customers using manual placement since it makes it easier to assemble and orient these tiny components; stock accounting is also simplified.

SOT-23 PC Layout



SOT-89



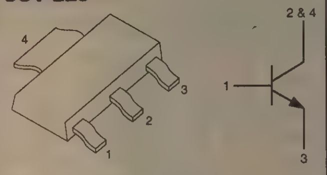
ZETEX Transistors — SOT-223 Package

ST303-ND ***NEW!*** Zetex Through-Hole Data Book . . . $6.40
ST317-ND ***NEW!*** Zetex Surface Mount Data Book . . $9.60
ST320-ND ***NEW!*** Zetex Linear Data Book $3.60

Type	V_{CBO} V	V_{CEO} V	I_C (cont) A	I_{CM} A	h_{FE} Min./Max.	h_{FE} at I_C/V_{CE} mA/V	V_{CE} (Sat.) Max. V	V_{CE} (Sat.) at I_C/I_B mA	f_T MHz	Digi-Key Part No.	Pricing 1	Pricing 10	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 1,000
High Performance Transistors (Including Darlington)														
NPN	400	400	0.5	1.0	50/—	100/5	0.5	100/10	50	FZT658CT-ND	1.50	11.25	FZT658TR-ND	500.00
	300	300	0.5	1.0	50/–	100/5	0.5	100/10	30	FZT657CT-ND	1.50	11.25	FZT657TR-ND	500.00
	150	150	1.0	2.0	50/–	500/5	0.5	500/50	30	FZT655CT-ND	1.50	11.25	FZT655TR-ND	500.00
	120	100	2.0	6.0	100/300	500/2	0.3	1000/100	175	FZT653CT-ND	1.50	11.25	FZT653TR-ND	500.00
	80	60	3.0	6.0	100/300	500/2	0.3	1000/100	175	FZT651CT-ND	1.50	11.25	FZT651TR-ND	500.00
	35	25	3.0	8.0	100/300	1000/2	0.3	1000/100	240	FZT649CT-ND	1.50	11.25	FZT649TR-ND	500.00
	140	120	2.0	4.0	5K/–	500/5	1.0	250/0.25	150	FZT605CT-ND*	1.50	11.25	FZT605TR-ND*	500.00
	120	100	2.0	4.0	5K/—	500/5	1.0	250/0.25	150	FZT604CT-ND*	1.50	11.25	FZT604TR-ND*	500.00
	160	140	2.0	4.0	1K/—	1000/10	1.2	1000/10	150	FZT600CT-ND*	1.50	11.25	FZT600TR-ND*	500.00
PNP	-400	-400	-0.5	-1.0	50/—	-100/-5	-0.5	-100/-10	50	FZT758CT-ND	1.50	11.25	FZT758TR-ND	520.00
	-300	-300	-0.5	-1.0	50/–	-100/-5	-0.5	-100/-10	30	FZT757CT-ND	1.50	11.25	FZT757TR-ND	500.00
	-150	-150	-1.0	-2.0	50/–	-500/-5	-0.5	-500/-50	30	FZT755CT-ND	1.50	11.25	FZT755TR-ND	500.00
	-120	-100	-2.0	-6.0	100/300	-500/-2	-0.3	-1000/-100	100	FZT753CT-ND	1.50	11.25	FZT753TR-ND	500.00
	-80	-60	-3.0	-6.0	80/–	-1000/-2	-0.3	-1000/-100	100	FZT751CT-ND	1.50	11.25	FZT751TR-ND	500.00
	-35	-25	-3.0	-8.0	100/300	-1000/-2	-0.3	-1000/-100	100	FZT749CT-ND	1.50	11.25	FZT749TR-ND	500.00
	-140	-120	-2.0	-4.0	3K/30K	-1000/-5	-1.3	-1000/-1.0	100	FZT705CT-ND*	1.50	11.25	FZT705TR-ND*	500.00
	-120	-100	-2.0	-4.0	3K/30K	-1000/-5	-1.3	-1000/-1	100	FZT704CT-ND*	1.50	11.25	FZT704TR-ND*	500.00
Switching Transistors														
NPN	75	40	0.6	—	100/300	150/10	0.4	150/15	250	FZT2222ACT-ND	1.12	8.35	FZT2222ATR-ND	370.00
PNP	-60	-60	-0.6	—	100/300	-150/-10	-0.4	-150/-15	200	FZT2907ACT-ND	1.12	8.35	FZT2907ATR-ND	370.00
	-40	-40	-0.6	—	100/300	-150/-2	-0.4	-150/-15	200	FZT4403CT-ND	1.12	8.35	FZT4403TR-ND	370.00
Medium Power Transistors														
NPN	45	45	1.0	1.5	40/250	150/2	0.5	500/50	100	BCP54CT-ND	1.02	7.65	BCP54TR-ND	340.00
	60	60	1.0	1.5	40/250	150/2	0.5	500/50	100	BCP55CT-ND	1.02	7.65	BCP55TR-ND	340.00
	100	80	1.0	1.5	40/250	150/2	0.5	500/50	100	BCP56CT-ND	1.02	7.65	BCP56TR-ND	340.00
	25	20	1.0	2.0	63/400	500/1	1.0	1000/100	100	BCP68CT-ND	1.02	7.65	BCP68TR-ND	340.00
	80	60	1.0	2.0	100/300	500/5	0.25	500/50	150	FZT491CT-ND	1.26	9.45	FZT491TR-ND	420.00
	120	100	1.0	2.0	100/300	250/10	0.3	500/50	150	FZT493CT-ND	1.26	9.45	FZT493TR-ND	420.00
	400	350	0.5	1.0	50/—	100/5	0.5	50/4	70	BSP19CT-ND	1.02	7.65	BSP19TR-ND	340.00
	300	300	0.05	0.1	50/—	25/20	0.6	30/5	100	BF720CT-ND	1.02	7.65	BF720TR-ND	340.00
	300	250	0.5	1.0	30/200	30/10	0.5	50/4	40	BSP20CT-ND	1.02	7.65	BSP20TR-ND	340.00
PNP	-45	-45	-1.0	-1.5	40/250	-150/-2	-0.5	-500/-50	125	BCP51CT-ND	1.02	7.65	BCP51TR-ND	340.00
	-60	-60	-1.0	-1.5	40/250	-150/-2	-0.5	-500/-50	125	BCP52CT-ND	1.02	7.65	BCP52TR-ND	340.00
	-100	-80	-1.0	-1.5	40/250	-150/-2	-0.5	-500/-50	125	BCP53CT-ND	1.02	7.65	BCP53TR-ND	340.00
	-25	-20	-1.0	-2.0	63/400	-500/-1	-0.5	-1000/-100	100	BCP69CT-ND	1.02	7.65	BCP69TR-ND	340.00
	-70	-60	-1.0	-2.0	100/300	-100/-1	-0.25	-150/-15	100	BSP31CT-ND	1.02	7.65	BSP31TR-ND	340.00
	-35	-30	-1.0	-2.0	100/300	-500/-5	-0.5	-1000/-100	100	FZT549CT-ND	1.26	9.45	FZT549TR-ND	420.00
	-80	-60	-1.0	-2.0	100/300	-500/-5	-0.3	-500/-50	150	FZT591CT-ND	1.26	9.45	FZT591TR-ND	420.00
	-120	-100	-1.0	-2.0	100/300	-500/-2	-0.3	-500/-50	150	FZT593CT-ND	1.26	9.45	FZT593TR-ND	420.00
High Gain Transistors														
NPN	20	15	4.0	10.0	400/—	3000/2	0.45	3000/20	150	FZT688BCT-ND	1.59	11.95	FZT688BTR-ND	530.00
	20	20	3.0	8.0	400/—	2000/2	0.35	3000/20	150	FZT689BCT-ND	1.59	11.95	FZT689BTR-ND	530.00
	45	45	2.0	6.0	400/—	1000/2	0.1	100/0.5	150	FZT690BCT-ND	1.59	11.95	FZT690BTR-ND	530.00
	70	70	1.0	2.0	400/—	500/2	0.15	100/0.5	150	FZT692BCT-ND	1.59	11.95	FZT692BTR-ND	530.00
	120	120	1.0	2.0	400/—	200/2	0.25	100/0.5	130	FZT694BCT-ND	1.59	11.95	FZT694BTR-ND	530.00
	250	250	0.5	1.0	500/—	100/5	0.25	200/5	70	FZT696BCT-ND	1.59	11.95	FZT696BTR-ND	530.00
PNP	-15	-15	-3.0	-8.0	250/—	-2000/-1	-0.45	-2000/-10	100	FZT788BCT-ND	1.66	12.40	FZT788BTR-ND	555.00
	-25	-25	-2.0	-6.0	250/—	-1000/-2	-0.45	-2000/-20	100	FZT789ACT-ND	1.66	12.40	FZT789ATR-ND	555.00
	-50	-40	-2.0	-6.0	250/—	-500/-2	-0.45	-1000/-10	100	FZT790ACT-ND	1.66	12.40	FZT790ATR-ND	555.00
	-75	-70	-2.0	-5.0	250/—	-500/-2	-0.5	-1000/-25	100	FZT792ACT-ND	1.66	12.40	FZT792ATR-ND	555.00
	-140	-140	-0.5	-1.0	250/—	-200/-2	-0.3	-200/-5	100	FZT795ACT-ND	1.66	11.16	FZT795ATR-ND	555.00
	-200	-200	-0.5	-1.0	250/—	-300/-10	-0.3	-200/-20	100	FZT796ACT-ND	1.66	12.40	FZT796ATR-ND	555.00
High Current Transistors														
NPN	80	25	6.5	20.0	300/—	1000/1	0.215	2000/10	100	FZT869CT-ND	2.10	15.75	FZT869TR-ND	700.00
	80	30	7.0	20.0	100/300	1000/1	0.215	2000/20	100	FZT849CT-ND	2.10	15.75	FZT849TR-ND	700.00
	150	60	6.0	20.0	100/300	2000/1	0.17	2000/50	130	FZT851CT-ND	2.10	15.75	FZT851TR-ND	700.00
	200	100	6.0	10.0	100/300	2000/2	0.15	2000/100	130	FZT853CT-ND	2.10	15.75	FZT853TR-ND	700.00
	200	150	5.0	10.0	100/300	1000/5	0.11	1000/100	90	FZT855CT-ND	2.10	15.75	FZT855TR-ND	700.00
	350	300	3.5	5.0	100/300	500/10	0.23	2000/200	80	FZT857CT-ND	2.10	15.75	FZT857TR-ND	700.00
PNP	-15	-12	-6.0	-20.0	300/1000	-500/-1	-0.17	-2000/-50	80	FZT968CT-ND	2.10	15.75	FZT968TR-ND	700.00
	-40	-20	-6.0	-20.0	100/300	-1000/-1	-0.18	-2000/-200	80	FZT948CT-ND	2.10	15.75	FZT948TR-ND	700.00
	-50	-30	-5.5	-20.0	100/300	-1000/-1	-0.20	-2000/-200	80	FZT949CT-ND	2.10	15.75	FZT949TR-ND	700.00
	-100	-60	-5.0	-15.0	100/300	-2000/-1	-0.21	-2000/-200	120	FZT951CT-ND	2.10	15.75	FZT951TR-ND	700.00
	-140	-100	-5.0	-10.0	100/300	-1000/-1	-0.22	-2000/-200	125	FZT953CT-ND	2.10	15.75	FZT953TR-ND	700.00
	-180	-140	-4.0	-10.0	100/300	-1000/-5	-0.15	-1000/-100	110	FZT955CT-ND	2.10	15.75	FZT955TR-ND	700.00
	-220	-200	-2.0	-5.0	100/300	-1000/-5	-0.165	-1000/-100	110	FZT956CT-ND	2.10	15.75	FZT956TR-ND	700.00
	-300	-300	-1.0	-2.0	100/300	-500/-10	-0.24	-1000/-300	85	FZT957CT-ND	2.10	15.75	FZT957TR-ND	700.00
	-400	-400	-0.5	-1.5	100/300	-500/-10	-0.45	-500/-100	85	FZT958CT-ND	2.10	15.75	FZT958TR-ND	700.00

* Darlington

SOT-223

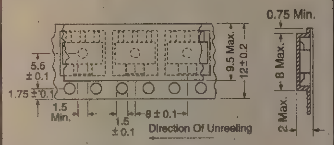


1 Base
2 Collector
3 Emitter
4 Collector

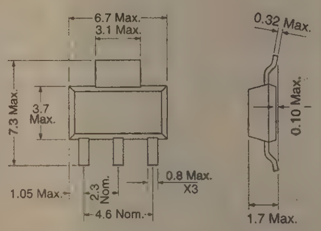
General Information: As surface mount continues to increase its penetration throughout the world of electronics, the SOT-223 is one of many surface mount packages which are the driving force behind this phenomenal growth. The package is capable of housing semiconductor crystals up to 2.5 X 2.5mm offering power capabilities up to and above 2W (subject to mounting). Designed in a similar fashion to the very popular SOT-23 package, it ensures that it is fully compatible with all industry standard wave and reflow soldering techniques.

Maximum Thermal Ratings: Junction Temperature: 150°C. Operating and Storage Temperature: -55°C to +150°C.

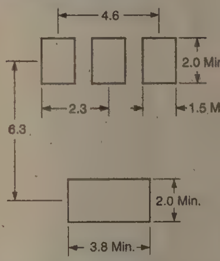
SOT-223



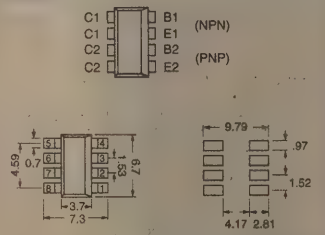
SOT-223 Package Outline



SOT-223 Pad Layout



SM-8



Transistors — Dual SM-8

V_{CEO} (V)	V_{CBO} (V)	I_C A	I_{CM} A	$V_{CE(sat)}$ mV max	$V_{CE(sat)}$ I_C A	$V_{CE(sat)}$ I_B mA	h_{FE} min	h_{FE} I_C A	h_{FE} V_{CE} V	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 1000	Tape & Reel Pricing 5000
NEW! Dual NPN Transistors NEW!																
15	15	3	12	200	3	50	200	3	2	ZDT617CT-ND	3.00	25.00	150.00	ZDT617TR-ND	1000.00	750.00/M
25	35	2	6	500	2	200	75	2	2	ZDT649CT-ND	3.00	25.00	150.00	ZDT649TR-ND	1000.00	750.00/M
45	45	2	6	500	1	5	400	1	2	ZDT619CT-ND	3.00	25.00	150.00	ZDT619TR-ND	1000.00	750.00/M
50	50	2	6	220	2	50	200	1	2	ZDT690CT-ND	3.21	26.75	160.50	ZDT690TR-ND	1075.00	805.00/M
120	140	1	4	1500	1	1	2000	1	5	ZDT605CT-ND	3.00	25.00	150.00	ZDT605TR-ND	1000.00	750.00/M
60	80	2	6	500	2	200	100	1	2	ZDT651CT-ND	3.00	25.00	150.00	ZDT651TR-ND	1000.00	750.00/M
120	120	0.5	1	500	0.4	5	400	2	2	ZDT694CT-ND	3.21	26.75	160.50	ZDT694TR-ND	1075.00	805.00/M
17.5	50	5	20	300	5	50	300	1	2	ZDT1048CT-ND	3.61	30.00	180.50	ZDT1048TR-ND	1205.00	905.00/M
75	150	5	20	350	5	250	300	1	2	ZDT1053CT-ND	3.61	30.00	180.50	ZDT1053TR-ND	1205.00	905.00/M
NEW! Dual PNP Transistors NEW!																
-12	-12	-2.5	-10	-220	-2.5	50	180	-2.5	-2	ZDT717CT-ND	3.00	25.00	150.00	ZDT717TR-ND	1000.00	750.00/M
-25	-35	-2	-6	-500	-2	-200	75	-2	-2	ZDT749CT-ND	3.00	25.00	150.00	ZDT749TR-ND	1000.00	750.00/M
-120	-140	-1	-4	-1.3	-1	-1	3000	-1	-5	ZDT705CT-ND	3.00	25.00	150.00	ZDT705TR-ND	1000.00	750.00/M
-400	-400	-0.5	-1	-0.5	-0.1	-10	50	-0.1	-5	ZDT758CT-ND	3.00	25.00	150.00	ZDT758TR-ND	1000.00	750.00/M
NEW! NPN/PNP Transistors Combinations NEW!																
20	20	2	6	200	2.5	50	200	2	2	ZDT6718CT-ND	3.00	25.00	150.00	ZDT6718TR-ND	1000.00	750.00/M
-20	-20	-1.5	-6	-220	-1.5	-50	150	-2	-2							
45	45	2	6	500	1	5	150	2	2	ZDT6790CT-ND	3.37	28.00	168.50	ZDT6790TR-ND	1120.00	845.00/M
-40	-50	-2	-6	-450	-1	-10	150	-2	-2							
120	140	1	4	1500	1	1	2000	1	5	ZDT6705CT-ND	3.15	26.25	157.50	ZDT6705TR-ND	1050.00	790.00/M
-120	-140	-1	-4	1300	-1	-1	3000	-1	-5							
300	300	0.5	1	500	0.1	10	50	0.1	5	ZDT6757CT-ND	3.15	26.25	157.50	ZDT6757TR-ND	1050.00	790.00/M
-300	-300	-0.5	-1	-500	-0.1	-10	50	-0.1	-5							
60	80	2	4	1200	2	2	2000	2	3	ZDT6702CT-ND	3.15	26.25	157.50	ZDT6702TR-ND	1050.00	790.00/M
-60	-80	-2	-4	-1200	-2	-2	2000	-2	-3							

ZETEX Super E-Line Mosfets — Modified TO-92 Package

ST303-ND	***NEW!*** Zetex Through-Hole Data Book	$6.40
ST317-ND	***NEW!*** Zetex Surface Mount Data Book	$9.60
ST320-ND	***NEW!*** Zetex Linear Data Book	$3.60

Type	BV_{DSS} V	I_D mA	I_{DM} A	V_{GS} (th) V Min.	V_{GS} (th) at Max.	V_{GS} (th) I_D mA	R_{DS} (on) Ω Max.@	R_{DS} (on) I_D mA	R_{DS} (on) V_{GS} V	PD W	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 1,000
Mosfets — TO-92															
N-Channel	200	120	2	—	—	—	23	25	2.6	0.5	BS107P-ND	1.09	8.15	54.50	365.00
	100	320	6	0.8	2.4	1	4	1000	10	0.7	ZVN2110A-ND	1.02	7.65	51.00	340.00
	100	200	2	0.8	2.4	1	10	500	10	0.625	ZVN3310A-ND	.75	5.65	37.50	250.00
	60	600	8	1.3	3.0	1	1.5	500	5	0.7	ZVN4206A-ND	1.02	7.65	51.00	340.00
	60	450	8	0.8	2.4	1	2	1000	10	0.7	ZVN2106A-ND	1.02	7.65	51.00	340.00
	60	270	3	0.8	2.4	1	5	500	10	0.625	ZVN3306A-ND	.75	5.65	37.50	250.00
	60	270	3	0.8	2.5	1	7.5	200	5	0.625	VN10LP-ND	.75	5.65	37.50	250.00
	60	270	3	0.8	3.0	1	5	200	10	0.625	BS170P-ND	.75	5.65	37.50	250.00
	100	320	6	0.75	1.5	1	4.5	250	5	0.7	ZVNL110A-ND	1.02	7.65	51.00	340.00
	450	90	0.6	1.0	3.0	1	50	100	10	0.7	ZVN0545A-ND	1.50	11.25	75.00	500.00
	100	450	6	0.8	2.4	1	1.8	500	5	0.7	ZVN4210A-ND	1.26	9.45	63.00	420.00
	60	1100	20	1.3	3.0	1	0.45	1500	5	0.85	ZVN4306A-ND	1.89	14.18	94.50	630.00
	100	900	12	1.0	3.0	1	0.65	1500	5	0.85	ZVN4310A-ND	1.89	14.18	94.50	630.00
	240	260	1	0.8	1.8	1	6	100	2.5	—	ZVN4424A-ND	1.69	12.60	84.50	560.00
	200	180	2	0.5	1.5	1	10	125	3	0.7	ZVNL120A-ND	1.38	10.35	69.00	460.00
	60	200	0.5	0.8	3.0	1	5	500	10	0.4	2N7000P-ND	.75	5.65	37.50	250.00
	350	90	0.8	0.5	1.5	1	40	50	3	0.7	ZVNL535A-ND	2.07	15.55	103.50	690.00
	60	600	8	1.3	3	1	1.5	500	5	0.7	ZVN4206AV-ND	1.50	11.25	75.00	500.00
	60	1100	20	1.3	3	1	0.45	1500	5	—	ZVN4306AV-ND ***NEW!***	2.10	17.50	105.00	700.00
P-Channel	-100	-230	-3	-1.5	-4.5	-1	8	-375	-10	0.7	ZVP2110A-ND	1.24	9.25	62.00	410.00
	-100	-140	-1.2	-1.5	-4.5	-1	20	-150	-10	0.625	ZVP3310A-ND	.99	7.45	49.50	335.00
	-60	-280	-4	-1.5	-4.5	-1	5	-500	-10	0.7	ZVP2106A-ND	1.24	9.25	62.00	410.00
	-60	-160	-1.6	-1.5	-4.5	-1	14	-200	-10	0.625	ZVP3306A-ND	.99	7.45	49.50	335.00
	-45	-230	-3	-1.0	-3.5	-1	14	-200	-10	0.7	BS250P-ND	1.02	7.65	51.00	340.00
	-450	-45	-0.4	-1.5	-4.5	-1	150	-50	-10	0.7	ZVP0545A-ND	3.09	23.20	154.50	1030.00
	-200	-120	-1.2	-1.5	-4.5	-1	25	-150	-10	0.7	ZVP2120A-ND	1.38	10.35	69.00	460.00
	-50	-175	-0.52	-0.8	-2.0	-1	10	-100	-5	0.625	ZVP4105A-ND	1.24	9.25	62.00	410.00
	-240	-200	-1	-0.8	-2.5	-1	15	-100	-3.5	—	ZVP4424A-ND ***NEW!***	1.74	14.50	87.00	580.00

Mosfets — SOT-23 Package

Type	BV_{DSS} V	I_D mA	I_{DM} A	P_D mW	V_{GS} (th) V Min.	V_{GS} (th) at Max.	V_{GS} (th) I_D mA	R_{DS} (on) Ω Max. @	R_{DS} (on) I_D mA	R_{DS} (on) V_{GS} V	Digi-Key Part No.	Pricing 1	Pricing 10	Digi-Key Part No.	Tape & Reel Pricing 3,000
Small Signal Mosfets (Sotfets) — 350mW															
N-Channel	100	170	.68	360	0.8	2.8	1	6	100	10	BSS123CT-ND	1.02	7.65	BSS123TR-ND	306.00/M
	60	150	3	330	0.8	2.4	1	5	500	10	ZVN3306FCT-ND	1.02	7.65	ZVN3306FTR-ND	306.00/M
	100	100	2	330	0.8	2.4	1	10	500	10	ZVN3310FCT-ND	1.02	7.65	ZVN3310FTR-ND	306.00/M
	200	60	1	300	1.0	3	1	25	100	10	ZVN3320FCT-ND	1.14	8.55	ZVN3320FTR-ND	342.00/M
	60	200	3	330	1.3	3	1	2.5	500	10	ZVN4106FCT-ND	1.02	7.65	ZVN4106FTR-ND	306.00/M
	60	150	3	330	0.8	2.5	1	7.5	200	5	VN10LFCT-ND	1.02	7.65	VN10LFTR-ND	306.00/M
	50	200	0.8	360	0.5	1.5	1	3.5	200	5	BSS138ZXCT-ND	1.02	7.65	BSS138ZXTR-ND	306.00/M
	60	115	0.8	300	1.0	2.5	250µA	7.5	500	10	2N7002CT-ND	1.02	7.65	2N7002TR-ND	306.00/M
	60	150	3	330	0.8	3	1	5	200	10	BS170FCT-ND	1.02	7.65	BS170FTR-ND	306.00/M
P-Channel	-100	-75	-1.2	330	-1.5	-3.5	-1	20	-150	-10	ZVP3310FCT-ND	1.12	8.35	ZVP3310FTR-ND	333.00/M
	-60	-90	-1.6	330	-1.5	-3.5	-1	14	-200	-10	ZVP3306FCT-ND	1.12	8.35	ZVP3306FTR-ND	333.00/M
	-45	-90	-1.6	330	-1	-3.5	-1	14	-200	-10	BS250FCT-ND	1.29	9.68	BS250FTR-ND	387.00/M
	-50	-130	-0.52	360	-0.8	-2.0	-1	10	-100	-5	BSS84ZXCT-ND	.91	6.75	BSS84ZXTR-ND	270.00/M

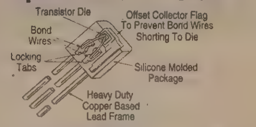
NEW! Mosfets — Dual N-Channel SM-8

BV_{DSS} (V)	I_D (A)	I_{DM} (A)	$V_{GS(th)}$ (V) min.	$V_{GS(th)}$ @ max.	$V_{GS(th)}$ I_D mA	$R_{DS(on)}$ Ω max.	$R_{DS(on)}$ V_{GS} V	$R_{DS(on)}$ I_D A	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Pricing 1000	Pricing 5000
NEW! Dual N-Channel Mosfets NEW!															
60	1	8	1.3	3	1	1	10	1.5	ZDM4206NCT-ND	3.61	30.00	180.50	ZDM4206NTR-ND	1205.00	905.00/M
60	1.3	15	1.3	3	1	0.33	10	3	ZDM4306NCT-ND	4.81	40.00	240.50	ZDM4306NTR-ND	1600.00	1205.00/M

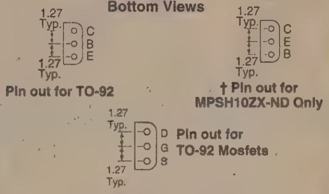
Mosfets — SOT-223 Package

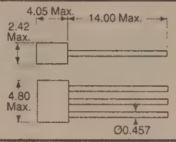
Type	BV_{DSS} V	I_D A	I_{DM} A	V_{GS} (th) V at I_D Min.	V_{GS} (th) Max.	V_{GS} (th) mA	R_{DS} (on) Ω at ID Max.	R_{DS} (on) mA	R_{DS} (on) V_{GS} V	PD W	Digi-Key Part No.	Pricing 1	Pricing 10	Digi-Key Part No.	Tape & Reel Pricing 1,000
Mosfet Transistors															
N-Channel	450	0.14	0.6	1.0	3.0	1.0	50	0.1	10	2.0	ZVN0545GCT-ND	1.50	11.25	ZVN0545GTR-ND	500.00
	240	0.5	1.0	0.8	1.8	1.0	6.0	0.1	2.5	2.5	ZVN4424GCT-ND	1.74	13.05	ZVN4424GTR-ND	580.00
	200	0.32	2.0	1.0	3.0	1.0	10	0.25	10	2.0	ZVN2120GCT-ND	1.50	11.25	ZVN2120GTR-ND	500.00
	200	0.32	2.0	0.5	1.5	1.0	10	0.125	3	2.0	ZVNL120GCT-ND	1.50	11.25	ZVNL120GTR-ND	500.00
	100	0.6	6.0	0.75	1.5	1.0	4.5	0.25	5	2.0	ZVNL110GCT-ND	1.50	11.25	ZVNL110GTR-ND	500.00
	100	0.5	6.0	0.8	2.4	1.0	4.0	1.0	10	2.0	ZVN2110GCT-ND	1.50	11.25	ZVN2110GTR-ND	500.00
	60	1.0	8.0	1.3	3.0	1.0	1.0	1.5	10	2.0	ZVN4206GCT-ND	1.81	13.50	ZVN4206GTR-ND	605.00
	60	0.7	8.0	0.8	2.4	1.0	2.0	1.0	10	2.0	ZVN2106GCT-ND	1.50	11.25	ZVN2106GTR-ND	500.00
P-Channel	-240	-1.0	-1.0	-0.7	-2.0	-1.0	9.0	-200	-10	2.5	ZVP4424GCT-ND ***NEW!***	1.74	1.74	ZVP4424GTR-ND ***NEW!***	580.00
	-100	-0.35	-3.0	-1.5	-3.5	-1.0	8.0	-0.375	-10	2.0	ZVP2110GCT-ND	1.81	13.50	ZVP2110GTR-ND	605.00
	-60	-0.45	-4.0	-1.5	-3.5	-1.0	5.0	-0.5	-10	2.0	ZVP2106GCT-ND	1.81	13.50	ZVP2106GTR-ND	605.00
Avalanche Rated Mosfet															
N-Channel	60	1.0	8.0	1.3	3.0	1.0	1.0	1.5	10	2.0	ZVN4206GVCT-ND	1.89	14.20	ZVN4206GVTR-ND	630.00
Mosfet Transistor (Low RDS (ON))															
N-Channel	60	2.1	20	1.3	3.0	1.0	0.33	3.0	10	3.0	ZVN4306GCT-ND	2.10	15.75	ZVN4306GTR-ND	700.00
	100	1.7	12	1.0	3.0	1.0	0.50	3.0	10	3.0	ZVN4310GCT-ND	2.10	15.75	ZVN4310GTR-ND	700.00
	60	2.1	20	1.3	3.0	1.0	0.33	3.0	10	3.0	ZVN4306GVCT-ND ***NEW!***	2.10	17.50	ZVN4306GVTR-ND ***NEW!***	700.00

Super E-Line — TO-92

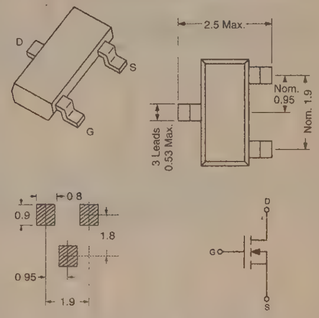

Transistor Die
Offset Collector Flag To Prevent Bond Wires Shorting To Die
Bond Wires
Locking Tabs
Silicone Molded Package
Heavy Duty Copper Based Lead Frame

Bottom Views

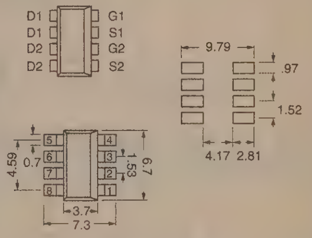




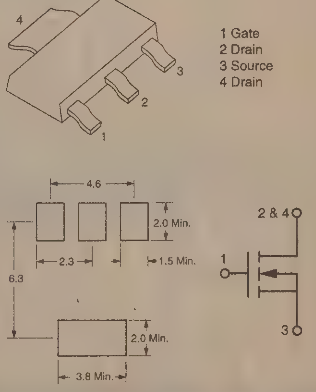
SOT-23 Mosfets (Sotfets™)



SM-8



SOT-223



1 Gate
2 Drain
3 Source
4 Drain

ZETEX Precision Voltage References and Regulators

ST303-ND	***NEW!*** Zetex Through-Hole Data Book	$6.40
ST317-ND	***NEW!*** Zetex Surface Mount Data Book	$9.60
ST320-ND	***NEW!*** Zetex Linear Data Book	$3.60

V_R V	I_{MIN} µA	I_R Min. µA	I_R Max. mA	TC ppm/°C	R_S Max. Ω	Tol.	Digi-Key Part No.	Pricing				
								1	10	100	1,000	5,000
Micropower Voltage Reference, 330mW — TO-92 Package												
1.228/1.252	30	50	5	90	2.0	1%	ZRA125A01-ND	2.88	21.60	144.00	960.00	720.00/M
1.21/1.29	30	50	5	90	2.0	3%	ZRA125A03-ND	2.41	18.05	120.50	800.00	605.00/M
2.475/2.525	50	50	5	90	2.0	1%	ZRA250A01-ND	2.88	21.60	144.00	960.00	720.00/M
2.425/2.575	25	50	5	90	2.0	3%	ZRA250A03-ND	2.41	18.05	120.50	800.00	605.00/M
—	30	50	5	—	1.2	3%	ZRA500A03-ND	1.84	13.80	92.00	646.00	597.00/M
4.95/5.05	—	50	15	50	1.5	1%	ZRB500A01-ND	2.88	21.60	144.00	960.00	720.00/M
4.85/5.15	—	50	15	50	1.5	3%	ZRB500A03-ND	2.41	18.05	120.50	800.00	605.00/M
3.27/3,33	—	20	5	50	2.0	1%	ZRC330A01-ND	2.88	21.60	144.00	960.00	720.00/M
3.2/3.4	—	20	5	50	2.0	3%	ZRC330A03-ND	2.41	18.05	120.50	800.00	605.00/M

V_R V	I_R Min. µA	I_R Max. mA	TC ppm/°C	R_S Max. Ω	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing
						1	10	100		3,000
Micropower Voltage Reference — SOT-23 Package										
1.228/1.252	50	5	90	2.0	ZRA125F01CT-ND	3.06	22.95	153.00	ZRA125F01TR-ND	918.00/M
1.21/1.29	50	5	90	2.0	ZRA125F03CT-ND	2.52	18.93	126.38	ZRA125F03TR-ND	774.00/M
2.475/2.525	50	5	90	2.0	ZRA250F01CT-ND	3.06	23.00	153.00	ZRA250F01TR-ND	918.00/M
2.425/2.575	50	5	90	2.0	ZRA250F03CT-ND	2.58	19.40	129.00	ZRA250F03TR-ND	774.00/M

V_O V	ΔVref (mV)		Iref (ma)		Slope Resistance		Trim Range	Digi-Key Part No.	Pricing				
	Typ	Max	Min	Max	Typ	Max			1	10	100	1,000	5,000
Precision Micropower Voltage Reference, Trimmable — TO-18													
2.5	2.7	8.8	0.15	75	0.85	2	5.0%	ZRT025C1-ND	9.61	72 05	480.50	3200.00	2405.01/M
4.0	4.2	14.0	0.15	75	1.1	3	5.0%	ZRT040C1-ND	9.61	72.05	480.50	3200.00	2405.01/M
5.0	5.4	17.2	0.15	60	1.25	2	5.0%	ZRT050C1-ND	9.61	72.05	480.50	3200.00	2405.01/M
6.2	6.5	22.0	0.15	50	1.4	3	5.0%	ZRT062C1-ND	9.61	72.05	480.50	3200.00	2405.01/M
9.8	10.8	34.4	0.15	30	1.8	4	2.5%	ZRT100C1-ND	9.61	72.05	480.50	3200.00	2405.01/M

V_O V	ΔVref (mV)		Iref (ma)		Slope Resistance		Trim Range	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing
	Typ	Max	Min	Max	Typ	Max			1	10	100		1,000
Precision Micropower Voltage Reference, Trimmable — SOT-228													
2.5	2.7	8.8	0.15	75	0.85	2	5.0%	ZRT025GC1CT-ND	3.25	24.35	162.50	ZRT025GC1TR-ND	1085.00
4.0	4.2	14.0	0.15	75	1.1	3	5.0%	ZRT040GC1CT-ND	3.25	24.35	162.50	ZRT040GC1TR-ND	1085.00
5.0	5.4	17.2	0.15	60	1.25	2	5.0%	ZRT050GC1CT-ND	3.25	24.35	162.50	ZRT050GC1TR-ND	1085.00
6.2	6.5	22.0	0.15	50	1.4	3	5.0%	ZRT062GC1CT-ND	3.25	24.35	162.50	ZRT062GC1TR-ND	1085.00
9.8	10.8	34.4	0.15	30	1.8	4	2.5%	ZRT100GC1CT-ND	3.25	24.35	162.50	ZRT100GC1TR-ND	1085.00

Output Voltage Typ V	Line Regulation Max mV	Load Regulation Max mV	Quiescent Current Max µA	Ptot W	Digi-Key Part No.	Pricing				
						1	10	100	1,000	5,000
Local Voltage Regulators — TO-92										
3.3	30	25	600	0.6	ZSR330C-ND	1.35	10.15	67.50	450.00	340.00/M
5.0	40	25	600	0.6	ZSR500C-ND	1.35	10.15	67.50	450.00	340.00/M.
5.0	40	25	600	0.6	ZR78L05C-ND	.91	6.75	45.50	305.00	230.00/M
6.0	40	30	600	0.6	ZSR600C-ND	1.35	10.15	67.50	450.00	340.00/M
8.0	40	30	600	0.6	ZSR800C-ND	1.35	10.15	67.50	450.00	340.00/M
10.0	40	30	600	0.6	ZSR1000C-ND	1.35	10.15	67.50	450.00	340.00/M
NEW! ZR78L Series Local Voltage Regulators — TO-92 NEW!										
2.85	30	25	600	0.6	ZR78L028C-ND	.91	7.50	45.50	305.00	230.00/M
3	30	25	600	0.6	ZR78L03C-ND	.91	7.50	45.50	305.00	230.00/M
3.3	30	25	600	0.6	ZR78L033C-ND	.91	7.50	45.50	305.00	230.00/M
4	40	25	600	0.6	ZR78L04C-ND	.91	7.50	45.50	305.00	230.00/M
5.7	40	30	600	0.6	ZR78L057C-ND	.91	7.50	45.50	305.00	230.00/M
6	40	30	600	0.6	ZR78L06C-ND	.91	7.50	45.50	305.00	230.00/M
8	40	30	600	0.6	ZR78L08C-ND	.91	7.50	45.50	305.00	230.00/M
9	40	30	600	0.6	ZR78L09C-ND	.91	7.50	45.50	305.00	230.00/M
10	40	30	600	0.6	ZR78L10C-ND	.91	7.50	45.50	305.00	230.00/M

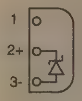
Output Voltage Typ V	Line Regulation Max mV	Load Regulation Max mV	Quiescent Current Max µA	Ptot W	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing
						1	10	100		1,000
Local Voltage Regulators — SOT-223										
3.3	30	25	600	2.0	ZSR330GCT-ND	2.70	20.25	135.00	ZSR330GTR-ND	900.00
5.0	40	25	600	2.0	ZSR500GCT-ND	2.70	20.25	135.00	ZSR500GTR-ND	900.00
5.0	40	25	600	2.0	ZR78L05GCT-ND	2.74	20.54	137.52	ZR78L05GTR-ND	912.68
6.0	40	30	600	2.0	ZSR600GCT-ND	2.70	20.25	135.00	ZSR600GTR-ND	900.00
8.0	40	30	600	2.0	ZSR800GCT-ND	2.70	20.25	135.00	ZSR800GTR-ND	900.00
10.0	40	30	600	2.0	ZSR1000GCT-ND	2.70	20.25	135.00	ZSR1000GTR-ND	900.00
NEW! ZR78L Series Local Voltage Regulators — SOT-223 NEW!										
2.85	30	25	600	2.0	ZR78L028GCT-ND	2.23	18.50	111.50	ZR78L028GTR-ND	740.00
3	30	25	600	2.0	ZR78L03GCT-ND	2.23	18.50	111.50	ZR78L03GTR-ND	740.00
3.3	30	25	600	2.0	ZR78L033GCT-ND	2.23	18.50	111.50	ZR78L033GTR-ND	740.00
4	40	25	600	2.0	ZR78L04GCT-ND	2.23	18.50	111.50	ZR78L04GTR-ND	740.00
5.7	40	30	600	2.0	ZR78L057GCT-ND	2.23	18.50	111.50	ZR78L057GTR-ND	740.00
6	40	30	600	2.0	ZR78L06GCT-ND	2.23	18.50	111.50	ZR78L06GTR-ND	740.00
8	40	30	600	2.0	ZR78L08GCT-ND	2.23	18.50	111.50	ZR78L08GTR-ND	740.00
9	40	30	600	2.0	ZR78L09GCT-ND	2.23	18.50	111.50	ZR78L09GTR-ND	740.00
10	40	30	600	2.0	ZR78L10GCT-ND	2.23	18.50	111.50	ZR78L10GTR-ND	740.00

Output Voltage Typ V	Max. Output Current (mA)	Max. Quiescent Current (µA)	Typ. Dropout Voltage (V)	Max. Line Regulation (mV)	Max. Load Regulation (mV)	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing	
							1	10	100		500	1000
NEW! ZSR Series Local Voltage Regulators — SO-8 NEW!												
2.85	200	600	1.7	30	25	ZSR285N8CT-ND	3.06	25.50	230.00	ZSR285N8TR-ND	612.00	1020.00
3	200	600	1.7	30	25	ZSR300N8CT-ND	3.06	25.50	230.00	ZSR300N8TR-ND	612.00	1020.00
3.3	200	600	1.7	30	25	ZSR330N8CT-ND	3.06	25.50	230.00	ZSR330N8TR-ND	612.00	1020.00
4	200	600	1.7	40	25	ZSR400N8CT-ND	3.06	25.50	230.00	ZSR400N8TR-ND	612.00	1020.00
5	200	600	1.7	40	25	ZSR500N8CT-ND	3.06	25.50	230.00	ZSR500N8TR-ND	612.00	1020.00
5.7	200	600	1.7	40	30	ZSR570N8CT-ND	3.06	25.50	230.00	ZSR570N8TR-ND	612.00	1020.00
6	200	600	1.7	40	30	ZSR600N8CT-ND	3.06	25.50	230.00	ZSR600N8TR-ND	612.00	1020.00
8	200	600	1.7	40	30	ZSR800N8CT-ND	3.06	25.50	230.00	ZSR800N8TR-ND	612.00	1020.00
9	200	600	1.7	40	30	ZSR900N8CT-ND	3.06	25.50	230.00	ZSR900N8TR-ND	612.00	1020.00
10	200	600	1.7	40	30	ZSR1000N8CT-ND	3.06	25.50	230.00	ZSR1000N8TR-ND	612.00	1020.00

Micropower Voltage Reference

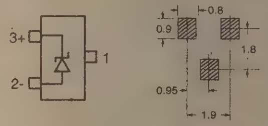
TO-92

Bottom View



SOT-23

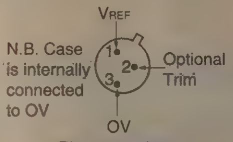
Top View



Precision Micropower Voltage Reference

TO-18

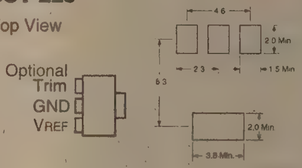
Bottom View



Pin connections

SOT-223

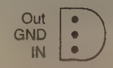
Top View



Local Voltage Regulators

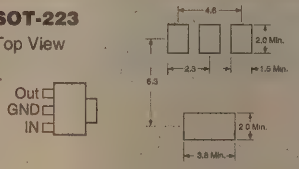
TO-92

Bottom View



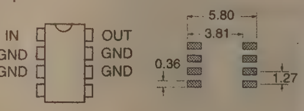
SOT-223

Top View



SO-8

Top View



ZETEX NEW! Precision Voltage Regulators

ST303-ND **NEW!** Zetex Through-Hole Data Book . . . $6.40
ST317-ND **NEW!** Zetex Surface Mount Data Book . . $9.60
ST320-ND **NEW!** Zetex Linear Data Book $3.60

V Out	Dropout Voltage	I Max. MA	Quiescent Current µA	Shutdown Current %	Load Reg. %	Line Reg. %	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 1000	5000
NEW! Shunt Voltage Regulators — SOT-223 NEW!													
3.3	35	300	600	20	0.45	0.2	ZLDO330T8CT-ND	5.23	43.50	261.50	ZLDO330T8TR-ND	1740.00	1310.01/M
4.85	35	300	600	20	0.45	0.3	ZLDO485T8CT-ND	5.23	43.50	261.50	ZLDO485T8TR-ND	1740.00	1310.01/M
5	35	300	600	20	0.45	0.3	ZLDO500T8CT-ND	5.23	43.50	261.50	ZLDO500T8TR-ND	1740.00	1310.01/M

Reference Voltage (V)	Output Voltage (V) Min.	Max.	Cathode Current (µA) Min.	Max.	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 1000	3000	5000	6000
NEW! Shunt Voltage Regulators — SOT-23 NEW!													
2.5	2.5	20	50	100	ZR431FCT-ND	1.29	10.75	64.50	ZR431FTR-ND	—	387.00/M	—	325.00/M
2.5	2.5	20	50	100	ZR431F01CT-ND	1.59	13.00	79.50	ZR431F01TR-ND	—	468.00/M	—	400.00/M
2.5	2.5	20	50	100	ZR431G01CT-ND	1.89	15.50	94.50	ZR431G01TR-ND	630.00	—	475.00/M	—
2.5	2.5	20	50	100	ZR431C01-ND	1.41	11.75	70.50	—	—	—	—	—

Reference Voltage Typ V	Reference Input Voltage Deviation Typ mV	Reference Input Current Typ µA	Min Cathode Current for Regulation Typ µA	Dynamic Output Impedance Max Ω	Ptot W	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Part No.	Pricing 1,000	5,000
Shunt Voltage Regulators — SOT-223												
2.5	8.0	0.12	50	0.75	2.0	ZR431GCT-ND	1.59	11.95	79.50	ZR431GTR-ND	530.00	—
Shunt Voltage Regulators — TO-92												
2.5	8.0	0.12	50	0.75	2.0	ZR431C-ND	1.12	8.35	56.00	—	370.00	280.00/M

NEW! Miniature Voltage Regulators

Output Voltage (V)	Max. Output Current (mA)	Max. Quiescent Current (µA)	Typical Dropout Voltage (V)	Max. Line Reg. (mV)	Max. Load Reg. (mV)	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 3000	6000
NEW! Miniature Voltage Regulators — SOT-23 NEW!												
2.5	50	40	1.7	15	30	ZMR250FCT-ND	2.10	17.50	105.00	ZMR250FTR-ND	630.00/M	525.00/M
5.0	50	70	1.7	15	40	ZMR500FCT-ND	2.10	17.50	105.00	ZMR500FTR-ND	630.00/M	525.00/M
NEW! Miniature Voltage Regulators — TO-92 NEW!												
2.5	50	40	1.7	15	30	ZMR250C-ND	1.74	14.50	87.00	—	—	—
5.0	50	70	1.7	15	40	ZMR500C-ND	1.74	14.50	87.00	—	—	—

NEW! Micropower Voltage Reference

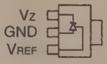
Reverse Breakdown Voltage (V)	Min. Current (µA)	Max. Current (mA)	Max. Temp. Coefficient (ppm/°C)	Max. Slope Resistance (Ohms)	Tolerance (%)	Digi-Key Part No.	Pricing 1	10	100	1,000
NEW! Micropower Voltage Reference — TO-92 Package NEW!										
2.50	20	20	90	1	2	ZR285R02-ND	3.31	27.50	165.50	1105.00
2.50	20	20	90	1	3	ZR285R03-ND	2.85	23.75	142.50	950.00
2.50	50	20	90	2	1	ZR40401R25-ND	2.52	21.00	126.00	840.00
2.50	50	20	90	2	2	ZR40402R25-ND	2.04	17.00	102.00	680.00
4.096	50	20	90	2	1	ZR40401R41-ND	2.52	21.00	126.00	840.00
4.096	50	20	90	2	2	ZR40402R41-ND	2.04	17.00	102.00	680.00
5.00	50	20	90	1.5	1	ZR40401R50-ND	2.52	21.00	126.00	840.00
5.00	50	20	90	1.5	2	ZR40402R50-ND	2.04	17.00	102.00	680.00
2.45	2000	120	50	0.5	1	ZRA245A01-ND	2.88	24.00	144.00	960.00
2.45	2000	120	50	0.5	3	ZRA245A03-ND	2.41	20.00	120.50	800.00

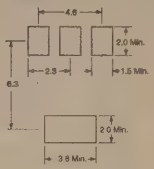
Reverse Breakdown Voltage (V)	Min. Current (µA)	Max. Current (mA)	Max. Temp. Coefficient (ppm/°C)	Max. Slope Resistance (Ohms)	Tol. (%)	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 500	1000
NEW! Micropower Voltage Reference — SO-8 Package NEW!												
1.25	50	5	90	2	1	ZRA125N801CT-ND	3.31	27.50	165.50	ZRA125N801TR-ND	660.00	1105.00
1.25	50	5	90	2	3	ZRA125N803CT-ND	2.70	22.50	135.00	ZRA125N803TR-ND	540.00	900.00
2.45	2000	120	50	0.5	1	ZRA245N801CT-ND	3.31	27.50	165.50	ZRA245N801TR-ND	660.00	1105.00
2.45	2000	120	50	0.5	3	ZRA245N803CT-ND	2.82	23.50	141.00	ZRA245N803TR-ND	564.00	940.00
2.50	50	5	90	2	1	ZRA250N801CT-ND	3.31	27.50	165.50	ZRA250N801TR-ND	660.00	1105.00
2.50	50	5	90	2	3	ZRA250N803CT-ND	2.82	23.50	141.00	ZRA250N803TR-ND	564.00	940.00
2.50	20	20	90	1	2	ZR285N802CT-ND	3.90	32.50	195.00	ZR285N802TR-ND	780.00	1300.00
2.50	20	20	90	1	3	ZR285N803CT-ND	3.45	28.75	172.50	ZR285N803TR-ND	690.00	1150.00
2.50	50	20	90	2	1	ZR40401N825CT-ND	3.61	30.00	180.50	ZR40401N825TR-ND	720.00	1205.00
2.50	50	20	90	2	2	ZR40402N825CT-ND	3.12	26.00	156.00	ZR40402N825TR-ND	624.00	1040.00
3.3	20	5	50	2	1	ZRC330N801CT-ND	3.31	27.50	165.50	ZRC330N801TR-ND	660.00	1105.00
3.3	20	5	50	2	3	ZRC330N803CT-ND	2.82	23.50	141.00	ZRC330N803TR-ND	564.00	940.00
4.096	50	20	90	2	1	ZR40401N841CT-ND	3.61	30.00	180.50	ZR40401N841TR-ND	720.00	1205.00
4.096	50	20	90	2	2	ZR40402N841CT-ND	3.12	26.00	156.00	ZR40402N841TR-ND	624.00	1040.00
5.0	50	20	90	1.5	1	ZR40401N850CT-ND	3.61	30.00	180.50	ZR40401N850TR-ND	720.00	1205.00
5.0	50	20	90	1.5	2	ZR40402N850CT-ND	3.12	26.00	156.00	ZR40402N850TR-ND	624.00	1040.00
5.0	50	15	50	1.5	1	ZRB500N801CT-ND	3.31	27.50	165.50	ZRB500N801TR-ND	660.00	1105.00
5.0	50	15	50	1.5	3	ZRB500N803CT-ND	2.82	23.50	141.00	ZRB500N803TR-ND	564.00	940.00

Reverse Breakdown Voltage (V)	Min. Current (µA)	Max. Current (mA)	Max. Temp. Coefficient (ppm/°C)	Max. Slope Resistance (Ohms)	Tol. (%)	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Digi-Key Part No.	Tape & Reel Pricing 3000	6000
NEW! Micropower Voltage Reference — SOT-23 Package NEW!												
2.50	20	20	90	1	2	ZR285F02CT-ND	3.60	30.00	180.50	ZR285F02TR-ND	1080.00/M	905.00/M
2.50	20	20	90	1	3	ZR285F03CT-ND	3.15	26.25	157.50	ZR285F03TR-ND	945.00/M	790.00/M
2.50	50	20	90	2	1	ZR40401F25CT-ND	3.00	25.00	150.00	ZR40401F25TR-ND	900.00/M	750.00/M
2.50	50	20	90	2	2	ZR40402F25CT-ND	2.52	21.00	126.00	ZR40402F25TR-ND	756.00/M	630.00/M
4.096	50	20	90	2	1	ZR40401F41CT-ND	3.00	25.00	150.00	ZR40401F41TR-ND	900.00/M	750.00/M
4.096	50	20	90	2	2	ZR40402F41CT-ND	2.52	21.00	126.00	ZR40402F41TR-ND	756.00/M	630.00/M
5.00	50	20	90	1.5	1	ZR40401F50CT-ND	3.00	25.00	150.00	ZR40401F50TR-ND	900.00/M	750.00/M
5.00	50	20	90	1.5	2	ZR40402F50CT-ND	2.52	21.00	126.00	ZR40402F50TR-ND	756.00/M	630.00/M
2.45	2000	120	50	0.5	1	ZRA245F01CT-ND	3.06	25.50	153.00	ZRA245F01TR-ND	918.00/M	765.00/M
2.45	2000	120	50	0.5	3	ZRA245F03CT-ND	2.58	21.50	129.00	ZRA245F03TR-ND	774.00/M	645.00/M

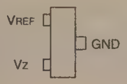
Shunt Voltage Regulators

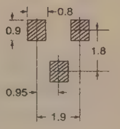
SOT-223
Top View



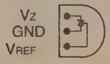


SOT-23
Top View

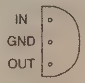




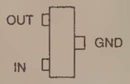
TO-92
Bottom View

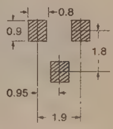


Miniature Voltage Reference



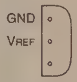
TO-92
Pkg. Suffix C
Bottom View



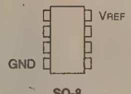


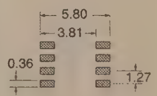
SOT-23
Pkg. Suffix F
Top View

Micropower Voltage Reference

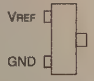


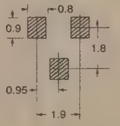
3 Pin E-LINE
Pkg. Suffix R
Bottom View





SO-8
Pkg. Suffix N8
Top View





SOT-23
Pkg. Suffix F
Top View

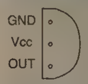
ZETEX Voltage Supply Monitors

ST303-ND **NEW!** Zetex Through-Hole Data Book ... $6.40
ST317-ND **NEW!** Zetex Surface Mount Data Book .. $9.60
ST320-ND **NEW!** Zetex Linear Data Book $3.60

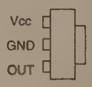
Typical V cc (V)	Threshold Voltage (V)	Typical Hysterisis (mV)	Max. Output Sink Current (mA)	Input Voltage Range (V)	Max. Quiescent Current (µA)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel Pricing 500	Tape & Reel Pricing 1000	Tape & Reel Pricing 5000
NEW! *Voltage Supply Monitors — SO-8* **NEW!**													
5	4.6	20	60	1 to 6.5	200	ZM33064N8CT-ND	2.70	22.50	135.00	ZM33064N8TR-ND	540.00	900.00	—
5	4.3	20	60	1 to 6.5	200	ZM33164N8CT-ND	2.70	22.50	135.00	ZM33164N8TR-ND	540.00	900.00	—
3	2.63	20	60	1 to 6.5	200	ZSM300N8CT-ND	2.70	22.50	135.00	ZSM300N8TR-ND	540.00	900.00	—
3.3	3.08	20	60	1 to 6.5	200	ZSM330N8CT-ND	2.70	22.50	135.00	ZSM330N8TR-ND	540.00	900.00	—
5	4.6	20	60	1 to 6.5	200	ZSM560N8CT-ND	2.70	22.50	135.00	ZSM560N8TR-ND	540.00	900.00	—
NEW! *Voltage Supply Monitors — SOT-223* **NEW!**													
5	4.6	20	60	1 to 6.5	200	ZM33064GCT-ND	2.23	18.50	111.50	ZM33064GTR-ND	—	740.00	560.00/M
5	4.3	20	60	1 to 6.5	200	ZM33164GCT-ND	2.23	18.50	111.50	ZM33164GTR-ND	—	740.00	560.00/M
3	2.63	20	60	1 to 6.5	200	ZSM300GCT-ND	2.40	20.00	120.00	ZSM300GTR-ND	—	800.00	605.00/M
3.3	3.08	20	60	1 to 6.5	200	ZSM330GCT-ND	2.40	20.00	120.00	ZSM330GTR-ND	—	800.00	605.00/M
5	4.6	20	60	1 to 6.5	200	ZSM560GCT-ND	2.40	20.00	120.00	ZSM560GTR-ND	—	800.00	605.00/M
5	4.6	20	60	1 to 7.0	200	ZSM561GCT-ND	2.40	20.00	120.00	ZSM561GTR-ND	—	800.00	605.00/M

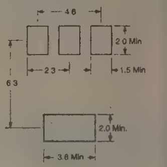
Typical V cc (V)	Threshold Voltage (V)	Typical Hysterisis (mV)	Max. Output Sink Current (mA)	Input Voltage Range (V)	Max. Quiescent Current (µA)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 1000
NEW! *Voltage Supply Monitors — TO-92* **NEW!**										
5	4.6	20	60	1 to 6.5	200	ZM33064C-ND	1.74	14.50	87.00	580.00
5	4.3	20	60	1 to 6.5	200	ZM33164C-ND	1.74	14.50	87.00	580.00
3	2.63	20	60	1 to 6.5	200	ZSM300C-ND	2.10	17.50	105.00	700.00
3.3	3.08	20	60	1 to 6.5	200	ZSM330C-ND	2.10	17.50	105.00	700.00
5	4.6	20	60	1 to 6.5	200	ZSM560C-ND	2.10	17.50	105.00	700.00
5	4.6	20	60	1 to 7.0	200	ZSM561C-ND	2.10	17.50	105.00	700.00

Voltage Supply Monitors

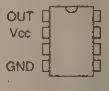


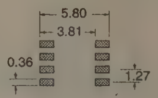
TO-92
Pkg. Suffix C
Bottom View





SOT-223
Pkg. Suffix G
Top View





SO-8
Pkg. Suffix N8
Top View

Diodes — SOT-23 Package

V_{BR} at I_R = 10µA Min. (V)	V_F at I_F = 1mA Max. (mV)	I_R Max. nA/ V_R (V)	I_F at V_F = 1V Min. (mA)	C_T at V_R = 0V f = 1MHz Max. (pF)	Pinning Config.	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel Pricing 3,000	Tape & Reel Pricing 6,000
Schottky Barrier Diodes												
70	410	200/50	15	2.0	Single	ZC2800ECT-ND	1.12	8.35	56.00	ZC2800ETR-ND	333.00/M	280.00/M
15	410	100/10	20	1.2	H	ZC2811ECT-ND	1.81	13.50	90.50	ZC2811ETR-ND	540.00/M	455.01/M
50	410	200/35	15	2.0	H	ZC5800ECT-ND	.93	7.00	46.50	ZC5800ETR-ND	279.00/M	235.00/M
30	400	2500/25	100	10	Single	BAT54CT-ND ***NEW!***	.93	7.00	46.50	BAT54TR-ND ***NEW!***	279.00/M	235.00/M
NEW! *Dual Schottky Barrier Diodes* **NEW!**												
70	410	200/50	15	2.0	Series	BAS70-04ZXCT-ND	3.12	23.40	156.00	BAS70-04ZXTR-ND	936.00/M	780.00/M
70	410	200/50	15	2.0	Com. Anode	BAS70-06ZXCT-ND	3.12	23.40	156.00	BAS70-06ZXTR-ND	936.00/M	780.00/M
70	410	200/50	15	2.0	Com. Cathode	BAS70-05CT-ND	3.16	26.00	156.00	BAS70-05TR-ND	936.00/M	780.00/M
30	400	2000/25	200	10	Com. Anode	BAT54ACT-ND	.93	7.75	46.50	BAT54ATR-ND	279.00/M	235.00/M
30	400	2000/25	200	10	Series	BAT54SCT-ND	.93	7.75	46.50	BAT54STR-ND	279.00/M	235.00/M
30	400	2000/25	200	10	Com. Cathode	BAT54CCT-ND	.93	7.75	46.50	BAT54CTR-ND	279.00/M	235.00/M
15	410	100/10	20	1.2	Series	ZC2812ECT-ND	3.12	26.00	156.00	ZC2812ETR-ND	936.00/M	780.00/M
15	410	100/10	20	1.2	Com. Anode	ZC2813ECT-ND	3.12	26.00	156.00	ZC2813ETR-ND	936.00/M	780.00/M

Zener Voltage V_Z at I_Z = 5mA Min.	Nom.	Max.	Diff. Resistance r_Z at I_Z = 5mA Max. (Ohms)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel Pricing 3,000
Zener Diodes — Silicon Voltage Regulator Diodes									
2.5	2.7	2.9	100	BZX84C2V7ZXCT-ND•	.72	5.40	36.00	BZX84C2V7ZXTR-ND	216.00/M
2.8	3.0	3.2	100	BZX84C3V0ZXCT-ND•	.72	5.40	36.00	BZX84C3V0ZXTR-ND	216.00/M
3.1	3.3	3.5	100	BZX84C3V3ZXCT-ND•	.72	5.40	36.00	BZX84C3V3ZXTR-ND	216.00/M
3.4	3.6	3.8	100	BZX84C3V6ZXCT-ND	1.02	7.65	51.00	BZX84C3V6ZXTR-ND	216.00/M
3.7	3.9	4 1	100	BZX84C3V9ZXCT-ND•	.72	5.40	36.00	BZX84C3V9ZXTR-ND	216.00/M
4.0	4.3	4.6	90	BZX84C4V3ZXCT-ND	.69	5.20	34.50	BZX84C4V3ZXTR-ND	207.00/M
4.4	4.7	5.0	80	BZX84C4V7ZXCT-ND	.69	5.20	34.50	BZX84C4V7ZXTR-ND	207.00/M
4.8	5.1	5.4	60	BZX84C5V1ZXCT-ND•	.69	5.20	34.50	BZX84C5V1ZXTR-ND	207.00/M
5.2	5.6	6 0	40	BZX84C5V6ZXCT-ND•	.69	5.20	34.50	BZX84C5V6ZXTR-ND	207.00/M
5.8	6.2	6.6	10	BZX84C6V2ZXCT-ND•	.69	5.20	34.50	BZX84C6V2ZXTR-ND	207.00/M
6.4	6.8	7.2	15	BZX84C6V8ZXCT-ND•	.69	5.20	34.50	BZX84C6V8ZXTR-ND	207.00/M
7.0	7.5	7.9	15	BZX84C7V5ZXCT-ND	.69	5.20	34.50	BZX84C7V5ZXTR-ND	207.00/M
7.7	8.2	8.7	15	BZX84C8V2ZXCT-ND	.48	3.60	24.00	BZX84C8V2ZXTR-ND	144.00/M
8.5	9.1	9.6	15	BZX84C9V1ZXCT-ND•	.43	3.15	21.50	BZX84C9V1ZXTR-ND	126.00/M
9.4	10	10.6	20	BZX84C10ZXCT-ND	.43	3.15	21.50	BZX84C10ZXTR-ND	126.00/M
10.4	11	11.6	20	BZX84C11ZXCT-ND	.43	3.15	21.50	BZX84C11ZXTR-ND	126.00/M
11.4	12.0	12.7	25	BZX84C12ZXCT-ND•	.46	3.40	23.00	BZX84C12ZXTR-ND	135.00/M
12.4	13	14.1	30	BZX84C13ZXCT-ND	.46	3.40	23.00	BZX84C13ZXTR-ND	135.00/M
13.8	15	15.6	30	BZX84C15ZXCT-ND•	.46	3.40	23.00	BZX84C15ZXTR-ND	135.00/M
15.3	16	17.1	40	BZX84C16ZXCT-ND	.43	3.15	21.50	BZX84C16ZXTR-ND	126.00/M
16.8	18	19.1	45	BZX84C18ZXCT-ND•	.43	3.15	21.50	BZX84C18ZXTR-ND	126.00/M
18.8	20	21.2	55	BZX84C20ZXCT-ND•	.43	3.15	21.50	BZX84C20ZXTR-ND	126.00/M
20.8	22	23.3	55	BZX84C22ZXCT-ND	.43	3.15	21.50	BZX84C22ZXTR-ND	126.00/M
22.8	24	25.6	70	BZX84C24ZXCT-ND•	.43	3.15	21.50	BZX84C24ZXTR-ND	126.00/M
25.1	27	28.9	80	BZX84C27ZXCT-ND	.43	3.15	21.50	BZX84C27ZXTR-ND	126.00/M
28	30	32	80	BZX84C30ZXCT-ND•	.43	3.15	21.50	BZX84C30ZXTR-ND	126.00/M
31.0	33.0	35.0	80	BZX84C33ZXCT-ND*•	.43	3.15	21.50	BZX84C33ZXTR-ND*	126.00/M
34.0	36.0	38.0	90	BZX84C36ZXCT-ND*•	.43	3.15	21.50	BZX84C36ZXTR-ND*	126.00/M
37	39	41	130	BZX84C39ZXCT-ND	.43	3.15	21.50	BZX84C39ZXTR-ND	126.00/M
40	43	46	150	BZX84C43ZXCT-ND	.43	3.15	21.50	BZX84C43ZXTR-ND	126.00/M
44	47	50	170	BZX84C47ZXCT-ND	.43	3.15	21.50	BZX84C47ZXTR-ND	126.00/M

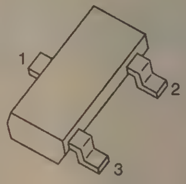
* Iz at 2mA

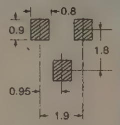
• **BZX1-KIT-ND** 10 each of values denoted (180 total pieces) **$49.95**

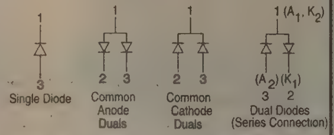
Silicon voltage regulator diodes designed for voltage reference and stabilizer applications. Encapsulated in the popular SOT-23 package, these devices are designed specifically for use in thin and thick film hybrid circuits in both industrial and commercial applications.

Specifications: • Nominal Tolerance: ±5%. • Max. Power Dissipation at T_{amb} = 25°C: P_{tot} 350mW. • Operating and Storage Temperature Range: -65 to +150°C. • Max. Forward Current: I_F 250mA.

SOT-23



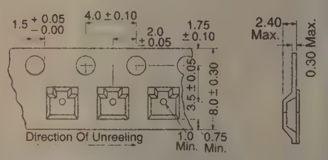




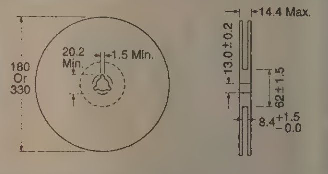
SOT-23 Tape and Reel Information:

Tape packaging also has special attractions for customers using manual placement since it makes it easier to assemble and orientate these tiny components; stock accounting is also simplified.

Tape Specs



Reel Specs



ZETEX Diodes — SOT-23 Package

ST303-ND	***NEW!*** Zetex Through-Hole Data Book	$6.40
ST317-ND	***NEW!*** Zetex Surface Mount Data Book	$9.60
ST320-ND	***NEW!*** Zetex Linear Data Book	$3.60

Description	Ratings VR V	IF mA	trr Max. ns	Max. VF at IF = mA 10/50/100	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3,000
Silicon Planar High Speed Switching Diodes										
Single Diode	75	100	6	0.855/1.0/—	BAS16ZXCT-ND	.39	2.95	19.50	BAS16ZXTR-ND	117.00/M
Single Diode	75	75	4/8	1.0/–/–	FMMD914CT-ND	.36	2.70	18.00	FMMD914TR-ND	108.00/M
Single Diode	50	150	4	–/–/1.0	BAR74ZXCT-ND	.39	2.95	19.50	BAR74ZXTR-ND	117.00/M
Dual Diode w/ Common Cathode	70	200	5	0.7/–/1.1	FMMD6100CT-ND	.55	4.10	27.50	FMMD6100TR-ND	162.00/M
Dual Diode w/ Common Cathode	70	100	6	0.855/1.1/1.3	BAV70ZXCT-ND	.43	3.15	21.50	BAV70ZXTR-ND	126.00/M
Dual Diode w/ Common Cathode	50	150	4	–/–/1.0	BAV74ZXCT-ND	.43	3.15	21.50	BAV74ZXTR-ND	126.00/M
Dual Diode w/ Series Connection	70	100	6	0.855/1.1/1.3	BAV99ZXCT-ND	.48	3.60	24.00	BAV99ZXTR-ND	144.00/M
Dual Diode w/ Common Anode	70	100	6	0.855/1.1/1.3	BAW56ZXCT-ND	.55	4.10	27.50	BAW56ZXTR-ND	162.00/M
Single Diode	200	200	50	1.0	BAS21ZXCT-ND	.43	3.15	21.50	BAS21ZXTR-ND	126.00/M

VBR @ IR = 10µA Min. (V)	IR Max. µA/ VR (V)	Cd @ VR = 25V Max. (pf)	RD Max. Ω	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3,000
Silicon Planar Variable Capacitance Diodes									
28	0.05/28	2.8	1.2	BBY31CT-ND	.66	4.95	33.00	BBY31TR-ND	198.00/M
28	0.05/28	6.0	0.6	BBY40CT-ND	.66	4.95	33.00	BBY40TR-ND	198.00/M

P_{TOT} mW	V_{BR} V	Nominal Capacitance (pF)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3,000
Silicon Planar Variable Capacitance Diodes								
330	25	10	ZC830ACT-ND	2.52	18.90	126.00	ZC830ATR-ND	756.00/M
330	25	15	ZC831ACT-ND	2.52	18.90	126.00	ZC831ATR-ND	756.00/M
330	25	22	ZC832ACT-ND	2.52	18.90	126.00	ZC832ATR-ND	756.00/M
330	25	33	ZC833ACT-ND	2.52	18.90	126.00	ZC833ATR-ND	756.00/M
330	25	47	ZC834ACT-ND	2.52	18.90	126.00	ZC834ATR-ND	756.00/M
330	25	68	ZC835ACT-ND	2.52	18.90	126.00	ZC835ATR-ND	756.00/M
330	25	100	ZC836ACT-ND	2.52	18.90	126.00	ZC836ATR-ND	756.00/M

P_{TOT} mW	V_{BR} V	I_R µA	C^d(pF) Min.	Max.	V/MHz	C_d/C_d Min.	Max.	Q Min	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3,000
Silicon Planar Variable Capacitance Diodes														
330	30	0.05	1.8	2.8	25/1	4.0	6.0	250	FMMV105GCT-ND	.91	6.75	45.50	FMMV105GTR-ND	270.00/M
330	30	0.02	26	32	3/1	5.0	6.5	200	FMMV109CT-ND	.91	6.75	45.50	FMMV109TR-ND	270.00/M
330	30	0.1	20	25	3/1	4.5	—	200	FMMV3102CT-ND	.91	6.75	45.50	FMMV3102TR-ND	270.00/M

P_{TOT} mW	V_R V	I_F mA	C^d(pF) Nom.	Max.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3,000
Silicon Planar Variable Capacitance Diodes										
330	30	20	6.8	7.5	FMMV2101CT-ND	.91	6.75	45.50	FMMV2101TR-ND	270.00/M
330	30	20	8.2	9	FMMV2102CT-ND	.91	6.75	45.50	FMMV2102TR-ND	270.00/M
330	30	20	10	11	FMMV2103CT-ND	.91	6.75	45.50	FMMV2103TR-ND	270.00/M
330	30	20	12	13.2	FMMV2104CT-ND	.91	6.75	45.50	FMMV2104TR-ND	270.00/M
330	30	20	15	16.5	FMMV2105CT-ND	.91	6.75	45.50	FMMV2105TR-ND	270.00/M
330	30	20	18	19.8	FMMV2106CT-ND	.91	6.75	45.50	FMMV2106TR-ND	270.00/M
330	30	20	22	24.2	FMMV2107CT-ND	.91	6.75	45.50	FMMV2107TR-ND	270.00/M
330	30	20	27	29.7	FMMV2108CT-ND	.91	6.75	45.50	FMMV2108TR-ND	270.00/M
330	30	20	33	36.3	FMMV2109CT-ND	.91	6.75	45.50	FMMV2109TR-ND	270.00/M

Max. Reverse Voltage (V)	Max. Forward Current (mA)	Forward Voltage to Vcc (V)	Forward Voltage from GND (V)	Max. Reverse Current (µA)	Typical Capacitance (pF)	Typical Recovery Time (ns)	Digi-Key Part No.	Pricing 1	10	Digi-Key Part No.	Tape & Reel Pricing 100	1000	5000
NEW! Schottky Diode Array SO-16 NEW!													
7	50	0.85	0.75	6	6	8	SDA24CT-ND	4.50	37.50	SDA24TR-ND	225.00	1500.00	1125.00/M

NEW! Automotive and Household Security Siren Driver

Features:

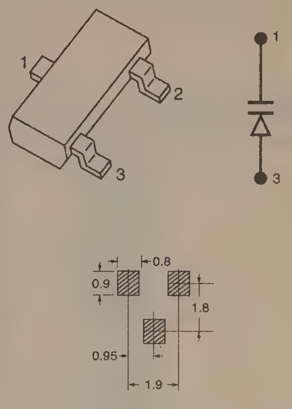
- Direct drive of darlington, mosfet and IGBT output stages
- Suitable for automotive and static alarm systems

Moving Coil Loudspeaker Sounder:

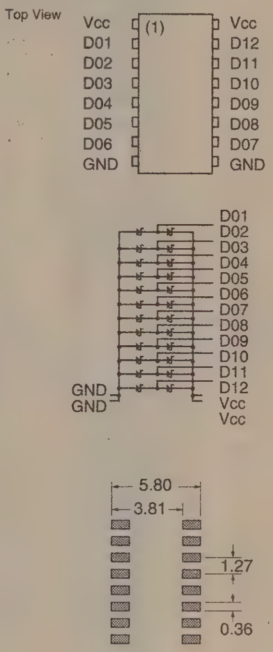
Moving coil loudspeakers are often used for the very highest output automotive alarm sounders. The ZSD100 complementary outputs, with the selection of ZTX790A and ZTX690B transistors, can drive this H bridge output circuit without any additional interface components.

Operating Voltage (V)	Operating Current (mA)	Sleep Mode Current (µA)	Operating Temp. (C)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	1,000
4-18V	10	1	-40° - 125°	ZSD100D8-ND	2.47	20.50	123.50	—	—	—
4-18V	10	1	-40° - 125°	ZSD100N8CT-ND	2.94	24.50	147.00	ZSD100N8TR-ND	588.00	985.00

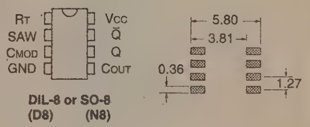
SOT-23 Variable Capacitance Diodes



SO-16

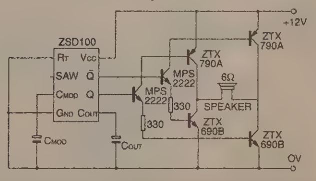


IC Siren Driver



DIL-8 or SO-8
(D8) (N8)

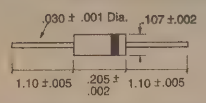
Sample Circuit



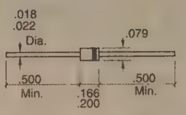
LITEON Zener Diodes

NEW! **9266B-ND** Diodes, Inc. Data Book **$2.50**

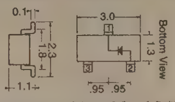
Package: DO-41



Package: DO-35

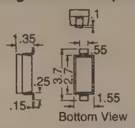


Package: TO-236 (SOT 23)

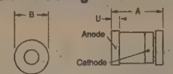


Pins (Transistors): 1=Collector, 2=Base, 3=Emitter
Pins (Mosfets): 1=Drain, 2=Gate, 3=Source

Package: SOD123 (60A2)

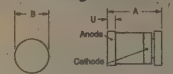


SMT Package: DL-41



Dim	Millimeters Min	Millimeters Max	Inches Min	Inches Max
A	4.80	5.20	0.189	0.205
B	2.40	2.50	0.096	0.100
U	0.55	0.55	0.014	0.020

SMT Package: DL-35



Dim	Millimeters Min	Millimeters Max	Inches Min	Inches Max
A	3.40	3.60	0.130	0.146
B	1.45	1.55	0.063	0.067
U	0.28	0.48	0.016	0.022

Zener Volt VZ @ IZT Nom	Test Current IZT (mA)	Max. Dynamic Impedance ZZT IZT	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 10,000	30,000
Zener Diodes — 500mW (+5%) Package: DO-35										
3.3	20	28	1N5226BCT-ND	.22	1.54	11.00	77.00	1N5226BTR-ND	39.00/M	33.00/M
3.6	20	24	1N5227BCT-ND	.22	1.54	11.00	77.00	1N5227BTR-ND	39.00/M	33.00/M
3.9	20	23	1N5228BCT-ND	.22	1.54	11.00	77.00	1N5228BTR-ND	39.00/M	33.00/M
4.3	20	22	1N5229BCT-ND	.22	1.54	11.00	77.00	1N5229BTR-ND	39.00/M	33.00/M
4.7	20	19	1N5230BCT-ND	.22	1.54	11.00	77.00	1N5230BTR-ND	39.00/M	33.00/M
5.1	20	17	1N5231BCT-ND	.22	1.54	11.00	77.00	1N5231BTR-ND	39.00/M	33.00/M
5.6	20	11	1N5232BCT-ND	.22	1.54	11.00	77.00	1N5232BTR-ND	39.00/M	33.00/M
6.0	20	7	1N5233BCT-ND	.22	1.54	11.00	77.00	1N5233BTR-ND	39.00/M	33.00/M
6.2	20	7	1N5234BCT-ND	.22	1.54	11.00	77.00	1N5234BTR-ND	39.00/M	33.00/M
6.8	20	5	1N5235BCT-ND	.22	1.54	11.00	77.00	1N5235BTR-ND	39.00/M	33.00/M
7.5	20	6	1N5236BCT-ND	.22	1.54	11.00	77.00	1N5236BTR-ND	39.00/M	33.00/M
8.2	20	8	1N5237BCT-ND	.22	1.54	11.00	77.00	1N5237BTR-ND	39.00/M	33.00/M
8.7	20	8	1N5238BCT-ND	.22	1.54	11.00	77.00	1N5238BTR-ND	39.00/M	33.00/M
9.1	20	10	1N5239BCT-ND	.22	1.54	11.00	77.00	1N5239BTR-ND	39.00/M	33.00/M
10	20	17	1N5240BCT-ND	.22	1.54	11.00	77.00	1N5240BTR-ND	39.00/M	33.00/M
11	20	22	1N5241BCT-ND	.22	1.54	11.00	77.00	1N5241BTR-ND	39.00/M	33.00/M
12	20	30	1N5242BCT-ND	.22	1.54	11.00	77.00	1N5242BTR-ND	39.00/M	33.00/M
13	9.5	13	1N5243BCT-ND	.22	1.54	11.00	77.00	1N5243BTR-ND	39.00/M	33.00/M
14	9.0	15	1N5244BCT-ND	.22	1.54	11.00	77.00	1N5244BTR-ND	39.00/M	33.00/M
15	8.5	16	1N5245BCT-ND	.22	1.54	11.00	77.00	1N5245BTR-ND	39.00/M	33.00/M
16	7.8	17	1N5246BCT-ND	.22	1.54	11.00	77.00	1N5246BTR-ND	39.00/M	33.00/M
17	7.4	19	1N5247BCT-ND	.22	1.54	11.00	77.00	1N5247BTR-ND	39.00/M	33.00/M
18	7.0	21	1N5248BCT-ND	.22	1.54	11.00	77.00	1N5248BTR-ND	39.00/M	33.00/M
19	6.6	23	1N5249BCT-ND	.22	1.54	11.00	77.00	1N5249BTR-ND	39.00/M	33.00/M
20	6.2	25	1N5250BCT-ND	.22	1.54	11.00	77.00	1N5250BTR-ND	39.00/M	33.00/M
22	5.6	29	1N5251BCT-ND	.22	1.54	11.00	77.00	1N5251BTR-ND	39.00/M	33.00/M
24	5.2	33	1N5252BCT-ND	.22	1.54	11.00	77.00	1N5252BTR-ND	39.00/M	33.00/M
25	5.0	35	1N5253BCT-ND	.22	1.54	11.00	77.00	1N5253BTR-ND	39.00/M	33.00/M
27	4.6	41	1N5254BCT-ND	.22	1.54	11.00	77.00	1N5254BTR-ND	39.00/M	33.00/M
28	4.5	44	1N5255BCT-ND	.22	1.54	11.00	77.00	1N5255BTR-ND	39.00/M	33.00/M
30	4.2	49	1N5256BCT-ND	.22	1.54	11.00	77.00	1N5256BTR-ND	39.00/M	33.00/M
33	3.8	58	1N5257BCT-ND	.22	1.54	11.00	77.00	1N5257BTR-ND	39.00/M	33.00/M
36	3.4	70	1N5258BCT-ND	.22	1.54	11.00	77.00	1N5258BTR-ND	39.00/M	33.00/M
39	3.2	80	1N5259BCT-ND	.22	1.54	11.00	77.00	1N5259BTR-ND	39.00/M	33.00/M
43	3.0	93	1N5260BCT-ND	.22	1.54	11.00	77.00	1N5260BTR-ND	39.00/M	33.00/M
47	2.7	105	1N5261BCT-ND	.22	1.54	11.00	77.00	1N5261BTR-ND	39.00/M	33.00/M
51	2.5	125	1N5262BCT-ND	.22	1.54	11.00	77.00	1N5262BTR-ND	39.00/M	33.00/M

Zener Volt VZ @ IZT Nom	Test Current IZT (mA)	Max Dynamic Impedance ZZT IZT	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 5,000	10,000
Zener Diodes — 1W (+5%) Package: DO-41										
3.3	76	10.0	1N4728ACT-ND	.29	1.95	15.60	117.00	1N4728ATR-ND	78.00/M	68.00/M
3.6	69	10.0	1N4729ACT-ND	.26	1.75	14.00	105.00	1N4729ATR-ND	70.00/M	61.00/M
3.9	64	9.0	1N4730ACT-ND	.26	1.75	14.00	105.00	1N4730ATR-ND	70.00/M	61.00/M
4.3	58	9.0	1N4731ACT-ND	.26	1.75	14.00	105.00	1N4731ATR-ND	70.00/M	61.00/M
4.7	53	8.0	1N4732ACT-ND	.26	1.75	14.00	105.00	1N4732ATR-ND	70.00/M	61.00/M
5.1	49	7.0	1N4733ACT-ND	.26	1.75	14.00	105.00	1N4733ATR-ND	70.00/M	61.00/M
5.6	45	5.0	1N4734ACT-ND	.26	1.75	14.00	105.00	1N4734ATR-ND	70.00/M	61.00/M
6.2	41	2.0	1N4735ACT-ND	.26	1.75	14.00	105.00	1N4735ATR-ND	70.00/M	61.00/M
6.8	37	3.5	1N4736ACT-ND	.26	1.75	14.00	105.00	1N4736ATR-ND	70.00/M	61.00/M
7.5	34	4.0	1N4737ACT-ND	.26	1.75	14.00	105.00	1N4737ATR-ND	70.00/M	61.00/M
8.2	31	4.5	1N4738ACT-ND	.26	1.75	14.00	105.00	1N4738ATR-ND	70.00/M	61.00/M
9.1	28	5.0	1N4739ACT-ND	.26	1.75	14.00	105.00	1N4739ATR-ND	70.00/M	61.00/M
10	25	7.0	1N4740ACT-ND	.26	1.75	14.00	105.00	1N4740ATR-ND	70.00/M	61.00/M
11	23	8	1N4741ACT-ND	.26	1.75	14.00	105.00	1N4741ATR-ND	70.00/M	61.00/M
12	21	9	1N4742ACT-ND	.26	1.75	14.00	105.00	1N4742ATR-ND	70.00/M	61.00/M
13	19	10	1N4743ACT-ND	.26	1.75	14.00	105.00	1N4743ATR-ND	70.00/M	61.00/M
15	17	14	1N4744ACT-ND	.26	1.75	14.00	105.00	1N4744ATR-ND	70 00/M	61.00/M
16	15	16	1N4745ACT-ND	.26	1.75	14.00	105.00	1N4745ATR-ND	70.00/M	61.00/M
18	14	20	1N4746ACT-ND	.26	1.75	14.00	105.00	1N4746ATR-ND	70.00/M	61.00/M
20	12.5	22	1N4747ACT-ND	.26	1.75	14.00	105.00	1N4747ATR-ND	70.00/M	61.00/M
22	11.5	23	1N4748ACT-ND	.26	1.75	14.00	105.00	1N4748ATR-ND	70.00/M	61.00/M
24	10.5	25	1N4749ACT-ND	.26	1.75	14.00	105.00	1N4749ATR-ND	70.00/M	61.00/M
27	9.5	35	1N4750ACT-ND	.26	1.75	14.00	105.00	1N4750ATR-ND	70.00/M	61.00/M
30	8.5	40	1N4751ACT-ND	.26	1.75	14.00	105.00	1N4751ATR-ND	70.00/M	61.00/M
33	7.5	45	1N4752ACT-ND	.26	1.75	14.00	105.00	1N4752ATR-ND	70.00/M	61.00/M
36	7	50	1N4753ACT-ND	.26	1.75	14.00	105.00	1N4753ATR-ND	70.00/M	61.00/M
39	6.5	60	1N4754ACT-ND	.26	1.75	14.00	105.00	1N4754ATR-ND	70.00/M	61.00/M
43	6	70	1N4755ACT-ND	.26	1.75	14.00	105.00	1N4755ATR-ND	70.00/M	61.00/M
47	55	80	1N4756ACT-ND	.26	1.75	14.00	105.00	1N4756ATR-ND	70.00/M	61.00/M
51	5	95	1N4757ACT-ND	.26	1.75	14.00	105.00	1N4757ATR-ND	70.00/M	61.00/M
56	4.5	110	1N4758ACT-ND	.26	1.75	14.00	105.00	1N4758ATR-ND	70.00/M	61.00/M
62	4	125	1N4759ACT-ND	.25	1.65	13.20	99.00	1N4759ATR-ND	70.00/M	61.00/M
68	3.7	150	1N4760ACT-ND	.25	1.65	13.20	99.00	1N4760ATR-ND	70.00/M	61.00/M
75	3.3	175	1N4761ACT-ND	.25	1.65	13.20	99.00	1N4761ATR-ND	70.00/M	61.00/M

Zener Volt VZ @ IZT Nom	Test Current IZT(mA)	Max. Dyn. Imped. ZZT IZT	Digi-Key Part No.	Pricing 10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 10,000	30,000
Zener Diodes — 410 Milliwatt Package: SOD123									
3.9	5.0	95	BZT52-C3V9DICT-ND	2.90	23.20	174.00	BZT52-C3V9DITR-ND	102.00/M	87.00/M
4.3	5.0	95	BZT52-C4V3DICT-ND	2.90	23.20	174.00	BZT52-C4V3DITR-ND	102.00/M	87.00/M
5.6	5.0	40	BZT52-C5V6DICT-ND	2.90	23.20	174.00	BZT52-C5V6DITR-ND	102.00/M	87.00/M
7.5	5.0	7	BZT52-C7V5DICT-ND	2.90	23.20	174.00	BZT52-C7V5DITR-ND	102.00/M	87.00/M
10.0	5.0	15	BZT52-C10DICT-ND	2.90	23.20	174.00	BZT52-C10DITR-ND	102.00/M	87.00/M
12.0	5.0	20	BZT52-C12DICT-ND	2.90	23.20	174.00	BZT52-C12DITR-ND	102.00/M	87.00/M
20.0	5.0	50	BZT52-C20DICT-ND	2.90	23.20	174.00	BZT52-C20DITR-ND	102.00/M	87.00/M
27.0	5.0	80	BZT52-C27DICT-ND	2.90	23.20	174.00	BZT52-C27DITR-ND	102.00/M	87.00/M

Zener Volt VZ @ IZT Nom	Test Current IZT (mA)	Max. Dynamic Impedance ZZT IZT	Digi-Key Part No.	Pricing 10	100	500	Digi-Key Part No.	Tape & Reel Pricing 1,250	5,000
Surface Mount Type — Package: DL-41 — 1W									
3.9	64	9.0	ZM4730ACT-ND	4.50	38.25	135 00	ZM4730ATR-ND	180.00/M	149.40/M
4.3	58	9.0	ZM4731ACT-ND	4.50	38.25	135.00	ZM4731ATR-ND	180.00/M	149.40/M
4.7	53	8.0	ZM4732ACT-ND	4.50	38.25	135.00	ZM4732ATR-ND	180.00/M	149.40/M
5.1	49	7.0	ZM4733ACT-ND	4.50	38.25	135.00	ZM4733ATR-ND	180.00/M	149.40/M
5.6	45	5.0	ZM4734ACT-ND	4.50	38.25	135.00	ZM4734ATR-ND	180.00/M	149.40/M
6.2	41	2.0	ZM4735ACT-ND	4.50	38.25	135.00	ZM4735ATR-ND	180.00/M	149.40/M
6.8	37	3.5	ZM4736ACT-ND	4.50	38.25	135.00	ZM4736ATR-ND	180.00/M	149.40/M
7.5	34	4.0	ZM4737ACT-ND	4.50	38.25	135.00	ZM4737ATR-ND	180.00/M	149.40/M
8.2	31	4.5	ZM4738ACT-ND	4.50	38.25	135.00	ZM4738ATR-ND	180.00/M	149.40/M
9.1	28	5.0	ZM4739ACT-ND	4.50	38.25	135.00	ZM4739ATR-ND	180.00/M	149.40/M
10	25	7.0	ZM4740ACT-ND	4.50	38.25	135.00	ZM4740ATR-ND	180.00/M	149.40/M
11	23	8	ZM4741ACT-ND	4.50	38.25	135.00	ZM4741ATR-ND	180.00/M	149.40/M
12	21	9	ZM4742ACT-ND	4.50	38.25	135.00	ZM4742ATR-ND	180.00/M	149.40/M
13	19	10	ZM4743ACT-ND	4.50	38.25	135.00	ZM4743ATR-ND	180.00/M	149.40/M
15	17	14	ZM4744ACT-ND	4.50	38.25	135.00	ZM4744ATR-ND	180.00/M	149.40/M
16	15	16	ZM4745ACT-ND	4.50	38.25	135.00	ZM4745ATR-ND	180.00/M	149.40/M
18	14	20	ZM4746ACT-ND	4.50	38.25	135.00	ZM4746ATR-ND	180.00/M	149.40/M
20	12.5	22	ZM4747ACT-ND	4.50	38.25	135.00	ZM4747ATR-ND	180.00/M	149.40/M
22	11.5	23	ZM4748ACT-ND	4.50	38.25	135.00	ZM4748ATR-ND	180.00/M	149.40/M
24	10.5	25	ZM4749ACT-ND	4.50	38.25	135.00	ZM4749ATR-ND	180.00/M	149.40/M
27	9.5	35	ZM4750ACT-ND	4.50	38.25	135.00	ZM4750ATR-ND	180.00/M	149.40/M
30	8.5	40	ZM4751ACT-ND	4.50	38.25	135.00	ZM4751ATR-ND	180.00/M	149.40/M
33	7.5	45	ZM4752ACT-ND	4.50	38.25	135.00	ZM4752ATR-ND	180.00/M	149.40/M

Zener Volt VZ @ IZT Nom	Test Current IZT (mA)	Max. Dynamic Impedance ZZT IZT	Digi-Key Part No.	Pricing 10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 2,500	5,000
Surface Mount Type — Package: DL-35 — 500MW									
3.6	20	24	ZMM5227BCT-ND	2.10	17.86	147.00	ZMM5227BTR-ND	84.00/M	74.00/M
3.9	20	23	ZMM5228BCT-ND	1.95	16.58	136.50	ZMM5228BTR-ND	78.00/M	68.00/M
4.3	20	22	ZMM5229BCT-ND	1.95	16.58	136.50	ZMM5229BTR-ND	78.00/M	68.00/M
4.7	20	19	ZMM5230BCT-ND	1.95	16.58	136.50	ZMM5230BTR-ND	78.00/M	68.00/M
5.1	20	17	ZMM5231BCT-ND	1.95	16.58	136.50	ZMM5231BTR-ND	78.00/M	68.00/M
5.6	20	11	ZMM5232BCT-ND	1.95	16.58	136.50	ZMM5232BTR-ND	78.00/M	68.00/M
6.0	20	7	ZMM5233BCT-ND	1.95	16.58	136.50	ZMM5233BTR-ND	78.00/M	68.00/M
6.2	20	7	ZMM5234BCT-ND	1.95	16.58	136.50	ZMM5234BTR-ND	78.00/M	68.00/M
6.8	20	5	ZMM5235BCT-ND	1.95	16.58	136.50	ZMM5235BTR-ND	78.00/M	68.00/M
7.5	20	6	ZMM5236BCT-ND	1.95	16.58	136.50	ZMM5236BTR-ND	78.00/M	68.00/M
8.2	20	8	ZMM5237BCT-ND	1.95	16.58	136.50	ZMM5237BTR-ND	78.00/M	68.00/M
8.7	20	8	ZMM5238BCT-ND	1.95	16.58	136.50	ZMM5238BTR-ND	78.00/M	68.00/M
9.1	20	10	ZMM5239BCT-ND	1.95	16.58	136.50	ZMM5239BTR-ND	78.00/M	68.00/M
10	20	17	ZMM5240BCT-ND	1.95	16.58	136.50	ZMM5240BTR-ND	78.00/M	68.00/M
11	20	22	ZMM5241BCT-ND	1.95	16.58	136.50	ZMM5241BTR-ND	78.00/M	68.00/M
12	20	30	ZMM5242BCT-ND	1.95	16.58	136.50	ZMM5242BTR-ND	78.00/M	68.00/M
13	9.5	13	ZMM5243BCT-ND	1.95	16.58	136.50	ZMM5243BTR-ND	78.00/M	68.00/M
14	9.0	15	ZMM5244BCT-ND	1.95	16.58	136.50	ZMM5244BTR-ND	78.00/M	68.00/M
15	8.5	16	ZMM5245BCT-ND	1.95	16.58	136.50	ZMM5245BTR-ND	78.00/M	68.00/M
16	7.8	17	ZMM5246BCT-ND	1.95	16.58	136.50	ZMM5246BTR-ND	78.00/M	68.00/M
17	7.4	19	ZMM5247BCT-ND	1.95	16.58	136.50	ZMM5247BTR-ND	78.00/M	68.00/M
18	7.0	21	ZMM5248BCT-ND	1.95	16.58	136.50	ZMM5248BTR-ND	78.00/M	68.00/M
19	6.6	23	ZMM5249BCT-ND	1.95	16.58	136.50	ZMM5249BTR-ND	78.00/M	68.00/M
20	6.2	25	ZMM5250BCT-ND	1.95	16.58	136.50	ZMM5250BTR-ND	78.00/M	68.00/M
22	5.6	29	ZMM5251BCT-ND	1.95	16.58	136.50	ZMM5251BTR-ND	78.00/M	68.00/M
24	5.2	33	ZMM5252BCT-ND	1.95	16.58	136.50	ZMM5252BTR-ND	78.00/M	68.00/M
25	5.0	35	ZMM5253BCT-ND	1.95	16.58	136.50	ZMM5253BTR-ND	78.00/M	68.00/M
27	4.6	41	ZMM5254BCT-ND	1.95	16.58	136 50	ZMM5254BTR-ND	78.00/M	68.00/M
28	4.5	44	ZMM5255BCT-ND	1.95	16.58	136.50	ZMM5255BTR-ND	78.00/M	68.00/M
30	4.2	49	ZMM5256BCT-ND	1.95	16.58	136.50	ZMM5256BTR-ND	78.00/M	68.00/M
33	3.8	58	ZMM5257BCT-ND	1.95	16.58	136.50	ZMM5257BTR-ND	78.00/M	68.00/M

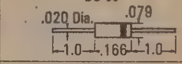
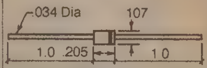
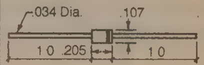
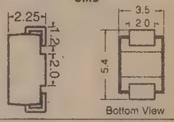
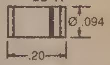
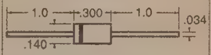
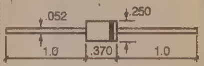
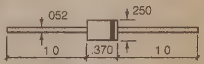
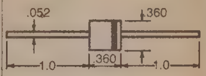
Nom Zener Voltage	Max. Zener Impedance ZZT @ IZT Ohms	mA	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3,000	6,000
Surface Mount Zener Diodes — Package: TO-236 (SOT-23) — 350MW									
3.3	95	5	BZX84C3V3DICT-ND•	.28	2.12	15.90	BZX84C3V3DITR-ND	96.00/M	82.00/M
3.6	95	5	BZX84C3V6DICT-ND	.28	2.12	15.90	BZX84C3V6DITR-ND	96.00/M	82.00/M
3.9	90	5	BZX84C3V9DICT-ND•	.28	2.12	15.90	BZX84C3V9DITR-ND	96.00/M	82.00/M
4.3	90	5	BZX84C4V3DICT-ND	.28	2.12	15.90	BZX84C4V3DITR-ND	96.00/M	82.00/M
4.7	80	5	BZX84C4V7DICT-ND	.28	2.12	15.90	BZX84C4V7DITR-ND	96.00/M	82.00/M
5.1	60	5	BZX84C5V1DICT-ND•	.28	2.12	15.90	BZX84C5V1DITR-ND	96.00/M	82.00/M
5.6	40	5	BZX84C5V6DICT-ND•	.28	2.12	15.90	BZX84C5V6DITR-ND	96.00/M	82.00/M
6.2	10	5	BZX84C6V2DICT-ND•	.28	2.12	15.90	BZX84C6V2DITR-ND	96.00/M	82.00/M
6.8	15	5	BZX84C6V8DICT-ND•	.28	2.12	15.90	BZX84C6V8DITR-ND	96.00/M	82.00/M
7.5	15	5	BZX84C7V5DICT-ND	.28	2.12	15.90	BZX84C7V5DITR-ND	96.00/M	82.00/M
8.2	15	5	BZX84C8V2DICT-ND	.28	2.12	15.90	BZX84C8V2DITR-ND	96.00/M	82.00/M
9.1	15	5	BZX84C9V1DICT-ND•	.28	2.12	15.90	BZX84C9V1DITR-ND	96.00/M	82.00/M
10	20	5	BZX84C10DICT-ND•	.28	2.12	15.90	BZX84C10DITR-ND	96.00/M	82.00/M
11	20	5	BZX84C11DICT-ND	.28	2.12	15.90	BZX84C11DITR-ND	96.00/M	82.00/M
12	25	5	BZX84C12DICT-ND•	.28	2.12	15.90	BZX84C12DITR-ND	96.00/M	82.00/M
13	30	5	BZX84C13DICT-ND	.28	2.12	15.90	BZX84C13DITR-ND	96.00/M	82.00/M
15	30	5	BZX84C15DICT-ND•	.28	2.12	15.90	BZX84C15DITR-ND	96.00/M	82.00/M
16	40	5	BZX84C16DICT-ND	.28	2.12	15.90	BZX84C16DITR-ND	96.00/M	82.00/M
18	45	5	BZX84C18DICT-ND•	.28	2.12	15.90	BZX84C18DITR-ND	96.00/M	82.00/M
20	55	5	BZX84C20DICT-ND•	.28	2.12	15.90	BZX84C20DITR-ND	96.00/M	82.00/M
22	55	5	BZX84C22DICT-ND	.28	2.12	15.90	BZX84C22DITR-ND	96.00/M	82.00/M
24	70	5	BZX84C24DICT-ND•	.28	2.12	15.90	BZX84C24DITR-ND	96.00/M	82.00/M
27	80	2	BZX84C27DICT-ND	.28	2.12	15.90	BZX84C27DITR-ND	96.00/M	82.00/M
30	80	2	BZX84C30DICT-ND•	.28	2.12	15.90	BZX84C30DITR-ND	96.00/M	82.00/M
33	80	2	BZX84C33DICT-ND•	.28	2.12	15.90	BZX84C33DITR-ND	96.00/M	82.00/M
36	90	2	BZX84C36DICT-ND•	.28	2.12	15.90	BZX84C36DITR-ND	96.00/M	82.00/M
39	130	2	BZX84C39DICT-ND•	.28	2.12	15.90	BZX84C39DITR-ND	96.00/M	82.00/M
43	150	2	BZX84C43DICT-ND	.28	2.12	15.90	BZX84C43DITR-ND	96.00/M	82.00/M
47	170	2	BZX84C47DICT-ND•	.28	2.12	15.90	BZX84C47DITR-ND	96.00/M	82.00/M
51	180	2	BZX84C51DICT-ND	.28	2.12	15.90	BZX84C51DITR-ND	96.00/M	82.00/M

• **BZX2-KIT-ND** 10 each of values denoted (180 total pieces)............................ $29.95

LITEON POWER SEMICONDUCTOR

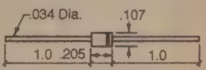
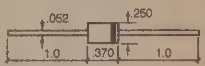
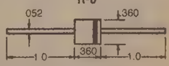
Silicon & Glass Passivated Rectifiers

NEW! **9266B-ND** Diodes, Inc. Data Book **$2.50**

Max. Avg. Rect. Current (A)	Max Peak Reverse Voltage (V)	Max. Surge Current 8.3ms (A)	Max. Forward Voltage Peak (V)	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 500	1,000	1,200	3,000	4,000	5,000	Package
0.2	200	—	1.0	BAV20DICT-ND	—	1.00	8.00	60.00	BAV20DITB-ND‡	10,000 pcs @ $35.00/M						DO-35 
	250	—	1.0	BAV21DICT-ND	—	1.00	8.00	60.00	BAV21DITB-ND‡	10,000 pcs @ $35.00/M						
1.0	50	50	1.1	1N4001CT-ND	—	.60	4.80	36.00	1N4001TR-ND*	—	—	—	—	—	24.00/M	DO-41 
	100	50	1.1	1N4002CT-ND	—	.60	4.80	36.00	1N4002TR-ND*	—	—	—	—	—	24.00/M	
	200	50	1.1	1N4003CT-ND	—	.60	4.80	36.00	1N4003TR-ND*	—	—	—	—	—	24.00/M	
	400	50	1.1	1N4004CT-ND	—	.60	4.80	36.00	1N4004TR-ND*	—	—	—	—	—	24.00/M	
	600	50	1.1	1N4005CT-ND	—	.60	4.80	36.00	1N4005TR-ND*	—	—	—	—	—	24.00/M	
	800	50	1.1	1N4006CT-ND	—	.68	5.40	40.50	1N4006TR-ND*	—	—	—	—	—	27.00/M	
	1000	50	1.1	1N4007CT-ND	—	.68	5.40	40.50	1N4007TR-ND*	—	—	—	—	—	27.00/M	
1.0	50	30	1.0	1N4001GCT-ND	—	.84	7.56	66.00	1N4001GTR-ND*	—	—	—	—	—	48.00/M	DO-41 
	100	30	1.0	1N4002GCT-ND	—	.91	8.19	71.50	1N4002GTR-ND*	—	—	—	—	—	47.00/M	
	200	30	1.0	1N4003GCT-ND	—	.98	8.82	77.00	1N4003GTR-ND*	—	—	—	—	—	50.00/M	
	400	30	1.0	1N4004GCT-ND	—	1.05	9.45	82.50	1N4004GTR-ND*	—	—	—	—	—	54.00/M	
	600	30	1.0	1N4005GCT-ND	—	1.12	10.08	88.00	1N4005GTR-ND*	—	—	—	—	—	58.00/M	
	800	30	1.0	1N4006GCT-ND	—	1.19	10.71	93.50	1N4006GTR-ND*	—	—	—	—	—	61.00/M	
	1000	30	1.0	1N4007GCT-ND	—	1.26	11.34	99.00	1N4007GTR-ND*	—	—	—	—	—	65.00/M	
1.0	50	30	1.1	S1ABDICT-ND	—	2.75	22.00	165.00	S1ABDITR-ND*	—	—	—	110.00/M	—	—	SMB 
	100	30	1.1	S1BBDICT-ND	—	2.90	23.20	174.00	S1BBDITR-ND*	—	—	—	116.00/M	—	—	
	200	30	1.1	S1DBDICT-ND	—	3.00	24.00	180.00	S1DBDITR-ND*	—	—	—	120.00/M	—	—	
	400	30	1.1	S1GBDICT-ND	—	3.10	24.80	186.00	S1GBDITR-ND*	—	—	—	124.00/M	—	—	
	600	30	1.1	S1JBDICT-ND	—	3.20	25.60	192.00	S1JBDITR-ND*	—	—	—	128.00/M	—	—	
	800	30	1.1	S1KBDICT-ND	—	3.30	26.40	198.00	S1KBDITR-ND*	—	—	—	132.00/M	—	—	
	1000	30	1.1	S1MBDICT-ND	—	3.75	30.00	225.00	S1MBDITR-ND*	—	—	—	150.00/M	—	—	
1.0	50	30	1.1	DL4001CT-ND	—	2.95	25.08	206.50	DL4001TR-ND*	—	—	—	—	—	98.00/M	DL-41 
	100	30	1.1	DL4002CT-ND	—	2.95	25.08	206.50	DL4002TR-ND*	—	—	—	—	—	100.00/M	
	200	30	1.1	DL4003CT-ND	—	3.10	26.35	217.00	DL4003TR-ND*	—	—	—	—	—	104.00/M	
	400	30	1.1	DL4004CT-ND	—	3.10	26.35	217.00	DL4004TR-ND*	—	—	—	—	—	108.00/M	
2.0	200	70	1.0	RL203DICT-ND	—	1.60	12.80	96.00	RL203DITR-ND*	—	—	—	—	64.00/M	—	DO-15 
	400	70	1.0	RL204DICT-ND	—	1.70	13.60	102.00	RL204DITR-ND*	—	—	—	—	68.00/M	—	
	600	70	1.0	RL205DICT-ND	—	1.75	14.00	105.00	RL205DITR-ND*	—	—	—	—	70.00/M	—	
	800	70	1.0	RL206DICT-ND	—	1.90	15.20	114.00	RL206DITR-ND*	—	—	—	—	76.00/M	—	
	1000	70	1.0	RL207DICT-ND	—	2.00	16.00	120.00	RL207DITR-ND*	—	—	—	—	80.00/M	—	
3.0	50	200	0.95	1N5400CT-ND	.36	2.64	19.20	—	1N5400TR-ND*	—	—	120.00/M	—	—	—	DO-201AD 
	100	200	0.95	1N5401CT-ND	.28	2.04	14.80	—	1N5401TR-ND*	—	—	93.00/M	—	—	—	
	200	200	0.95	1N5402CT-ND	.29	2.09	15.20	—	1N5402TR-ND*	—	—	95.00/M	—	—	—	
	400	200	0.95	1N5404CT-ND	.29	2.15	15.60	—	1N5404TR-ND*	—	—	98.00/M	—	—	—	
	600	200	0.95	1N5406CT-ND	.32	2.31	16.80	—	1N5406TR-ND*	—	—	105.00/M	—	—	—	
	800	200	0.95	1N5407CT-ND	.32	2.37	17.20	—	1N5407TR-ND*	—	—	108.00/M	—	—	—	
	1000	200	0.95	1N5408CT-ND	.33	2.42	17.60	—	1N5408TR-ND*	—	—	110.00/M	—	—	—	
3.0	50	125	1.0	1N5400GCT-ND	—	2.77	24.89	—	1N5400GTR-ND*	—	—	158.00/M	—	—	—	DO-201AD 
	100	125	1.0	1N5401GCT-ND	—	2.87	25.83	—	1N5401GTR-ND*	—	—	164.00/M	—	—	—	
	200	125	1.0	1N5402GCT-ND	—	2.98	26.78	—	1N5402GTR-ND*	—	—	170.00/M	—	—	—	
	400	125	1.0	1N5404GCT-ND	—	3.19	28.67	—	1N5404GTR-ND*	—	—	182.00/M	—	—	—	
	600	125	1.0	1N5406GCT-ND	—	3.43	30.87	—	1N5406GTR-ND*	—	—	196.00/M	—	—	—	
	800	125	1.0	1N5407GCT-ND	—	3.54	31.82	—	1N5407GTR-ND*	—	—	202.00/M	—	—	—	
	1000	125	1.0	1N5408GCT-ND	—	3.92	35.28	—	1N5408GTR-ND*	—	—	224.00/M	—	—	—	
6.0	50	400	0.9	6A05CT-ND	.83	6.05	44.00	—	6A05TR-ND*	165.00	275.00	—	—	—	220.00/M	R-6 
	100	400	0.9	6A1CT-ND	.86	6.33	46.00	—	6A1TR-ND*	172.50	288.00	—	—	—	230.00/M	
	200	400	0.9	6A2CT-ND	.90	6.60	48.00	—	6A2TR-ND*	180.00	300.00	—	—	—	240.00/M	
	400	400	0.9	6A4CT-ND	.98	7.15	52.00	—	6A4TR-ND*	195.00	325.00	—	—	—	260.00/M	
	600	400	0.9	6A6CT-ND	1.05	7.70	56.00	—	6A6TR-ND*	210.00	350.00	—	—	—	280.00/M	
	800	400	0.9	6A8CT-ND	1.09	7.98	58.00	—	6A8TR-ND*	217.50	363.00	—	—	—	290.00/M	
	1000	400	0.9	6A10CT-ND	1.13	8.25	60.00	—	6A10TR-ND*	225.00	375.00	—	—	—	300.00/M	

* TR = Tape & Reel ‡ TB = Tape & Box

High-Efficiency Rectifiers

Max. Avg. Rect. Current (A)	Max Peak Reverse Voltage (V)	Max. Surge Current 8.3ms (A)	Max. Reverse Current @25°C (µA)	Max. Forward Voltage Peak (V)	Max. Reverse Recovery Time (nS)	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 500	1,000	1,200	5,000	Package
1.0	50	50	5.0	1.0	50	HER101CT-ND	.32	2.65	21.20	185.50	HER101TR-ND	—	—	—	106.00/M	DO-41 
	100	50	5.0	1.0	50	HER102CT-ND	.36	3.00	24.00	210.00	HER102TR-ND	—	—	—	120.00/M	
	200	50	5.0	1.0	50	HER103CT-ND	.38	3.15	25.20	220.50	HER103TR-ND	—	—	—	126.00/M	
	300	50	5.0	1.0	50	HER104CT-ND	.49	4.10	32.80	287.00	HER104TR-ND	—	—	—	164.00/M	
	400	50	5.0	1.0	50	HER105CT-ND	.61	5.10	40.80	357.00	HER105TR-ND	—	—	—	204.00/M	
3.0	50	200	10.0	1.0	50	HER301CT-ND	.84	7.00	56.00	—	HER301TR-ND	—	—	350.00/M	—	DO-27 
	100	200	10.0	1.0	50	HER302CT-ND	.87	7.25	58.00	—	HER302TR-ND	—	—	363.00/M	—	
	200	200	10.0	1.0	50	HER303CT-ND	.93	7.75	62.00	—	HER303TR-ND	—	—	388.00/M	—	
	300	200	10.0	1.0	50	HER304CT-ND	1.10	9.20	73.60	—	HER304TR-ND	—	—	460.00/M	—	
	400	200	10.0	1.0	50	HER305CT-ND	1.20	10.00	80.00	—	HER305TR-ND	—	—	500.00/M	—	
6.0	50	300	10.0	1.0	60	HER601CT-ND	1.56	13.00	104.00	—	HER601TR-ND	390.00	650.00	—	520.00/M	R-6 
	100	300	10.0	1.0	60	HER602CT-ND	1.68	14.00	112.00	—	HER602TR-ND	420.00	700.00	—	560.00/M	
	200	300	10.0	1.0	60	HER603CT-ND	1.86	15.50	124.00	—	HER603TR-ND	465.00	775.00	—	620.00/M	
	300	300	10.0	1.0	60	HER604CT-ND	2.28	19.00	152.00	—	HER604TR-ND	570.00	950.00	—	760.00/M	

Operating and Storage Temperature: -65°C to +175°C. §T_{RR} Test @ $I_F = 1.0A$, $V_R = 30V$.

DIODES INCORPORATED LITEON POWER SEMICONDUCTOR

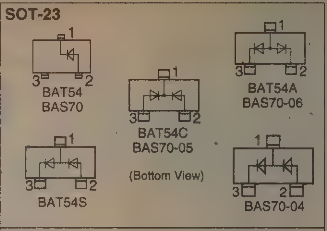
Silicon Schottky Barrier Double Diodes

NEW! Diodes, Inc. Data Book
9266B-ND $2.50

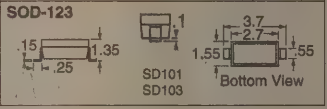
Repetitive Peak Reverse Voltage VRRM	Forward Continuous Current IF	Forward Voltage @ 100 ma	Leakage Current	Reverse Recovery Time	Digi-Key Part No.	Pricing 10	100	1000	Tape & Reel* Pricing 3,000	10,000	30,000
30V	200mA	1.0V	2µA	5ns	BAT54DICT-ND	7.50	60.00	450.00	300.00/M	—	—
30V	200mA	1.0V	2µA	5ns	BAT54ADICT-ND	9.50	76.00	570.00	380.00/M	—	—
30V	200mA	1.0V	2µA	5ns	BAT54CDICT-ND	9.50	76.00	570.00	380.00/M	—	—
30V	200mA	1.0V	2µA	5ns	BAT54SDICT-ND	9.50	76.00	570.00	380.00/M	—	—
70V	200mA	1.0V	200nA	5ns	BAS70DICT-ND	11.00	88.00	660.00	418.00/M	—	—
70V	200mA	1.0V	200nA	5ns	BAS70-04DICT-ND	11.00	88.00	660.00	418.00/M	—	—
70V	200mA	1.0V	200nA	5ns	BAS70-05DICT-ND	11.00	88.00	660.00	418.00/M	—	—
70V	200mA	1.0V	200nA	5ns	BAS70-06DICT-ND	11.00	88.00	660.00	418.00/M	—	—
60V	15mA	—	200nA	1ns	SD101-AWDICT-ND	5.50	44.00	330.00	—	193.00/M	165.00/M
50V	15mA	—	200nA	1ns	SD101-BWDICT-ND	6.00	48.00	360.00	—	210.00/M	180.00/M
40V	15mA	—	200nA	1ns	SD101-CWDICT-ND	6.00	48.00	360.00	—	210.00/M	180.00/M
40V	200mA	0.45V	5µA	10ns	SD103-AWDICT-ND	6.00	48.00	360.00	—	210.00/M	180.00/M
30V	200mA	0.45V	5µA	10ns	SD103-BWDICT-ND	6.00	48.00	360.00	—	210.00/M	180.00/M
20V	200mA	0.45V	5µA	10ns	SD103-CWDICT-ND	6.00	48.00	360.00	—	210.00/M	180.00/M

*For Tape and Reel Part No., change "CT-ND" to "TR-ND".

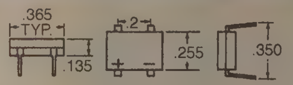
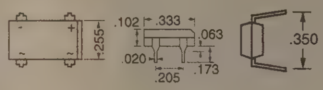
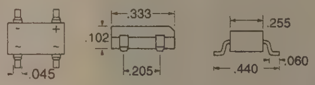
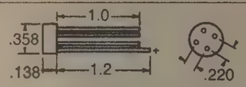
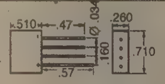
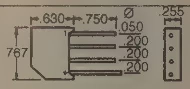
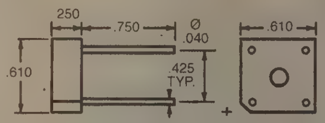
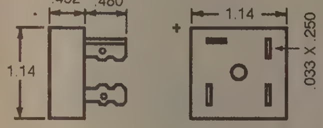
SOT-23



SOD-123



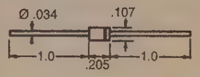
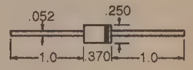
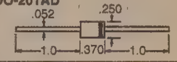
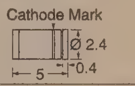
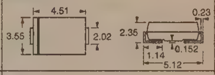
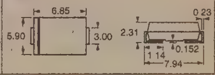
Bridge Rectifiers

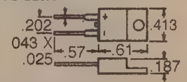
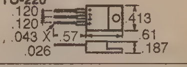
Max. Avg. Rect. Current (A)	Max. Peak Reverse Voltage (V)	Max. Surge Current 8.3ms (A)	Max. Reverse Current @25°C (µA)	Max. Forward Voltage Peak (V)	Digi-Key Part No.	Pricing 1	10	100	500	1,000	10,000	Package
1.0	50	50	10.0	1.1	DB101-ND	.62	5.93	46.50	193.75	310.00	232.50/M	
	100	50	10.0	1.1	DB102-ND	.66	6.31	49.50	206.25	330.00	247.50/M	
	200	50	10.0	1.1	DB103-ND	.70	6.69	52.50	218.75	350.00	262.50/M	
	400	50	10.0	1.1	DB104-ND	.76	7.23	56.70	236.25	378.00	283.50/M	
	600	50	10.0	1.1	DB105-ND	.80	7.65	60.00	250.00	400.00	300.00/M	
	800	50	10.0	1.1	DB106-ND	.88	8.42	66.00	275.00	440.00	330.00/M	
	1000	50	10.0	1.1	DB107-ND	1.00	9.56	75.00	312.50	500.00	375.00/M	
1.0	50	45	10.0	1.1	DF005M-ND	.62	5.93	46.50	193.75	310.00	232.50/M	 .255 .102 .333 .063 .020 .205 .173 .350
	100	45	10.0	1.1	DF01M-ND	.66	6.31	49.50	206.25	330.00	247.50/M	
	200	45	10.0	1.1	DF02M-ND	.70	6.69	52.50	218.75	350.00	262.50/M	
	400	45	10.0	1.1	DF04M-ND	.66	6.31	49.50	206.25	330.00	247.50/M	
	600	45	10.0	1.1	DF06M-ND	.72	6.89	54.00	225.00	360.00	270.00/M	
	800	45	10.0	1.1	DF08M-ND	.88	8.42	66.00	275.00	440.00	330.00/M	
	1000	45	10.0	1.1	DF10M-ND	.88	8.42	66.00	275.00	440.00	330.00/M	
1.0	50	50	10.0	1.1	DF005S-ND	.78	7.46	58.50	243.75	390.00	292.50/M	
	100	50	10.0	1.1	DF01S-ND	.80	7.65	60.00	250.00	400.00	300.00/M	
	200	50	10.0	1.1	DF02S-ND	.88	8.42	66.00	275.00	440.00	330.00/M	
	400	50	10.0	1.1	DF04S-ND	.92	8.80	69.00	287.50	460.00	345.00/M	
	600	50	10.0	1.1	DF06S-ND	1.02	9.75	76.50	318.75	510.00	382.50/M	
	800	50	10.0	1.1	DF08S-ND	1.16	11.09	87.00	362.50	580.00	435.00/M	
	1000	50	10.0	1.1	DF10S-ND	1.28	12.24	96.00	400.00	640.00	480.00/M	
1.5	50	50	10.0	1.0	RB151-ND	.54	4.73	40.50	168.75	270.00	202.50/M	
	100	50	10.0	1.0	RB152-ND	.62	5.43	46.50	193.75	310.00	232.50/M	
	200	50	10.0	1.0	RB153-ND	.66	5.78	49.50	206.25	330.00	247.50/M	
	400	50	10.0	1.0	RB154-ND	.70	6.13	52.50	218.75	350.00	262.50/M	
	600	50	10.0	1.0	RB155-ND	.74	6.44	55.20	230.00	368.00	276.00/M	
2.0	50	50	10.0	1.0	BR805D-ND	.85	7.45	63.87	266.11	425.78	319.34/M	
	100	50	10.0	1.0	BR81D-ND	.98	8.61	73.50	304.50	493.50	367.50/M	
	200	50	10.0	1.0	BR82D-ND	.97	8.47	72.60	302.50	484.00	363.00/M	
	400	50	10.0	1.0	BR84D-ND	1.01	8.63	73.60	304.75	506.00	368.00/M	
	600	50	10.0	1.0	BR86D-ND	1.06	8.64	74.40	318.00	528.00	384.00/M	
4.0	50	200	10.0	1.0	RS401LR-ND	1.63	14.25	122.10	508.75	814.00	610.50/M	 .630 .750 Ø .050 .255 .767 .200 .200 .200
	100	200	10.0	1.0	RS402LR-ND	1.71	14.95	128.10	533.75	854.00	640.50/M	
	200	200	10.0	1.0	RS403LR-ND	1.84	16.10	138.00	575.00	920.00	690.00/M	
	400	200	10.0	1.0	RS404LR-ND	1.96	17.15	147.00	612.50	980.00	735.00/M	
	600	200	10.0	1.0	RS405LR-ND	2.10	18.34	157.20	655.00	1048.00	786.00/M	
6.0	50	200	10.0	1.0	PB605-ND	2.00	17.50	150.00	625.00	1000.00	750.00/M	
	100	200	10.0	1.0	PB61-ND	1.88	16.45	141.00	587.50	940.00	705.00/M	
	200	200	10.0	1.0	PB62-ND	1.98	17.33	148.50	618.75	990.00	742.50/M	
	400	200	10.0	1.0	PB64-ND	2.06	17.99	154.20	642.50	1028.00	771.00/M	
	600	200	10.0	1.0	PB66-ND	2.14	18.69	160.20	667.50	1068.00	801.00/M	
8.0	50	125	5.0	1.0	MB805-ND	2.20	19.25	165.00	687.50	1100.00	825.00/M	
	200	125	5.0	1.0	MB82-ND	2.36	20.65	177.00	737.50	1180.00	885.00/M	
	400	125	5.0	1.0	MB84-ND	2.44	21.35	183.00	762.50	1220.00	915.00/M	
	600	125	5.0	1.0	MB86-ND	2.52	22.05	189.00	787.50	1260.00	945.00/M	
10.0	50	150	5.0	1.0	MB1005-ND	2.40	21.00	180.00	750.00	1200.00	900.00/M	
	100	150	5.0	1.0	MB101-ND	2.48	21.70	186.00	775.00	1240.00	930.00/M	
	200	150	5.0	1.0	MB102-ND	2.56	22.40	192.00	800.00	1280.00	960.00/M	
	400	150	5.0	1.0	MB104-ND	2.64	23.10	198.00	825.00	1320.00	990.00/M	
	600	150	5.0	1.0	MB106-ND	2.80	24.50	210.00	875.00	1400.00	1050.00/M	
15.0	50	300	10.0	1.1	MB1505-ND	4.72	41.30	354.00	1475.00	2360.00	1770.00/M	
	100	300	10.0	1.1	MB151-ND	5.12	44.80	384.00	1600.00	2560.00	1920.00/M	
	200	300	10.0	1.1	MB152-ND	4.88	42.70	366.00	1525.00	2440.00	1830.00/M	
	400	300	10.0	1.1	MB154-ND	5.52	48.30	414.00	1725.00	2760.00	2070.00/M	
	600	300	10.0	1.1	MB156-ND	5.72	50.05	429.00	1787.50	2860.00	2145.00/M	
25.0	50	300	10.0	1.1	MB2505-ND	5.12	44.80	384.00	1600.00	2560.00	1920.00/M	
	100	300	10.0	1.1	MB251-ND	5.24	45.85	393.00	1637.50	2620.00	1965.00/M	
	200	300	10.0	1.1	MB252-ND	5.40	47.25	405.00	1687.50	2700.00	2025.00/M	
	400	300	10.0	1.1	MB254-ND	5.48	47.95	411.00	1712.50	2740.00	2055.00/M	
	600	300	10.0	1.1	MB256-ND	6.20	54.25	465.00	1937.50	3100.00	2325.00/M	
35.0	50	400	10.0	1.1	MB3505-ND	9.80	85.75	735.00	3062.50	4900.00	3675.00/M	
	100	400	10.0	1.1	MB351-ND	10.00	87.50	750.00	3125.00	5000.00	3750.00/M	
	200	400	10.0	1.1	MB352-ND	5.88	51.45	441.00	1837.50	2940.00	2205.00/M	
	400	400	10.0	1.1	MB354-ND	10.40	91.00	780.00	3250.00	5200.00	3900.00/M	
	600	400	10.0	1.1	MB356-ND	6.08	53.20	456.00	1900.00	3040.00	2280.00/M	

Operating Temperature Range: −55°C to +125°C (−65°C to +150°C on 1 Amp Bridge Rectifiers). Storage Temperature: −55°C to +150°C (−65°C to +150°C on 1 Amp Bridge Rectifiers).

LITEON Schottky Barrier Rectifiers

NEW! 9266B-ND Diodes, Inc. Data Book $2.50

Max Avg. Rect. Current (A)	Max Peak Reverse Voltage (V)	Max. Surge Current 8.3ms(A)	Max. Reverse Current @ 25°C(mA)	Max. Forward Voltage Peak (V)	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 500	1,200	3,000	5,000	Package
1.0	20	25	1.0	0.45	1N5817CT-ND	.64	4.68	34.00	297.50	1N5817TR-ND	—	—	—	162.00/M	DO-41 
	30	25	1.0	0.55	1N5818CT-ND	.64	4.68	34.00	297.50	1N5818TR-ND	—	—	—	162.00/M	
	40	25	1.0	0.60	1N5819CT-ND	.64	4.68	34.00	297.50	1N5819TR-ND	—	—	—	162.00/M	
	20	40	1.0	0.55	SR102CT-ND	.51	4.25	34.00	297.50	SR102TR-ND	—	—	—	170.00/M	
	30	40	1.0	0.55	SR103CT-ND	.51	4.25	34.00	297.50	SR103TR-ND	—	—	—	170.00/M	
	40	40	1.0	0.55	SR104CT-ND	.51	4.25	34.00	297.50	SR104TR-ND	—	—	—	170.00/M	
	50	40	1.0	0.70	SR105CT-ND	.54	4.50	36.00	315.00	SR105TR-ND	—	—	—	180.00/M	
	60	40	1.0	0.70	SR106CT-ND	.70	5.80	46.40	406.00	SR106TR-ND	—	—	—	232.00/M	
3.0	20	80	2.0	0.475	1N5820CT-ND	1.24	9.08	66.00	—	1N5820TR-ND	—	413.00/M	—	—	DO-201AD 
	30	80	2.0	0.500	1N5821CT-ND	1.24	9.08	66.00	—	1N5821TR-ND	—	413.00/M	—	—	
	40	80	2.0	0.525	1N5822CT-ND	1.24	9.08	66.00	—	1N5822TR-ND	—	413.00/M	—	—	
	20	150	3.0	0.55	SR302CT-ND	.99	8.25	66.00	—	SR302TR-ND	—	413.00/M	—	—	
	40	150	3.0	0.55	SR304CT-ND	.99	8.25	66.00	—	SR304TR-ND	—	413.00/M	—	—	
	50	150	3.0	0.75	SR305CT-ND	1.02	8.50	68.00	—	SR305TR-ND	—	425.00/M	—	—	
	60	150	3.0	0.75	SR306CT-ND	1.14	9.50	76.00	—	SR306TR-ND	—	475.00/M	—	—	
5.0	20	250	10.0	0.57	SR502CT-ND	1.50	12.50	100.00	—	SR502TR-ND	—	625.00/M	—	—	DO-201AD 
	30	250	10.0	0.57	SR503CT-ND	1.56	13.00	104.00	—	SR503TR-ND	—	650.00/M	—	—	
	40	250	10.0	0.57	SR504CT-ND	1.62	13.50	108.00	—	SR504TR-ND	—	675.00/M	—	—	
1.0	20	25	1.0	0.45	1N5817MCT-ND	.75	6.38	48.75	337.50	1N5817MTR-ND	—	—	—	285.00/M	MELF 
	30	25	1.0	0.55	1N5818MCT-ND	.75	6.38	48.75	337.50	1N5818MTR-ND	—	—	—	285.00/M	
	40	25	1.0	0.60	1N5819MCT-ND	.75	6.38	48.75	337.50	1N5819MTR-ND	—	—	—	285.00/M	
1.0	20	30	0.5	1.1	SK12DICT-ND	.56	5.04	42.00	280.00	SK12DITR-ND	—	—	232.00/M	—	SMB  4.51 0.23 3.55 2.02 2.35 1.14 0.152 5.12
	30	25	0.5	0.55	SK13DICT-ND	.60	5.40	45.00	300.00	SK13DITR-ND	—	—	249.00/M	—	
	40	25	0.5	0.55	SK14DICT-ND	.66	5.94	49.50	330.00	SK14DITR-ND	—	—	274.00/M	—	
	50	25	0.5	0.70	SK15DICT-ND	.78	7.02	58.50	390.00	SK15DITR-ND	—	—	324.00/M	—	
	60	25	0.5	0.70	SK16DICT-ND	.96	8.64	72.00	480.00	SK16DITR-ND	—	—	398.00/M	—	
3.0	20	100	0.5	0.50	SK32DICT-ND	1.52	13.68	114.00	—	SK32DITR-ND	475.00	—	—	570.00/M	SMC  6.85 0.23 5.90 3.00 2.31 1.14 0.152 7.94
	30	100	0.5	0.50	SK33DICT-ND	1.60	14.40	120.00	—	SK33DITR-ND	500.00	—	—	600.00/M	
	40	100	0.5	0.50	SK34DICT-ND	1.68	15.12	126.00	—	SK34DITR-ND	525.00	—	—	630.00/M	
	50	100	0.5	0.75	SK35DICT-ND	1.84	16.56	138.00	—	SK35DITR-ND	575.00	—	—	690.00/M	
	60	100	0.5	0.75	SK36DICT-ND	2.04	18.36	153.00	—	SK36DITR-ND	637.50	—	—	765.00/M	

Max Avg. Rect. Current (A)	Max Peak Reverse Voltage (V)	Max. Surge Current 8.3ms(A)	Max. Reverse Current @ 25°C(mA)	Max. Forward Voltage Peak (V)	Digi-Key Part No.	Pricing 1	10	100	500	Package
8.0	20	250	5.0	0.65	SR802-ND	2.20	16.50	137.50	550.00	TO-220A 
	40	250	5.0	0.65	SR804-ND	2.60	19.50	162.50	650.00	
	60	250	5.0	0.75	SR806-ND	3.00	22.50	187.50	750.00	
8.0	45	200	8.0	0.55	SBL845DI-ND	2.40	18.00	150.00	600.00	
10.0	45	250	10.0	0.60	SBL1045CTDI-ND	2.52	18.90	157.50	630.00	
16.0	45	275	16.0	0.63	SBL1645DI-ND	2.76	20.70	172.50	690.00	
16.0	20	250	10.0	0.65	SR1602-ND†	3.08	23.10	192.50	770.00	TO-220  .120 .120 .043 X .026 .57 .413 .61 .187
	40	250	10.0	0.65	SR1604-ND†	3.20	24.00	200.00	800.00	
	60	250	10.0	0.75	SR1606-ND†	3.60	27.00	225.00	900.00	
20.0	45	250	20.0	0.60	SBL2045CTDI-ND	3.08	23.10	192.50	770.00	

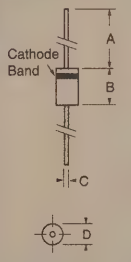
Operating and Storage Temperature: -65°C to +150°C. † Dual rectifier package.

IOR International Rectifier Schottky Rectifiers

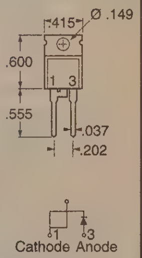
9193B-ND IR's Schottky Diode Designers Book......... $9.95

IF (A)	VRRM (V)	VF (V)	IFSM(A) @ tp = 5μs Sine	TJ Junction Temp (°C)	Dimensions A	B	C	D	Digi-Key Part No.	Pricing 1	10	100	Package
1.1	30	.55	240	-40 to 125	1.06	.205	.034	.106	11DQ03-ND	1.03	8.69	59.94	DO-41
1.1	40	.55	240	-40 to 125	1.06	.205	.034	.106	11DQ04-ND	1.06	9.02	62.16	
1.1	60	.58	240	-40 to 125	1.06	.205	.034	.106	11DQ06-ND	1.14	9.66	66.60	
1.1	90	.85	90	-40 to 125	1.06	.205	.034	.106	11DQ09-ND	1.33	11.27	77.70	
3.3	30	.55	470	-40 to 125	.83	.39	.052	.25	31DQ03-ND	1.67	14.17	97.68	C-16
3.3	40	.55	470	-40 to 125	.83	.39	.052	.25	31DQ04-ND	1.67	14.17	97.68	
3.3	60	.58	360	-40 to 125	.83	.39	.052	.25	31DQ06-ND	1.94	16.42	113.22	
3.3	90	.85	210	-40 to 125	.83	.39	.052	.25	31DQ09-ND	2.13	18.03	124.32	
5	100	.52	1900	-55 to 175	1.10	.375	.052	.25	50SQ100-ND	2.63	22.16	153.30	DO-204AR
8	45	.44	2400	-55 to 175	1.10	.375	.052	.25	80SQ045-ND	2.04	17.00	118.15	
9	15	.25	2900	-55 to 100	1.10	.375	.052	.25	95SQ015-ND	3.81	31.73	219.96	
7.5	45	.57	690	-65 to 150	—	—	—	—	MBR745-ND	2.53	21.56	148.50	TO-220AC
8	100	.58	850	-55 to 175	—	—	—	—	8TQ100-ND	3.15	26.50	181.50	
10	45	.57	1050	-65 to 150	—	—	—	—	MBR1045-ND	2.28	19.00	129.20	
16	45	.57	1800	-65 to 150	—	—	—	—	MBR1645-ND	3.06	25.50	179.35	
19	15	.32	700	-55 to 100	—	—	—	—	19TQ015-ND	3.29	27.89	191.62	
10	150	.73	620	-55 to 175	—	—	—	—	10CTQ150-ND	3.45	29.10	201.00	TO-220AB
15	45	.57	690	-65 to 150	—	—	—	—	MBR1545CT-ND	2.26	18.88	129.48	
20	45	.57	1060	-65 to 150	—	—	—	—	MBR2045CT-ND	3.61	30.62	211.20	
20	100	.7	850	-65 to 150	—	—	—	—	MBR20100CT-ND	5.02	42.64	294.69	
30	30	.40	900	-55 to 150	—	—	—	—	32CTQ030-ND	3.07	26.37	181.76	
30	45	.73	1060	-65 to 150	—	—	—	—	MBR2545CT-ND	5.00	41.75	286.65	
30	45	.50	1020	-55 to 150	—	—	—	—	30CPQ045-ND	5.45	46.22	317.58	TO-247AC
30	45	.60	1020	-65 to 150	—	—	—	—	MBR3045PT-ND	5.69	47.40	327.06	
30	60	.50	1020	-55 to 150	—	—	—	—	30CPQ060-ND	6.62	56.16	385.92	
30	100	.67	920	-55 to 175	—	—	—	—	30CPQ100-ND	7.87	66.69	458.28	
40	45	.43	3500	-55 to 150	—	—	—	—	40CPQ045-ND	10.42	89.65	617.52	
40	60	.49	3200	-55 to 150	—	—	—	—	40CPQ060-ND	12.66	108.93	750.32	

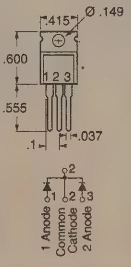
DO-41, C-16, DO-204AR



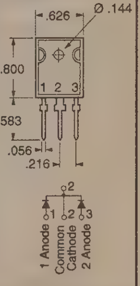
TO-220AC



TO-220AB



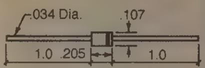
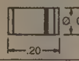
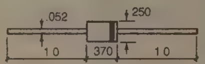
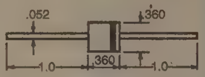
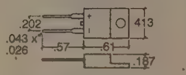
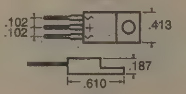
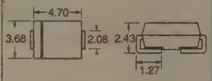
TO-247AC



DIODES INCORPORATED LITEON POWER SEMICONDUCTOR

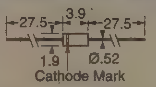
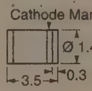
Fast Recovery Rectifiers

NEW! 9266B-ND Diodes, Inc. Data Book.. $2.50

Max. Avg. Rect. Current (A)	Max Peak Reverse Voltage (V)	Max. Surge Current 8.3ms (A)	Max. Reverse Current @25°C (µA)	Max. Forward Voltage Peak (V)	Max. Reverse Recovery Time (nS)	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Pricing 1,200	3,000	5,000	Package
1.0	50	50	5.0	1.2	200†	1N4933CT-ND	.24	1.70	13.60	119.00	1N4933TR-ND*	—	—	68.00/M	**DO-41** 
	100	50	5.0	1.2	200†	1N4934CT-ND	.25	1.80	14.40	126.00	1N4934TR-ND*	—	—	72.00/M	
	200	50	5.0	1.2	200†	1N4935CT-ND	.21	1.50	12.00	105.00	1N4935TR-ND*	—	—	60.00/M	
	400	50	5.0	1.2	200†	1N4936CT-ND	.28	2.00	16.00	140.00	1N4936TR-ND*	—	—	80.00/M	
	600	50	5.0	1.2	200†	1N4937CT-ND	.24	1.70	13.60	119.00	1N4937TR-ND*	—	—	68.00/M	
	800	50	5.0	1.3	500	FR106CT-ND	.30	2.15	17.20	150.50	FR106TR-ND*	—	—	86.00/M	
	1000	50	5.0	1.3	500	FR107CT-ND	.29	2.10	16.80	147.00	FR107TR-ND*	—	—	84.00/M	
1.0	50	30	5.0	1.2	200†	DL4933CT-ND	—	4.00	34.00	280.00	DL4933TR-ND*	—	—	140.00/M	**DL-41** 
	100	30	5.0	1.2	200†	DL4934CT-ND	—	4.00	34.00	280.00	DL4934TR-ND*	—	—	140.00/M	
	200	30	5.0	1.2	200†	DL4935CT-ND	—	3.70	31.45	259.00	DL4935TR-ND*	—	—	148.00/M	
	400	30	5.0	1.2	200†	DL4936CT-ND	—	4.50	38.25	315.00	DL4936TR-ND*	—	—	180.00/M	
3.0	50	200	10.0	1.3	150	FR301CT-ND	.41	3.45	27.60	—	FR301TR-ND*	173.00/M	—	—	**DO-27** 
	100	200	10.0	1.3	150	FR302CT-ND	.43	3.55	28.40	—	FR302TR-ND*	178.00/M	—	—	
	200	200	10.0	1.3	150	FR303CT-ND	.44	3.70	29.60	—	FR303TR-ND*	185.00/M	—	—	
	400	200	10.0	1.3	150	FR304CT-ND	.44	3.65	29.20	—	FR304TR-ND*	183.00/M	—	—	
	600	200	10.0	1.3	250	FR305CT-ND	.49	4.10	32.80	—	FR305TR-ND*	205.00/M	—	—	
	800	200	10.0	1.3	500	FR306CT-ND	.47	3.90	31.20	—	FR306TR-ND*	195.00/M	—	—	
	1000	200	10.0	1.3	500	FR307CT-ND	.58	4.85	38.80	—	FR307TR-ND*	243.00/M	—	—	
6.0	50	300	10.0	1.3	150	FR601CT-ND	.88	7.00	52.50	—	FR601TR-ND*	—	—	291.00/M	**R-6** 
	100	300	10.0	1.3	150	FR602CT-ND	.92	7.36	55.20	—	FR602TR-ND*	—	—	305.00/M	
	200	300	10.0	1.3	150	FR603CT-ND	.92	7.36	55.20	—	FR603TR-ND*	—	—	305.00/M	
	400	300	10.0	1.3	150	FR604CT-ND	1.07	8.52	63.90	—	FR604TR-ND*	—	—	354.00/M	
	600	300	10.0	1.3	250	FR605CT-ND	1.17	9.32	69.90	—	FR605TR-ND*	—	—	387.00/M	
	800	300	10.0	1.3	500	FR606CT-ND	1.31	10.48	78.60	—	FR606TR-ND*	—	—	435.00/M	
8.0	50	300	10.0	1.3	150	FR801-ND	1.56	11.70	97.50	647.00	—	—	—	—	**TO-220A** 
	100	300	10.0	1.3	150	FR802-ND	1.68	12.60	105.00	697.00	—	—	—	—	
	200	300	10.0	1.3	150	FR803-ND	1.76	13.20	110.00	730.00	—	—	—	—	
	400	300	10.0	1.3	150	FR804-ND	1.92	14.40	120.00	797.00	—	—	—	—	
	600	300	10.0	1.3	250	FR805-ND	2.08	15.60	130.00	863.00	—	—	—	—	
8.0	150	125	10.0	.975	35	SF163DI-ND	3.40	25.50	212.50	1411.00	—	—	—	—	**TO-220** 
	200	125	10.0	.975	35	SF164DI-ND	3.48	26.10	217.50	1444.00	—	—	—	—	
1.0	50	30	5.0	1.0	150	FR1ADICT-ND	.54	4.50	36.00	270.00	FR1ADITR-ND*	—	180.00/M	—	**SMB** 
	100	30	5.0	1.0	150	FR1BDICT-ND	.60	5.00	40.00	300.00	FR1BDITR-ND*	—	200,00/M	—	
	200	30	5.0	1.0	150	FR1DDICT-ND	.63	5.25	42.00	315.00	FR1DDITR-ND*	—	210.00/M	—	
	400	30	5.0	1.0	150	FR1GDICT-ND	.66	5.50	44.00	330.00	FR1GDITR-ND*	—	220.00/M	—	
	600	30	5.0	1.0	250	FR1JDICT-ND	.69	5.75	46.00	345.00	FR1JDITR-ND*	—	230.00/M	—	
	800	30	5.0	1.0	500	FR1KDICT-ND	.72	6.00	48.00	360.00	FR1KDITR-ND*	—	240.00/M	—	
	1000	30	5.0	1.0	500	FR1MDICT-ND	.75	6.25	50.00	375.00	FR1MDITR-ND*	—	250.00/M	—	

Operating and Storage Temperature: -65°C to +175°C. † T_{RR} Test @ $I_F = 1.0A$, $V_R = 30V$. * TR = Tape & Reel

Fast Schottky Barrier Rectifiers

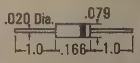
Peak Reverse Voltage VRRM(V)	Leakage Current	Forward Voltage @ IF VF	IF(ma)	Junction Capacitance (pf)	Reverse Recover Time(ns)	Power Dissipation Ptot(MW)	Digi-Key Part No.	Pricing 1	10	100	1,000	Digi-Key Part No.	Pricing 5,000	10,000	Package
60	200na	.41	1	2.0	1	400	SD101ACT-ND	.45	3.83	29.25	202.50	SD101ATB-ND‡	—	135.00/M	
50	200na	.4	1	2.1	1	400	SD101BCT-ND	.45	3.83	29.25	202.50	SD101BTB-ND‡	—	135.00/M	
40	200na	.39	1	2.2	1	400	SD101CCT-ND	.45	3.83	29.25	202.50	SD101CTB-ND‡	—	135.00/M	
40	5µA	.37	20	50	10	400	SD103ACT-ND	.55	4.68	35.75	247.50	SD103ATB-ND‡	—	165.00/M	
30	5µA	.37	20	50	10	400	SD103BCT-ND	.55	4.68	35.75	247.50	SD103BTB-ND‡	—	165.00/M	
20	5µA	.37	20	50	10	400	SD103CCT-ND	.55	4.68	35.75	247.50	SD103CTB-ND‡	—	165.00/M	
60	200na	.41	1	2.0	1	400	LLSD101ACT-ND	.53	4.46	34.13	236.25	LLSD101ATR-ND*	168.00/M	—	
50	200na	.4	1	2.1	1	400	LLSD101BCT-ND	.53	4.46	34.13	236.25	LLSD101BTR-ND*	168.00/M	—	
40	200na	.39	1	2.2	1	400	LLSD101CCT-ND	.53	4.46	34.13	236.25	LLSD101CTR-ND*	168.00/M	—	
40	5µA	.37	20	50	10	400	LLSD103ACT-ND	.60	5.10	39.00	270.00	LLSD103ATR-ND*	192.00/M	—	
30	5µA	.37	20	50	10	400	LLSD103BCT-ND	.60	5.10	39.00	270.00	LLSD103BTR-ND*	192.00/M	—	
20	5µA	.37	20	50	10	400	LLSD103CCT-ND	.60	5.10	39.00	270.00	LLSD103CTR-ND*	192.00/M	—	

‡ TB = Tape & Box * TR = Tape & Reel

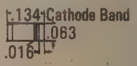
High Speed Switching Rectifiers

Peak Reverse Voltage VRM (V)	Reverse Current max. IR (µA)	VR (V)	Forward Voltage max. @ VF (V)	IF (mA)	Capacitance C max. (pF)	Reverse Recovery Time Trr max. (nS)	Power Dissipation Pd (mW)	Digi-Key Part No.	Pricing 10	100	1,000	Digi-Key Part No.	Pricing 3,000	6,000	10,000
100	5	75	1.0	10	4.0	4.0	500	1N4148CT-ND	.64	5.10	42.50	1N4148TR-ND*	—	—	17.00/M
100	5	75	1.0	10	4.0	4.0	500	LL4148CT-ND	1.25	10.63	87.50	LL4148TR-ND*	—	—	50.00/M
250	0.1	250	1.0	100	5.0	50	200	BAS21DICT-ND	2.50	20.00	150.00	BAS21DITR-ND	100.00/M	—	—
85	1	70	.855	10	2.0	6.0	350	BAS16DICT-ND	1.85	13.31	102.44	BAS16DITR-ND*	80.00/M	71.00/M	—
70	5	70	.855	10	1.5	6.0	350	BAV70DICT-ND	1.94	13.95	107.32	BAV70DITR-ND*	80.00/M	68.00/M	—
70	2.5	70	.855	10	1.5	6.0	350	BAV99DICT-ND	2.64	19.02	146.34	BAV99DITR-ND*	106.00/M	90.00/M	—
70	2.5	70	.855	10	2.0	6.0	350	BAW56DICT-ND	2.75	22.00	165.00	BAW56DITR-ND*	110.00/M	—	—

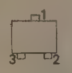
1N4148 **DO-35**



LL4148 **DL-35**



SOT-23



Bottom View

	1	2	3
BAS21	K	A	
BAS16	K	A	—
BAV70	K	A	A
BAV99	K/A	A	K
BAW56	A/A	K	K

* TR = Tape & Reel

International Rectifier IGBT Transistors

The field of 3-phase 220V PWM motor drives has had mainly bipolars and power MOSFETs competing with one another. Power MOSFETs have been the choice of power electronic designers, especially at power levels below 5 hp because of the ease of drive and their rugged operations. Since FETs are voltage-controlled devices, they require only very small gate current pulses to turn them off and on. The average currents necessary for controlling the device state are often magnitudes lower than those required by bipolar devices of similar ratings. What's more, the FET's wide switching safe operating area (SOA), avalanche and dv/dt capabilities allow for snubberless operation, often a great advantage over bipolars. The $R_{DS(on)}$ of the FET does, however, rise exponentially with voltage rating. The IGBT combines the best of both worlds. It is a voltage-controlled device (like the MOSFET) allowing designers to greatly simplify their drive circuits. It is a rugged device with a square switching SOA and high peak current capability. In addition, it exhibits low forward voltage characteristics similar to bipolars, reducing the conduction loss. Also, as it does not have an internal reverse diode, designers can choose an external fast recovery diode to suit a specific application. (HexFred; see section below for description.) All this indicates that the IGBT will be the device of choice for applications requiring high current densities at high voltages coupled with switching frequencies up to 20 to 50 kHz.

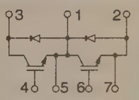
HEXFRED technology sets a new standard for high performance ultrafast diodes. This performance advantage can be utilized by the designer resulting in higher efficiency circuits and lower overall system cost. HEXFREDS will: • Allow IGBTS and MOSFETS to run cooler by 10°C, 20°C • Improve overall system efficiency by 1%, 2% • Reduce noise and the need for snubber circuitry • Allow for higher frequency operation • Allow many marginal circuits to work more reliably.

VCE	VCE (Sat) Max	IC @ TC +25°C	Pulse Current ICM	Max Power Dissipation	Delay Time (ns) Td(on)	Td(off)	ETS Total Switching Loss @ IC MJ	Amps	Digi-Key Part No.	Pricing 1	10	100	Package	Fig.
600	3.0	13	52	60	22	95	.35	6.5	IRGBC20U-ND	3.02	25.67	211.40	TO-220AB	A
600	2.2	34	136	100	26	1100	7.1	18	IRGBC30S-ND	4.12	35.02	288.40		
600	2.1	31	120	100	25	320	2.5	17	IRGBC30F-ND	4.18	35.53	292.60		
600	3.0	23	92	100	24	200	.59	12	IRGBC30U-ND	4.40	37.40	308.00		
600	3.0	50	240	160	28	1500	13	31	IRGBC40S-ND	6.58	55.93	460.60		
600	3.0	40	160	160	25	190	1.5	20	IRGBC40U-ND	7.44	63.24	520.80		
900	4.3	9	36	60	29	170	.61	5.3	IRGBF20F-ND	3.08	26.18	215.60	TO-220AB	A
600	1.8	60	240	160	28	1500	13	31	IRGPC40S-ND	7.66	65.11	532.37	TO-247AC	A
600	3.0	40	160	160	25	190	1.5	20	IRGPC40U-ND	8.80	74.80	611.60		
600	1.7	70	280	200	24	540	6.0	39	IRGPC50F-ND	12.10	102.85	840.95		
600	3.0	55	220	200	23	200	1.7	27	IRGPC50U-ND	12.98	110.33	902.11		
900	3.3	31	120	160	27	250	1.57	15	IRGPF40F-ND	8.26	70.21	574.07	TO-247AC	A
900	2.7	51	200	200	32	200	2.9	28	IRGPF50F-ND	13.20	112.20	917.40		
1200	3.3	29	58	160	33	250	4	17	IRGPH40F-ND	9.90	84.15	688.05	TO-247AC	A
1200	2.9	45	90	200	34	320	5.9	25	IRGPH50F-ND	13.76	116.96	956.32		
600	2.8	16	64	60	22	95	1.3	9	IRGBC20FD2-ND	4.30	36.55	301.00	TO-220AB	B
600	2.1	31	120	100	25	210	2.5	17	IRGBC30FD2-ND	6.12	52.02	428.40		
600	3.0	13	52	60	22	95	.35	6.5	IRGBC20UD2-ND	4.64	39.44	324.80		
600	3.0	23	92	100	24	92	.59	12	IRGBC30UD2-ND	6.42	54.57	449.40		
600	2.1	31	120	100	25	290	2.5	17	IRGPC30FD2-ND	6.84	58.14	475.38	TO-247AC	B
600	2.0	49	200	160	37	420	4.4	27	IRGPC40FD2-ND	11.00	93.50	764.50		
600	3.0	40	160	160	25	96	1.5	20	IRGPC40UD2-ND	11.22	95.37	779.79		
600	1.7	70	280	200	24	540	6.0	39	IRGPC50FD2-ND	16.72	142.12	1162.04		
600	3.0	55	220	200	23	100	1.73	27	IRGPC50UD2-ND	17.38	147.73	1207.91		

IGBT Module

See "Int-A-Pack" for Package Specifications

9220B-ND International Rectifier IGBT Data Book **$11.25**

VCE Sat	IC (A) TC = 25°C	ILM (A) Peak Output Switching Current	Power Dissapation	Delay Time (ns) TD(on)	TD(off)	Total Switching Energy ETS (MJ/A)	Digi-Key Part No.	Pricing 1	10	100	Circuit Drawing
3.0	90	180	298	70	180	.12	IRGTI090U06-ND*	114.66	982.80	7589.40	

*Int-A-Pak package: Pins 1, 2, 3 are screw terminals, Pins 4, 5, 6, 7 are solder terminals

HexFreds Diodes

VR	VF	IF(AV) (A)	TRR(Typical) NS	QRR(Typical) NC	IRRM (A)	Digi-Key Part No.	Pricing 1	10	100	Package	Fig.
600	1.7	8	18	65	5	HFA08TB60-ND	2.20	18.70	154.00	TO-220AC	D
600	1.7	15	19	80	6	HFA15PB60-ND	4.10	34.85	287.00	TO-247AC/MOD	D
600	1.7	15	19	80	6	HFA15TB60-ND	3.00	25.50	210.00	TO-220AC	D
600	1.7	16	18	65	5	HFA16TA60C-ND	3.96	33.66	277.20	TO-220AB	C
600	1.7	25	23	112	10	HFA25PB60-ND	7.82	66.47	547.40	TO-247AC/MOD	D
600	1.7	25	23	112	10	HFA25TB60-ND	4.80	40.80	336.00	TO-220AC	D
600	1.7	30	19	80	6	HFA30PA60C-ND	7.80	66.30	546.00	TO-247AC	C
600	1.7	30	19	80	6	HFA30TA60C-ND	5.90	50.15	413.00	TO-220AB	C
600	1.7	50	23	112	10	HFA50PA60C-ND	13.76	116.96	963.20	TO-247AC	C
1200	3.0	16	30	260	5.8	HFA16PB120-ND	8.36	71.06	585.20	TO-247AC/MOD	D

Fig. A

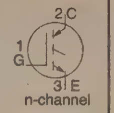


Fig. B

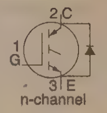


Fig. C

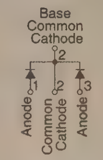
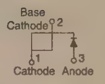
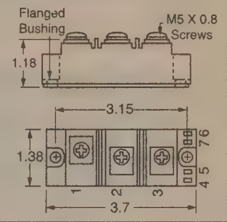


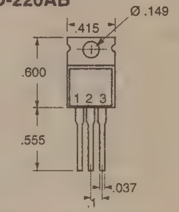
Fig. D



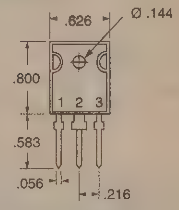
INT-A-PAK



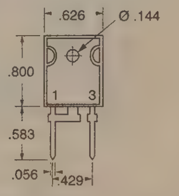
TO-220AB



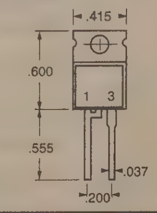
TO-247AC



TO-247AC/MOD



TO-220AC



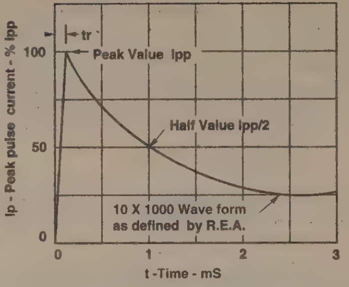
Transient Voltage Suppressors

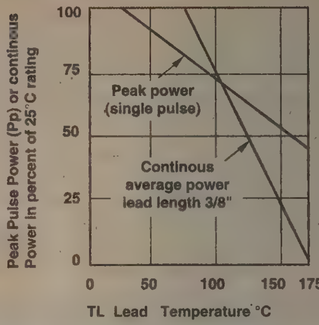
NEW! 9266B-ND	Diodes, Inc. Data Book	$2.50

APPLICATIONS: These TVS devices afford the circuit designer an economic means to protect voltage sensitive circuit components from the destructive effects of applied transient voltages. Featuring virtually instantaneous response times of one picosecond.

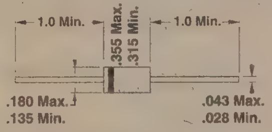
FEATURES:
• 500, 600 and 1500 Watts Peak Pulse Power Dissipation. • Fast Response Time – 1 Pico Second. • Uni and Bidirectional Units Available. • Constructed with Glass Passivated Die.

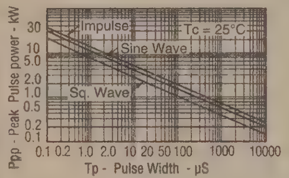
MECHANICAL DATA:
Case: Transfer Molded Epoxy U/L Flammability Rating 94V-0. **Leads:** Solderable per MIL-STD-202 Method 208. **Soldering Temperature:** 260°C Maximum, 3/8" From Body, 10 Seconds. **Marking:** Type Number and Cathode Band.





500 Watts & 600 Watts

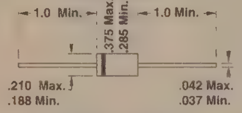


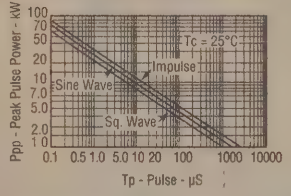


MAXIMUM RATINGS:
- **Peak Pulse Power Dissipation @ 25°C:** 600 Watts.
- **Steady State Power Dissipation @ 75°C Lead Temperature, 3/8" from Body:** 2.5 Watts.
- **Clamping Time (0 Volt to BV min): Unidirectional** – < 1x10^{-12} Seconds. **Bidirectional** – < 5x10^{-9} Seconds.
- **Storage and Operating Temperature:** -65 to +175 °C.

1500 Watts

DO-201 Outline

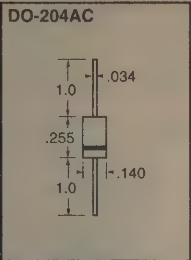


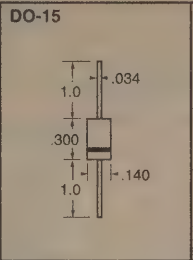


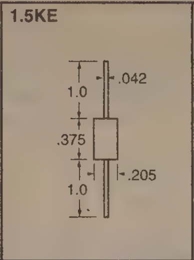
MAXIMUM RATINGS:
- **Peak Pulse Power Dissipation @ 25°C:** 1500 Watts.
- **Steady State Power Dissipation @ 75°C Lead Temperature, 3/8" from Body:** 5 Watts.
- **Forward Surge Current, 50ms @ 25°C:** 200 Amperes.
- **Clamping Time (0 Volt to BV min): Unidirectional** – < 1x10^{-12} Seconds. **Bidirectional** – < 5x10^{-9} Seconds.
- **Storage and Operating Temperature:** -65 to +175 °C.

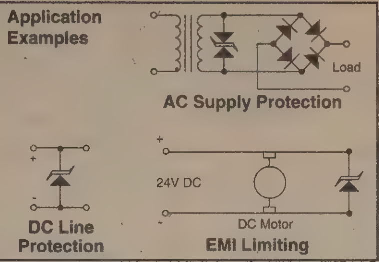
Breakdown Voltage (V(BR) @ IT) Min.	Nom.	Max.	IT (mADC)	Rated Standoff Voltage (Vwm)	Reverse DC Leakage (Current @ Vwm)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 1,000	4,000	5,000	Diodes Part No.
500 Watts, Unidirectional (D0-15)														
6.4	—	7.00	10	5.0	600 µA	SA5.0ADICT-ND	.64	5.76	48.00	SA5.0ADITR-ND	—	—	240.00/M	SA5.0ADI
6.67	—	7.37	10	6.0	600 µA	SA6.0ADICT-ND	.64	5.76	48.00	SA6.0ADITR-ND	—	—	240.00/M	SA6.0ADI
7.22	—	7.98	10	6.5	400 µA	SA6.5ADICT-ND	.64	5.76	48.00	SA6.5ADITR-ND	—	240.00/M	—	SA6.5ADI
11.1	—	12.3	1	10	3 µA	SA10ADICT-ND	.64	5.76	48.00	SA10ADITR-ND	—	—	240.00/M	SA10ADI
13.3	—	14.7	1	12	3 µA	SA12ADICT-ND	.64	5.76	48.00	SA12ADITR-ND	—	—	240.00/M	SA12ADI
16.7	—	18.5	1	15	3 µA	SA15ADICT-ND	.64	5.76	48.00	SA15ADITR-ND	—	—	240.00/M	SA15ADI
22.2	—	24.5	1	20	3 µA	SA20ADICT-ND	.64	5.76	48.00	SA20ADITR-ND	—	240.00/M	—	SA20ADI
33.3	—	36.8	1	30	3 µA	SA30ADICT-ND	.64	5.76	48.00	SA30ADITR-ND	—	240.00/M	—	SA30ADI
500 Watts, Bidirectional (DO-15)														
6.4	—	7.00	10	5.0	600 µA	SA5.0CADICT-ND	.70	6.30	52.50	SA5.0CADITR-ND	—	—	263.00/M	SA5.0CADI
6.67	—	7.37	10	6.0	600 µA	SA6.0CADICT-ND	.70	6.30	52.50	SA6.0CADITR-ND	—	—	263.00/M	SA6.0CADI
7.22	—	7.98	10	6.5	400 µA	SA6.5CADICT-ND	.70	6.30	52.50	SA6.5CADITR-ND	—	—	263.00/M	SA6.5CADI
11.1	—	12.3	1	10	3 µA	SA10CADICT-ND	.70	6.30	52.50	SA10CADITR-ND	—	—	263.00/M	SA10CADI
13.3	—	14.7	1	12	3 µA	SA12CADICT-ND	.70	6.30	52.50	SA12CADITR-ND	—	263.00/M	—	SA12CADI
16.7	—	18.5	1	15	3 µA	SA15CADICT-ND	.70	6.30	52.50	SA15CADITR-ND	—	—	263.00/M	SA15CADI
22.2	—	24.5	1	20	3 µA	SA20CADICT-ND	.70	6.30	52.50	SA20CADITR-ND	—	263.00/M	—	SA20CADI
33.3	—	36.8	1	30	3 µA	SA30CADICT-ND	.70	6.30	52.50	SA30CADITR-ND	—	263.00/M	—	SA30CADI
600 Watts, Unidirectional — (for package see drawing)														
6.45	6.8	7.14	10	5.8	1000µA	P6KE6.8ACT-ND	.76	6.84	57.00	P6KE6.8ATR-ND	—	285.00/M	—	P6KE6.8A
7.13	7.5	7.88	10	6.4	500 µA	P6KE7.5ACT-ND	.76	6.84	57.00	P6KE7.5ATR-ND	—	285.00/M	—	P6KE7.5A
7.79	8.2	8.61	10	7.02	200 µA	P6KE8.2ACT-ND	.76	6.84	57.00	P6KE8.2ATR-ND	—	285.00/M	—	P6KE8.2A
9.5	10.0	10.5	1	8.55	10 µA	P6KE10ACT-ND	.76	6.84	57.00	P6KE10ATR-ND	—	285.00/M	—	P6KE10A
11.4	12.0	12.6	1	10.2	5 µA	P6KE12ACT-ND	.76	6.84	57.00	P6KE12ATR-ND	—	285.00/M	—	P6KE12A
14.3	15.0	15.8	1	12.8	5 µA	P6KE15ACT-ND	.76	6.84	57.00	P6KE15ATR-ND	—	285.00/M	—	P6KE15A
19.0	20.0	21.0	1	17.1	5 µA	P6KE20ACT-ND	.76	6.84	57.00	P6KE20ATR-ND	—	285.00/M	—	P6KE20A
22.8	24.0	25.2	1	20.5	5 µA	P6KE24ACT-ND	.76	6.84	57.00	P6KE24ATR-ND	—	285.00/M	—	P6KE24A
25.7	27.0	28.4	1	23.1	5 µA	P6KE27ACT-ND	.76	6.84	57.00	P6KE27ATR-ND	—	285.00/M	—	P6KE27A
28.5	30.0	31.5	1	25.5	5 µA	P6KE30ACT-ND	.76	6.84	57.00	P6KE30ATR-ND	—	285.00/M	—	P6KE30A
31.4	33.0	34.7	1	28.2	5 µA	P6KE33ACT-ND	.76	6.84	57.00	P6KE33ATR-ND	—	285.00/M	—	P6KE33A
48.5	51.0	53.6	1	43.6	5 µA	P6KE51ACT-ND	.76	6.84	57.00	P6KE51ATR-ND	—	285.00/M	—	P6KE51A
64.6	68.0	71.4	1	58.1	5 µA	P6KE68ACT-ND	.76	6.84	57.00	P6KE68ATR-ND	—	285.00/M	—	P6KE68A
600 Watts, Bidirectional — (for package see drawing)														
6.45	6.8	7.14	10	5.8	1000 µA	P6KE6.8CACT-ND	1.08	9.72	81.00	P6KE6.8CATR-ND	—	405.00/M	—	P6KE6.8CA
7.13	7.5	7.88	10	6.4	500 µA	P6KE7.5CACT-ND	1.08	9.72	81.00	P6KE7.5CATR-ND	—	405.00/M	—	P6KE7.5CA
7.79	8.2	8.61	10	7.02	200 µA	P6KE8.2CACT-ND	1.08	9.72	81.00	P6KE8.2CATR-ND	—	405.00/M	—	P6KE8.2CA
9.5	10.0	10.5	1	8.55	10 µA	P6KE10CACT-ND	1.08	9.72	81.00	P6KE10CATR-ND	—	405.00/M	—	P6KE10CA
11.4	12.0	12.6	1	10.2	5 µA	P6KE12CACT-ND	1.08	9.72	81.00	P6KE12CATR-ND	—	405.00/M	—	P6KE12CA
14.3	15.0	15.8	1	12.8	5 µA	P6KE15CACT-ND	1.08	9.72	81.00	P6KE15CATR-ND	—	405.00/M	—	P6KE15CA
19.0	20.0	21.0	1	17.1	5 µA	P6KE20CACT-ND	1.08	9.72	81.00	P6KE20CATR-ND	—	405.00/M	—	P6KE20CA
22.8	24.0	25.2	1	20.5	5 µA	P6KE24CACT-ND	1.08	9.72	81.00	P6KE24CATR-ND	—	405.00/M	—	P6KE24CA
25.7	27.0	28.4	1	23.1	5 µA	P6KE27CACT-ND	1.08	9.72	81.00	P6KE27CATR-ND	—	405.00/M	—	P6KE27CA
28.5	30.0	31.5	1	25.5	5 µA	P6KE30CACT-ND	1.08	9.72	81.00	P6KE30CATR-ND	—	405.00/M	—	P6KE30CA
31.4	33.0	34.7	1	28.2	5 µA	P6KE33CACT-ND	1.08	9.72	81.00	P6KE33CATR-ND	—	405.00/M	—	P6KE33CA
48.5	51.0	53.6	1	43.6	5 µA	P6KE51CACT-ND	1.08	9.72	81.00	P6KE51CATR-ND	—	405.00/M	—	P6KE51CA
64.6	68.0	71.4	1	58.1	5 µA	P6KE68CACT-ND	1.08	9.72	81.00	P6KE68CATR-ND	—	405.00/M	—	P6KE68CA
95.0	100.0	105.0	1	85.5	5 µA	P6KE100CACT-ND	1.08	9.72	81.00	P6KE100CATR-ND	—	405.00/M	—	P6KE100CA
143.0	150.0	158.0	1	128.0	5 µA	P6KE150CACT-ND	1.08	9.72	81.00	P6KE150CATR-ND	—	405.00/M	—	P6KE150CA
1500 Watts, Unidirectional — D0-201 Pkg.														
6.45	6.8	7.14	10	5.8	1000 µA	1.5KE6.8ACT-ND	1.36	12.24	102.00	1.5KE6.8ATR-ND	510.00	—	—	1.5KE6.8A
7.13	7.5	7.88	10	6.4	500 µA	1.5KE7.5ACT-ND	1.36	12.24	102.00	1.5KE7.5ATR-ND	510.00	—	—	1.5KE7.5A
7.79	8.2	8.61	10	7.02	200 µA	1.5KE8.2ACT-ND	1.36	12.24	102.00	1.5KE8.2ATR-ND	510.00	—	—	1.5KE8.2A
9.5	10.0	10.5	1	8.55	10 µA	1.5KE10ACT-ND	1.36	12.24	102.00	1.5KE10ATR-ND	510.00	—	—	1.5KE10A
11.4	12.0	12.6	1	10.2	5 µA	1.5KE12ACT-ND	1.36	12.24	102.00	1.5KE12ATR-ND	510.00	—	—	1.5KE12A
14.3	15.0	15.8	1	12.8	5 µA	1.5KE15ACT-ND	1.36	12.24	102.00	1.5KE15ATR-ND	510.00	—	—	1.5KE15A
19.0	20.0	21.0	1	17.1	5 µA	1.5KE20ACT-ND	1.36	12.24	102.00	1.5KE20ATR-ND	510.00	—	—	1.5KE20A
22.8	24.0	25.2	1	20.5	5 µA	1.5KE24ACT-ND	1.36	12.24	102.00	1.5KE24ATR-ND	510.00	—	—	1.5KE24A
25.7	27.0	28.4	1	23.1	5 µA	1.5KE27ACT-ND	1.36	12.24	102.00	1.5KE27ATR-ND	510.00	—	—	1.5KE27A
28.5	30.0	31.5	1	25.5	5 µA	1.5KE30ACT-ND	1.36	12.24	102.00	1.5KE30ATR-ND	510.00	—	—	1.5KE30A
31.4	33.0	34.7	1	28.2	5 µA	1.5KE33ACT-ND	1.36	12.24	102.00	1.5KE33ATR-ND	510.00	—	—	1.5KE33A
48.5	51.0	53.6	1	43.6	5 µA	1.5KE51ACT-ND	1.36	12.24	102.00	1.5KE51ATR-ND	510.00	—	—	1.5KE51A
64.6	68.0	71.4	1	58.1	5 µA	1.5KE68ACT-ND	1.36	12.24	102.00	1.5KE68ATR-ND	510.00	—	—	1.5KE68A
1500 Watts, Bidirectional — DO-201 Pkg.														
6.45	6.8	7.14	10	5.8	1000 µA	1.5KE6.8CACT-ND	1.72	15.48	129.00	1.5KE6.8CATR-ND	645.00	—	—	1.5KE6.8CA
7.13	7.5	7.88	10	6.4	500 µA	1.5KE7.5CACT-ND	1.72	15.48	129.00	1.5KE7.5CATR-ND	645.00	—	—	1.5KE7.5CA
7.79	8.2	8.61	10	7.02	200 µA	1.5KE8.2CACT-ND	1.72	15.48	129.00	1.5KE8.2CATR-ND	645.00	—	—	1.5KE8.2CA
9.5	10.0	10.5	1	8.55	10 µA	1.5KE10CACT-ND	1.72	15.48	129.00	1.5KE10CATR-ND	645.00	—	—	1.5KE10CA
11.4	12.0	12.6	1	10.2	5 µA	1.5KE12CACT-ND	1.72	15.48	129.00	1.5KE12CATR-ND	645.00	—	—	1.5KE12CA
14.3	15.0	15.8	1	12.8	5 µA	1.5KE15CACT-ND	1.72	15.48	129.00	1.5KE15CATR-ND	645.00	—	—	1.5KE15CA
19.0	20.0	21.0	1	17.1	5 µA	1.5KE20CACT-ND	1.72	15.48	129.00	1.5KE20CATR-ND	645.00	—	—	1.5KE20CA
22.8	24.0	25.2	1	20.5	5 µA	1.5KE24CACT-ND	1.72	15.48	129.00	1.5KE24CATR-ND	645.00	—	—	1.5KE24CA
25.7	27.0	28.4	1	23.1	5 µA	1.5KE27CACT-ND	1.72	15.48	129.00	1.5KE27CATR-ND	645.00	—	—	1.5KE27CA
28.5	30.0	31.5	1	25.5	5 µA	1.5KE30CACT-ND	1.72	15.48	129.00	1.5KE30CATR-ND	645.00	—	—	1.5KE30CA
31.4	33.0	34.7	1	28.2	5 µA	1.5KE33CACT-ND	1.72	15.48	129.00	1.5KE33CATR-ND	645.00	—	—	1.5KE33CA
48.5	51.0	53.6	1	43.6	5 µA	1.5KE51CACT-ND	1.72	15.48	129.00	1.5KE51CATR-ND	645.00	—	—	1.5KE51CA
64.6	68.0	71.4	1	58.1	5 µA	1.5KE68CACT-ND	1.72	15.48	129.00	1.5KE68CATR-ND	645.00	—	—	1.5KE68CA
95.0	100.0	105.0	1	85.5	5 µA	1.5KE100CACT-ND	1.72	15.48	129.00	1.5KE100CATR-ND	645.00	—	—	1.5KE100CA
143.0	150.0	158.0	1	128.0	5 µA	1.5KE150CACT-ND	1.72	15.48	129.00	1.5KE150CATR-ND	645.00	—	—	1.5KE150CA

GI General Instrument Transient Voltage Suppressors - TVS









General Information: Transient voltage suppressors (TVS) are specialized zener diodes intended to clamp the voltage appearing across a line, thereby preventing transient spikes from damaging sensitive components. They accomplish this conducting when the voltage across the line exceeds the zener-avalanche rating (VBR). **Features:** • Plastic package has Underwriters Laboratory Flammability Classification 94V-O • Excellent clamping capability • Fast response time: typically less than 1.0 ps from 0 volts to VBR for unidirectional and 5.0 nS for bidirectional types • Typical ID less than 1 µA above 10V • High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5 lbs., (2.3 kg) tension

500W Series SAXX

General Specifications: • Glass passivated chip junction • 500W Peak Pulse Power capability on 10/1000 µs waveform • Repetition rate (duty cycle): 0.01% • Low incremental surge resistance

Mechanical Data: • **Case:** JEDEC DO-204AC molded plastic over passivated junction • **Terminals:** Plated Axial leads, solderable per MIL-STD-750, Method 2026 • **Polarity:** Color band denotes positive end (cathode) except Bidirectionals • **Mounting Position:** Any • **Weight:** 0.015 ounce, .4 gram

600W Series P6KE

Features: • Glass passivated junction in DO-15 package • 600W Peak Pulse Power capability on 10/1000 µs waveform • Repetition rate (Duty Cycle): 0.01% • Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, 100.0 Amps

Mechanical Data: • **Case:** DO-15 molded plastic over passivated junction • **Terminals:** Plated Axial leads, solderable per MIL-STD-750, Method 2026 • **Polarity:** Color band denotes positive end (cathode) except Bidirectional

1500W Series 1.5KE

Features: • Glass passivated chip junction in Molded Plastic package • 1500W Peak Pulse Power capability on 10/1000 µs waveform • Repetition rate (duty cycle): 0.05% • Low incremental surge resistance • Peak Forward Surge Current, 8.3 ms Single Half Sine-Wave superimposed on Rated Load: 200 Amps

Mechanical Data: • **Case:** Molded plastic over passivated junction • **Terminals:** Plated Axial leads, solderable per MIL-STD-750, Method 2026 • **Polarity:** Color band denotes positive end (cathode) except bidirectional

Description	Voltage Range (Value) See Chart	Digi-Key Part No.	Pricing 1	10	100	1000	Digi-Key Part No.	Tape & Reel Pricing 1400	4000	5600	8000
500W Unidirectional	5.0V - 75V	SA(Value)AGICT-ND	.76	6.84	57.00	380.00	SA(Value)AGITR-ND	—	285.00/M	—	266.00/M
600W Unidirectional	6.8V - 100V	P6KE(Value)AGICT-ND	.84	7.56	63.00	420.00	P6KE(Value)AGITR-ND	—	315.00/M	—	294.00/M
600W Bidirectional	6.8V - 220V	P6KE(Value)CAGICT-ND	.84	7.56	63.00	420.00	P6KE(Value)CAGITR-ND	—	315.00/M	—	294.00/M
1500W Unidirectional	6.8V - 100V	1.5KE(Value)AGICT-ND	1.28	11.52	96.00	640.00	1.5KE(Value)AGITR-ND	480.00/M	—	448.00/M	—
1500W Bidirectional	6.8V - 220V	1.5KE(Value)CAGICT-ND	1.28	11.52	96.00	640.00	1.5KE(Value)CAGITR-ND	480.00/M	—	448.00/M	—

500 W Series SAXXA Unidirectional TVS

(Value) Reverse Stand Off Voltage Vwm (Volts)	Breakdown Voltage (VBR) Minimum	Maximum	Maximum Reverse Leakage at Vwm ID(µA)
5.0	6.40	7.00	600
6.0	6.67	7.37	600
6.5	7.22	7.98	400
10	11.1	12.3	1.0
11	12.2	13.5	1.0
15	16.7	18.5	1.0
20	22.2	24.5	1.0
24	26.7	29.5	1.0
28	31.1	34.4	1.0
30	33.3	36.8	1.0
33	36.7	40.6	1.0
36	40.0	44.2	1.0
75	83.3	92.1	1.0

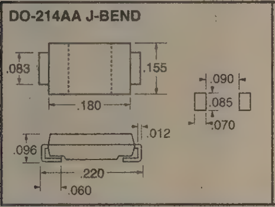
600 W Series P6.8KE and 1500W Series 1.5KE TVS (Unidirectional and Bidirectional)

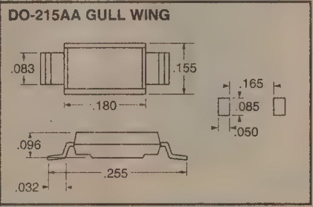
(Value) Nominal Breakdown Voltage	Breakdown Voltage (VBR) Min.	Max.	Reverse Stand-off Voltage Vwm Volts	Maximum Reverse Leakage at Vwm ID(µA)
6.8	6.45	7.14	5.8	1000
7.5	7.13	7.88	6.40	500
8.2	7.79	8.61	7.02	200
9.1	8.65	9.55	7.78	50
10	9.50	10.5	8.55	10
12	11.4	12.6	10.2	5.0
13	12.4	13.7	11.1	5.0
15	14.3	15.8	12.8	5.0
18	17.1	18.9	15.3	5.0
20	19.0	21.0	17.1	5.0
24	22.8	25.2	20.5	5.0
27	25.7	28.4	23.1	5.0
30	28.5	31.5	25.6	5.0
33	31.4	34.7	28.2	5.0
36	34.2	37.8	30.8	5.0
39	37.1	41.0	33.3	5.0
51	48.5	53.6	43.6	5.0
68	64.6	71.4	58.1	5.0
100	95.0	105	85.5	5.0
150	143	158	128	5.0
200	190	210	171	5.0
220	209	231	185	5.0

SMBG (Gullwing) & SMBJ (J-Bend) Surface Mount TVS

Features: • For surface mounted applications in order to optimize board space • Low profile package • Built-in strain relief • Glass passivated junction • Low inductance • Excellent clamping capability • Repetition Rate (duty cycle): 0.01% • Fast response time: typically less than 5.0ns from 0 volts to BV for bidirectional types • Typical ID less than 1µA above 10V • High temperature soldering: 250°C/10 seconds at terminals • Plastic package has Underwriters Laboratory Flammability Classification 94V-O

Mechanical Data: • **Case:** JEDEC DO214/DO215 molded plastic over passivated junction • **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026 • **Standard Packaging:** 12mm tape (EIA STD RS-481)





SMBJXXCA (J-Bend) Series 600W Bidirectional Surface Mount TVS

(Value) Reverse Stand Off Voltage Vwm (Volts)	Breakdown Voltage (VBR) Minimum	Maximum	Maximum Reverse Leakage at Vwm ID(µA)
5.0	6.40	7.25	1600
6.5	7.22	9.14	1000
7.5	8.33	9.58	200
8.5	9.44	10.8	41.7
10	11.1	12.8	5.0
12	13.3	15.3	5.0
13	14.4	16.5	5.0
15	16.7	19.2	5.0
17	18.9	21.7	5.0
20	22.2	25.5	5.0
24	26.7	30.7	5.0
33	36.7	42.2	5.0

SMBGXXA (Gullwing)/SMBJXXA (J-Bend) Series 600W Unidirectional Surface Mount TVS

(Value) Reverse Stand Off Voltage Vwm (Volts)	Breakdown Voltage (VBR) Minimum	Maximum	Maximum Reverse Leakage at Vwm ID(µA)
5.0	6.40	7.25	800
6.5	7.22	9.14	500
7.5	8.33	9.58	100
8.5	9.44	10.8	20
10	11.1	12.8	5.0
12	13.3	15.3	5.0
13	14.4	16.5	5.0
15	16.7	19.2	5.0
17	18.9	21.7	5.0
20	22.2	25.5	5.0
24	26.7	30.7	5.0
33	36.7	42.2	5.0

Description	Voltage Range (Value) See Chart	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 1000	5000	10000
600 Watt Gullwing Unidirectional	5.0 - 33	SMBG(Value)AGICT-ND	1.32	11.88	99.00	SMBG(Value)AGITR-ND	495.00	462.00/M	412.50/M
600 Watt J-Bend Unidirectional	5.0 - 33	SMBJ(Value)AGICT-ND	1.32	11.88	99.00	SMBJ(Value)AGITR-ND	495.00	462.00/M	412.50/M
600 Watt J-Bend Bidirectional	5.0 - 33	SMBJ(Value)CAGICT-ND	1.44	12.96	108.00	SMBJ(Value)CAGITR-ND	540.00	504.00/M	450.00/M

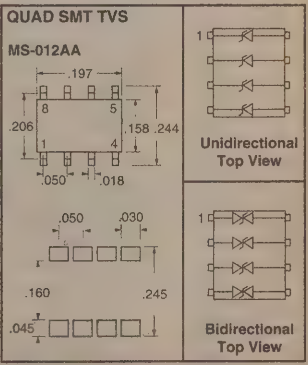
Quad Surface Mount Diode TVS Array - 300 Watt Peak Pulse Power

Features:

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction in a surface mount array package • Repetition Rate (duty cycle): .01% • 300W Peak Pulse Power surge capability on 8.0/20µs waveform • Excellent clamping capability • Low incremental surge resistance
- Ideal for Data and Bus Line Applications • Fast response time: typically less than 1.0ps from 0 volts to BV for unidirectional and 5.0ns for bidirectional • High temperature soldering guaranteed: 265°C for 5 seconds

Mechanical Data:

- **Case:** JEDEC MS-012AA molded plastic surface mount • **Terminals:** Solderable per MIL-STD-750, Method 2026 • **Polarity:** Beveled side denotes cathode side for unidirectional only, Pin number 1 marked with a colored dot on top case



Type	Device Marking Code	Working Peak Reverse Stand-Off Voltage	Minimum Breakdown Voltage @ IT = 1mA* (VBR)	Maximum Reverse Leakage Current @ VWM	Digi-Key Part No.	Pricing 1	10	100	500	1000
Unidirectional	SDC	12.0	13.3	1.0µA	SMDA12GI-ND	9.00	86.06	675.00	2812.50	4500.00
	SDG	24.0	26.7	1.0µA	SMDA24GI-ND	9.00	86.06	675.00	2812.50	4500.00
Bidirectional	SDB	5.0	6.0	100µA	SMDA05CGI-ND	9.60	91.80	720.00	3000.00	4800.00
	SDD	12.0	13.3	1.0µA	SMDA12CGI-ND	9.60	91.80	720.00	3000.00	4800.00
	SDF	15.0	16.7	1.0µA	SMDA15CGI-ND	9.60	91.80	720.00	3000.00	4800.00
	SDH	24.0	26.7	1.0µA	SMDA24CGI-ND	9.60	91.80	720.00	3000.00	4800.00

* VBR measured at pulse width of 300µs. sq. wave or equivalent.

TECCOR
ELECTRONICS, INC

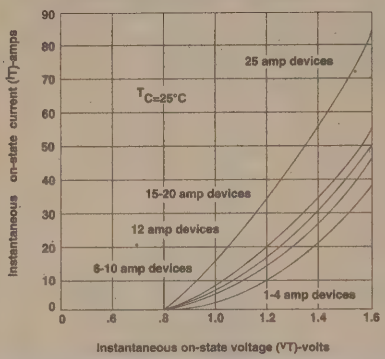
SCR's —

Sensitive Gate (0.8-10 Amps)
Non-Sensitive Gate (1-70 Amps)

Sensitive Gate Type

General Description: The Digi-Key line of sensitive SCR semiconductors are half-wave unidirectional gate-controlled rectifiers (SCR-thyristor) which complement Digi-Key's line of power SCRs. This group of packages offers current ratings from 0.8-10 Amps and Voltage ratings from 30-600 Volts.

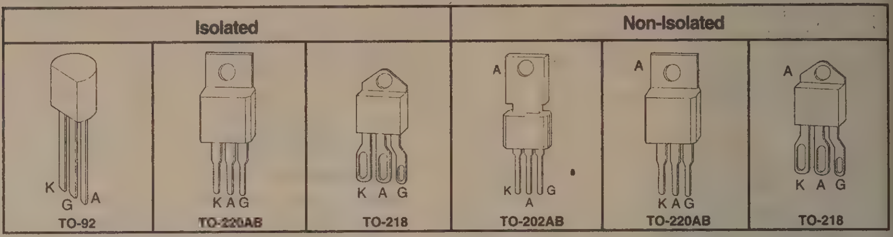
Instantaneous on-state current vs. on-state voltage



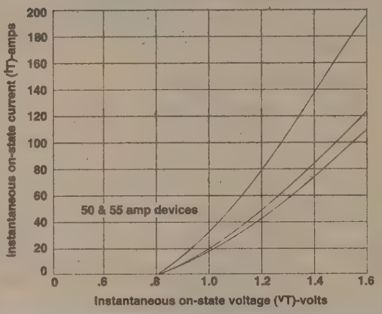
Non-Sensitive Gate Type

General Information: The Teccor Electronics line of thyristor SCR semiconductors are half-wave unidirectional gate-controlled rectifiers which complement Digi-Key's line of sensitive gate SCR's. Digi-Key offers devices with current ratings from 1-70 Amps and Voltage ratings from 100-600 Volts with gate sensitivities from 10-50 milliamps.

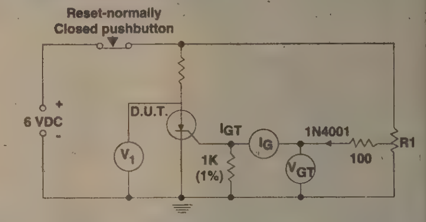
Electrically Isolated Packages: This group of Teccor sensitive SCRs is available in a choice of 3 different product packages. The TO-220AB and TO-92 are electrically isolated where the case or tab is internally isolated to allow the use of low cost assembly and convenient packaging techniques. **Glass Passivation:** Teccor's line of SCRs features glass passivated junctions to insure long term device reliability and parameter stability. Teccor's glass offers a rugged, reliable barrier against junction contamination. **Features:** • Electrically Isolated Packages; • High Voltage Capability up to 600 Volts; • High Surge Capability up to 100 Amps; • Glass Chip Passivation



Instantaneous on-state current vs. on-state voltage



Simple Test Circuit For Gate Trigger Voltage and Current Measurement



9097B-ND Teccor Data Book $3.00

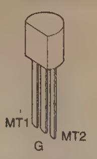
$I_{T\,RMS}$ (A)	V_{DRM} & V_{RRM} (V)	Package	I_{GT} (mA) Min.	Max.	I_{DRM} & I_{RRM} @25°C (mA)	V_{TM} @25°C (V)	V_{GT} @25°C (V)	$P_{G(AV)}$ (W)	t_{gt} (µsec.)	Digi-Key Part No.	Pricing 1	10	100	500	1,000
SCRs— Sensitive Gate (0.8-10.0 Amp)															
.8	200	TO-92 (Isolated)	—	.200	.001	1.7	0.8	0.1	2.2	EC103B-ND	.54	4.80	43.20	180.00	312.00
	400	TO-92 (Isolated)	—	.200	.001	1.7	0.8	0.1	2.2	EC103D-ND	.61	5.40	48.60	202.50	351.00
	600	TO-92 (Isolated)	—	.200	.002	1.7	0.8	0.1	2.2	EC103M-ND	.70	6.20	55.80	232.50	403.00
	30	TO-92 (Isolated)	—	.200	.001	1.7	0.8	0.1	2.2	2N5060-ND	.59	5.20	46.80	195.00	338.00
	200	TO-92 (Isolated)	—	.200	.001	1.7	0.8	0.1	2.2	2N5064-ND	.65	5.80	52.20	217.50	377.00
1.5	50	TO-92 (Isolated)	—	.200	.001	1.5	0.8	0.1	2.2	TCR22-2-ND	.61	5.40	48.60	202.50	351.00
	100	TO-92 (Isolated)	—	.200	.001	1.5	0.8	0.1	2.2	TCR22-3-ND	.61	5.40	48.60	202.50	351.00
	200	TO-92 (Isolated)	—	.200	.001	1.5	0.8	0.1	2.2	TCR22-4-ND	.65	5.80	52.20	217.50	377.00
	400	TO-92 (Isolated)	—	.200	.001	1.5	0.8	0.1	2.2	TCR22-6-ND	.74	6.60	59.40	247.50	429.00
	600	TO-92 (Isolated)	—	.200	.002	1.5	0.8	0.1	2.2	TCR22-8-ND	.83	7.40	66.60	277.50	481.00
3.0	400	TO-220AB (Isolated)	—	.200	.002	1.6	0.8	0.1	2.2	S4003LS2-ND	1.33	11.80	106.20	442.50	767.00
4.0	100	TO-202AB (Non-Isolated)	—	.200	.002	2.2	0.8	0.1	2.2	T106A1-ND	.77	6.80	61.20	255.00	442.00
	200	TO-202AB (Non-Isolated)	—	.200	.002	2.2	0.8	0.1	2.2	T106B1-ND	.81	7.20	64.80	270.00	468.00
	400	TO-202AB (Non-Isolated)	—	.200	.002	2.2	0.8	0.1	2.2	T106D1-ND	.90	8.00	72.00	300.00	520.00
	600	TO-202AB (Non-Isolated)	—	.200	.002	2.2	0.8	0.1	2.2	T106M1-ND	1.13	10.00	90.00	375.00	650.00
8.0	400	TO-220AB (Isolated)	—	.200	.005	1.6	0.8	0.1	2.2	S4008LS2-ND	1.67	14.80	133.20	555.00	962.00
	400	TO-202AB (Non-Isolated)	—	.200	.005	1.6	0.8	0.1	2.2	S4008FS21-ND	1.28	11.40	102.60	427.50	741.00
10.0	400	TO-220AB (Isolated)	—	.200	.005	1.6	0.8	0.1	2.2	S4010LS2-ND	1.76	15.60	140.40	585.00	1014.00
	400	TO-202AB (Non-Isolated)	—	.200	.005	1.6	0.8	0.1	2.2	S4010FS21-ND	1.46	13.00	117.00	487.50	845.00
SCRs — Non-Sensitive Gate (1.0-70 Amp)															
1.0	100	TO-92 (Isolated)	1	10	.01	1.6	1.5	0.3	2.0	S101E-ND	.68	6.00	54.00	225.00	390.00
	200	TO-92 (Isolated)	1	10	.01	1.6	1.5	0.3	2.0	S201E-ND	.72	6.40	57.60	240.00	416.00
	400	TO-92 (Isolated)	1	10	.01	1.6	1.5	0.3	2.0	S401E-ND	.79	7.00	63.00	262.50	455.00
	600	TO-92 (Isolated)	1	10	.01	1.6	1.5	0.3	2.0	S601E-ND	.88	7.80	70.20	292.50	507.00
6.0	200	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S2006L-ND	1.33	11.80	106.20	442.50	767.00
	400	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S4006L-ND	1.60	12.80	115.20	480.00	832.00
	600	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S6006L-ND	1.69	15.00	135.00	562.50	975.00
8.0	200	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S2008L-ND	1.44	12.80	115.20	480.00	832.00
	400	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S4008L-ND	1.55	13.80	124.20	517.50	897.00
	600	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S6008L-ND	1.82	16.20	145.80	607.50	1053.00
	200	TO-220AB (Non-Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S2008R-ND	1.28	11.40	102.60	427.50	741.00
	400	TO-220AB (Non-Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S4008R-ND	1.40	12.40	111.60	465.00	806.00
	600	TO-220AB (Non-Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S6008R-ND	1.62	14.40	129.60	540.00	936.00
10.0	400	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S4010L-ND	1.64	14.60	131.40	547.50	949.00
	600	TO-220AB (Isolated)	1	15	.01	1.6	1.5	0.5	2.0	S6010L-ND	1.91	17.00	153.00	637.50	1105.00
12.0	400	TO-220AB (Non-Isolated)	1	20	.01	1.6	1.5	0.5	2.0	S4012R-ND	1.58	14.00	126.00	525.00	910.00
	600	TO-220AB (Non-Isolated)	1	20	.01	1.6	1.5	0.5	2.0	S6012R-ND	1.85	16.40	147.60	615.00	1066.00
15.0	400	TO-220AB (Isolated)	1	30	.01	1.6	1.5	0.6	2.0	S4015L-ND	1.96	17.40	156.60	652.50	1131.00
	600	TO-220AB (Isolated)	1	30	.01	1.6	1.5	0.6	2.0	S6015L-ND	2.27	20.20	181.80	757.50	1313.00
20.0	400	TO-220AB (Isolated)	1	30	.01	1.6	1.5	0.5	2.0	S4020L-ND	2.34	20.80	187.20	780.00	1352.00
	600	TO-220AB (Isolated)	1	30	.01	1.6	1.5	0.5	2.0	S6020L-ND	2.54	22.60	203.40	847.50	1469.00
25.0	400	TO-220AB (Isolated)	1	30	.01	1.6	1.5	0.5	2.0	S4025L-ND	3.04	27.00	243.00	1012.50	1755.00
	600	TO-220AB (Isolated)	1	30	.01	1.6	1.5	0.5	2.0	S6025L-ND	3.26	29.00	261.00	1087.50	1885.00
55.0	400	TO-218 (Non-Isolated)	5	40	.01	1.8	1.5	0.8	2.5	S4055W-ND	5.99	53.20	478.80	1995.00	3458.00
	600	TO-218 (Non-Isolated)	5	40	.01	1.8	1.5	0.8	2.5	S6055W-ND	6.95	61.80	556.20	2317.50	4017.00
65.0	400	TO-218 (Isolated)	5	50	.02	1.8	2.0	1.0	2.5	S4065J-ND	8.48	75.40	678.60	2827.50	4901.00
	600	TO-218 (Isolated)	5	50	.02	1.8	2.0	1.0	2.5	S6065J-ND	9.63	85.60	770.40	3210.00	5564.00
70.0	400	TO-218 (Non-Isolated)	5	50	.02	1.8	2.0	1.0	2.5	S4070W-ND	6.98	62.00	558.00	2325.00	4030.00
	600	TO-218 (Non-Isolated)	5	50	.02	1.8	2.0	1.0	2.5	S6070W-ND	8.10	72.00	648.00	2700.00	4680.00

TECCOR
ELECTRONICS INC

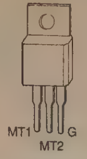
Logic Triacs (1.0-8.0 Amps) & Gated Triacs (1-40 Amps)

9097B-ND Teccor Databook $3.00

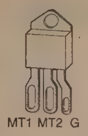
Isolated



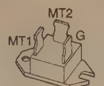
Plastic
TO-92



Thermotab
TO-220AB

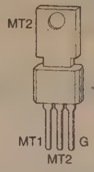


Isolated
TO-218X

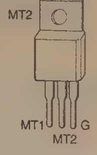


Fastpak
TO-3 Base

Non-Isolated



TO-202AB



Non-Isolated
TO-220AB

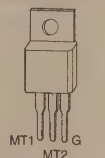
I_{T} RMS (A)	V_{DRM} (V)	Package	I_{GT} (mA)	I_{DRM} @25°C (mA)	V_{TM} @25°C (V)	V_{GT} @25°C (V)	PG (AV) (W)	t_{gt} (μsec.)	Digi-Key Part No.	Pricing 1	10	100	500	1000
Logic Triacs (1.0-8.0 Amps)														
1.0	200	TO-92 (Isolated)	3	.01	1.6	2.0	0.2	2.5	L201E3-ND	1.08	9.60	86.40	360.00	624.00
	400	TO-92 (Isolated)	3	.01	1.6	2.0	0.2	2.5	L401E3-ND	1.24	11.00	99.00	412.50	715.00
	600	TO-92 (Isolated)	3	.01	1.6	2.0	0.2	2.5	L601E3-ND	1.44	12.80	115.20	480.00	832.00
	200	TO-92 (Isolated)	5	.01	1.6	2.0	0.2	2.5	L201E5-ND	.97	8.60	77.40	322.50	559.00
	400	TO-92 (Isolated)	5	.01	1.6	2.0	0.2	2.5	L401E5-ND	1.08	9.60	86.40	360.00	624.00
	600	TO-92 (Isolated)	5	.01	1.6	2.0	0.2	2.5	L601E5-ND	1.26	11.20	100.80	420.00	728.00
4.0	200	TO-202AB (Non-Isolated)	3	.02	1.6	2.0	0.3	2.5	L2004F31-ND	1.35	12.00	108.00	450.00	780.00
	400	TO-202AB (Non-Isolated)	3	.02	1.6	2.0	0.3	2.5	L4004F31-ND	1.46	13.00	117.00	487.50	845.00
	600	TO-202AB (Non-Isolated)	3	.01	1.6	2.0	0.3	2.5	L6004F31-ND	1.69	15.00	135.00	562.50	975.00
	200	TO-202AB (Non-Isolated)	5	.02	1.6	2.0	0.3	2.5	L2004F51-ND	1.24	11.00	99.00	412.50	715.00
	400	TO-202AB (Non-Isolated)	5	.02	1.6	2.0	0.3	2.5	L4004F51-ND	1.33	11.80	106.20	442.50	767.00
	600	TO-202AB (Non-Isolated)	5	.01	1.6	2.0	0.3	2.5	L6004F51-ND	1.53	13.60	122.40	510.00	884.00
	200	TO-220AB (Isolated)	3	.01	1.6	2.0	0.3	2.5	L2004L3-ND	2.18	19.40	174.60	727.50	1261.00
	400	TO-220AB (Isolated)	3	.01	1.6	2.0	0.3	2.5	L4004L3-ND	2.32	20.60	185.40	772.50	1339.00
	600	TO-220AB (Isolated)	3	.01	1.6	2.0	0.3	2.5	L6004L3-ND	2.68	23.80	214.20	892.50	1547.00
8.0	200	TO-220AB (Isolated)	5	.02	1.6	2.0	0.4	2.5	L2008L6-ND	2.05	18.20	163.80	682.50	1183.00
	400	TO-220AB (Isolated)	5	.05	1.6	2.0	0.4	2.5	L4008L6-ND	2.21	19.60	176.40	735.00	1274.00
	600	TO-220AB (Isolated)	5	.02	1.6	2.0	0.4	2.5	L6008L6-ND	2.57	22.80	205.20	855.00	1482.00
Gated Triacs (1.0-40 Amps)														
1.0	200	TO-92 (Isolated)	10	.02	1.6	2.0	0.2	2.5	Q201E3-ND	.81	7.20	64.80	270.00	468.00
	400	TO-92 (Isolated)	10	.02	1.6	2.0	0.2	2.5	Q401E3-ND	.99	8.80	79.20	330.00	572.00
	600	TO-92 (Isolated)	10	.02	1.6	2.0	0.2	2.5	Q601E3-ND	1.13	10.00	90.00	375.00	650.00
4.0	200	TO-220AB (Isolated)	10	.05	1.6	2.0	0.3	2.5	Q2004L3-ND	1.78	15.80	142.20	592.50	1027.00
	400	TO-220AB (Isolated)	10	.05	1.6	2.0	0.3	2.5	Q4004L3-ND	1.94	17.20	154.80	645.00	1118.00
	600	TO-220AB (Isolated)	10	.05	1.6	2.0	0.3	2.5	Q6004L3-ND	2.23	19.80	178.20	742.50	1287.00
	200	TO-202AB (Non-Isolated)	10	.05	1.6	2.0	0.3	2.5	Q2004F31-ND	1.13	10.00	90.00	375.00	650.00
	400	TO-202AB (Non-Isolated)	10	.05	1.6	2.0	0.3	2.5	Q4004F31-ND	1.22	10.80	97.20	405.00	702.00
	600	TO-202AB (Non-Isolated)	10	.05	1.6	2.0	0.3	2.5	Q6004F31-ND	1.40	12.40	111.60	465.00	806.00
8.0	200	TO-220AB (Isolated)	25	.05	1.6	2.5	0.5	3.0	Q2008L4-ND	1.82	16.20	145.80	607.50	1053.00
	400	TO-220AB (Isolated)	25	.05	1.6	2.5	0.5	3.0	Q4008L4-ND	2.00	17.80	160.20	667.50	1157.00
	600	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	3.0	Q6008L5-ND	2.21	19.60	176.40	735.00	1274.00
	200	TO-202AB (Non-Isolated)	25	.05	1.6	2.5	0.5	3.0	Q2008F41-ND	1.40	12.40	111.60	465.00	806.00
	400	TO-220AB (Non-Isolated)	25	.05	1.6	2.5	0.5	3.0	Q4008R4-ND	1.62	14.40	129.60	540.00	936.00
	600	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	3.0	Q6008R5-ND	1.80	16.00	144.00	600.00	1040.00
10.0	200	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	3.0	Q2010L5-ND	1.91	17.00	153.00	637.50	1105.00
	400	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	3.0	Q4010L5-ND	2.18	19.40	174.60	727.50	1261.00
	600	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	3.0	Q6010L5-ND	2.52	22.40	201.60	840.00	1456.00
	200	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	3.0	Q2010R5-ND	1.82	16.20	145.80	607.50	1053.00
	400	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	3.0	Q4010R5-ND	2.03	18.00	162.00	675.00	1170.00
	600	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	3.0	Q6010R5-ND	2.36	21.00	189.00	787.50	1365.00
15.0	200	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	4.0	Q2015L5-ND	2.39	21.20	190.80	795.00	1378.00
	400	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	4.0	Q4015L5-ND	2.61	23.20	208.80	870.00	1508.00
	600	TO-220AB (Isolated)	50	.05	1.6	2.5	0.5	4.0	Q6015L5-ND	3.04	27.00	243.00	1012.50	1755.00
	200	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	4.0	Q2015R5-ND	2.21	19.60	176.40	735.00	1274.00
	400	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	4.0	Q4015R5-ND	2.45	21.80	196.20	817.50	1417.00
	600	TO-220AB (Non-Isolated)	50	.05	1.6	2.5	0.5	4.0	Q6015R5-ND	2.84	25.20	226.80	945.00	1638.00

Quadrac's® Internally Triggered Triacs (4.0-15 Amps)

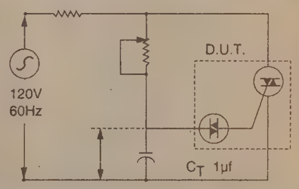
General Description: Teccor's QUADRAC® is a triac that includes a diac trigger mounted inside the same package. This device developed by Teccor, saves the user the expense and assembly time of buying a discrete diac and assembling in conjunction with a gated triac. The QUADRAC® is a bidirectional AC switch and is gate controlled for either polarity of main terminal voltage. Its primary purpose is for AC switching and phase control applications such as speed controls, temperature modulation controls, and lighting controls.

Features: • Glass passivated junctions; • Electrically isolated package • Internal trigger diac; • High surge capability - up to 150 Amps • High voltage capability - 200 up to 600 Volts. **Electrical Isolation:** Teccor's isolated TO-220 Quadrac package will withstand a minimum high potential test of 2500VAC (RMS) from leads to case over the operating temperature range of the device. **Electrical Isolation From Leads to Case:** U.L. Recognized File No. 71639

9097B-ND Teccor Data Book **$3.00**



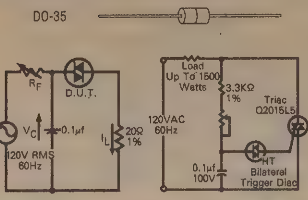
Thermotab TO-220AB



IT RMS (A)	V_{DRM} (V)	Package	I_{GTM} (A)	I_{DRM} @25°C (mA)	V_{TM} @25°C (V)	VBO (V) Min.	Max.	I_{BO} (μA)	C (μF)	I_H (mA)	t_{gt} (μsec.)	Digi-Key Part No.	Pricing 1	10	100	500	1000
4.0	200	TO-220AB (Isolated)	1.2	.05	1.6	30	45	200	0.1	40	3	Q2004LT-ND	1.87	16.60	149.40	622.50	1079.00
	400	TO-220AB (Isolated)	1.2	.05	1.6	30	45	200	0.1	40	3	Q4004LT-ND	2.03	18.00	162.00	675.00	1170.00
	600	TO-220AB (Isolated)	1.2	.05	1.6	30	45	200	0.1	40	3	Q6004LT-ND	2.32	20.60	185.40	772.50	1339.00
8.0	400	TO-220AB (Isolated)	1.5	.05	1.6	30	45	200	0.1	60	3	Q4008LT-ND	2.25	20.00	180.00	750.00	1300.00
	600	TO-220AB (Isolated)	1.5	.05	1.6	30	45	200	0.1	60	3	Q6008LT-ND	2.61	23.20	208.80	870.00	1508.00
15.0	400	TO-220AB (Isolated)	1.5	.05	1.6	30	45	200	0.1	70	3	Q4015LT-ND	2.99	26.60	239.40	997.50	1729.00
	600	TO-220AB (Isolated)	1.5	.05	1.6	30	45	200	0.1	70	3	Q6015LT-ND	3.42	30.40	273.60	1140.00	1976.00

TECCOR ELECTRONICS, INC.

Bilateral Trigger Diacs HT-Series



General Description:

The diac semiconductor is a full-wave or bidirectional thyristor. It is triggered from a blocking-to-conduction state for either polarity of applied voltage whenever the amplitude of applied voltage exceeds the breakover voltage rating of the diac.

The Teccor line of diacs features glass passivated junctions to insure long term device reliability and parameter stability. Teccor's glass offers a rugged, reliable barrier against junction contamination.

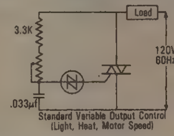
Specifications:

- Maximum Ratings, Absolute-Maximum Values. Maximum Trigger Firing Capacitance - 0.1μF; Device dissipation (at TA = -40° to +40°C) - 250mW; Derate Above +40°C -3.6mW/°C
- Temperature Ranges: Storage -40° to +125°C; Operating (Junction) -40° to +125°C * Thermal Resistance: Junction to Ambient (R()JA) = 278°C/W; Junction to Lead (R()JL) = 100°C/W. Based on Maximum lead temperature of 85°C @ = 250mW.

Teccor Data Book 9097B-ND $3.00

	$V_{(BO)}$ (V)		$V_{(BO)}$ Symmetry	Dynamic Breakback Voltage	$I_{(BO)}$	I_{TRM}		Pricing				
Pkg.	Min.	Max.	(V)	(V)	(μA)	(A)	Digi-Key Part No.	1	10	100	500	1,000
D0-35	27	37	3	5	50	2.0	HT-32-ND	.36	3.20	28.80	120.00	208.00
D0-35	35	45	3	5	50	2.0	HT-40-ND	.36	3.20	28.80	120.00	208.00
D0-35	30	40	3	10	50	2.0	HT-35-ND	.36	3.20	28.80	120.00	208.00
D0-35	56	70	4	20	50	1.5	HT-60-ND	.38	3.40	30.60	127.50	221.00
D0-35	28	36	4	7	50	2.0	HT-5761-ND	.38	3.40	30.60	127.50	221.00
D0-35	30	34	2	7	25	2.0	HT-5761A-ND	.38	3.40	30.60	127.50	221.00
D0-35	32	40	4	7	50	2.0	HT-5762-ND	.36	3.20	28.80	120.00	208.00

Bilateral Silicon Trigger Switch HS-Series



Standard Variable Output Control (Light, Heat, Motor Speed)

General Description:

The new "HS" series of bilateral Silicon Trigger Switch (STS) offers low breakover voltages, the economical DO-35 package, and glass-passivated junctions for reliability.

The "HS" devices switch from the blocking mode to full conduction when the applied voltage, of either polarity, exceeds the Breakover Voltage (VBO). Combined with a small capacitor, the STS will provide the necessary firing current for SCR or triac devices with its Full Breakback characteristic.

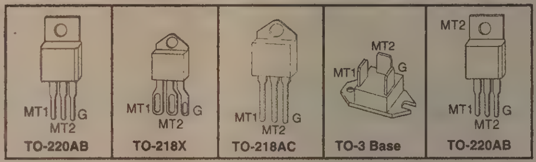
The Teccor "HS" triggers are not only bilateral but are also very symmetrical and are ideal for either full-wave or bidirectional Thyristor controls.

9097B-ND Teccor Data Book $3.00

		I_{FM}	$V_{S(DC)}$	$I_{H(mA)}$	V_F		Pricing				
Package	I_F	(A)	Switching Voltage	Holding Current	(VDC)	Digi-Key Part No.	1	10	100	500	1,000
D0-35	0.15	3	10	0.5	1.8	HS-10-ND	.70	6.20	55.80	232.50	403.00
D0-35	0.15	3	21	0.5	1.8	HS-20-ND	.77	6.80	61.20	255.00	442.00

Alternistors 15 to 40 Amps

TECCOR DATA BOOK
9097B-ND.........$3.00



General Description:

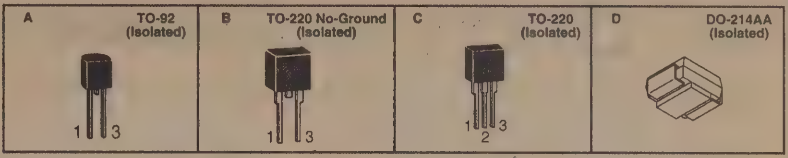
Teccor's Alternistor has been specifically designed for applications which are required to switch highly inductive loads. To accomplish this, a special chip has been designed which effectively offers the same performance as two thyristors (SCR's) wired inverse parallel (back-to-back), hence, the alternistor has better turn-off behavior than a standard triac.

All Alternistors have glass passivated junctions to insure long term reliability and parameter stability.

$I_{T\,RMS}$ (A)	Package	V_{DRM} (V)	I_{GT} (mA)	I_{DRM} @25°C (mA)	V_{TM} @25°C (V)	V_{GT} @25°C (V)	$P_{G\,(AV)}$ (W)	t_{gt} (μsec.)	Digi-Key Part No.	Pricing 1	10	100	500	1,000
15.0	TO-220AB (Isolated)	200	80	.05	1.6	2.5	0.5	5.0	Q2015L6-ND	2.50	22.20	199.80	832.50	1443.00
	TO-220AB (Isolated)	400	80	.05	1.6	2.5	0.5	5.0	Q4015L6-ND	2.72	24.20	217.80	907.50	1573.00
	TO-220AB (Isolated)	600	80	.05	1.6	2.5	0.5	5.0	Q6015L6-ND	3.17	28.20	253.80	1057.50	1833.00
	TO-220AB (Isolated)	800	80	.1	1.6	2.5	0.5	5.0	Q8015L6-ND	3.92	34.80	313.20	1305.00	2262.00
	TO-220AB (Isolated)	600	125	.05	1.6	2.5	0.5	5.0	Q6015L9-ND	2.99	26.60	239.40	997.50	1729.00
	TO-220AB (Non-Isolated)	200	80	.05	1.6	2.5	0.5	5.0	Q2015R6-ND	2.32	20.60	185.40	772.50	1339.00
	TO-220AB (Non-Isolated)	400	80	.05	1.6	2.5	0.5	5.0	Q4015R6-ND	2.57	22.80	205.20	855.00	1482.00
	TO-220AB (Non-Isolated)	600	80	.05	1.6	2.5	0.5	5.0	Q6015R6-ND	2.97	26.40	237.60	990.00	1716.00
	TO-220AB (Non-Isolated)	800	80	.1	1.6	2.5	0.5	5.0	Q8015R6-ND	3.67	32.60	293.40	1222.50	2119.00
	TO-220AB (Non-Isolated)	200	125	.05	1.6	2.5	0.5	5.0	Q2015R9-ND	2.18	19.40	174.60	727.50	1261.00
	TO-220AB (Non-Isolated)	400	125	.05	1.6	2.5	0.5	5.0	Q4015R9-ND	2.43	21.60	194.40	810.00	1404.00
	TO-220AB (Non-Isolated)	600	125	.05	1.6	2.5	0.5	5.0	Q6015R9-ND	2.81	25.00	225.00	937.50	1625.00
25.0	TO-220AB (Isolated)	200	80	.05	1.7	2.5	0.5	3.0	Q2025L6-ND	4.97	44.20	397.80	1657.50	2873.00
	TO-220AB (Isolated)	400	80	.05	1.7	2.5	0.5	3.0	Q4025L6-ND	5.47	48.60	437.40	1822.50	3159.00
	TO-220AB (Isolated)	600	80	.05	1.7	2.5	0.5	3.0	Q6025L6-ND	6.30	56.00	504.00	2100.00	3640.00
	TO-220AB (Isolated)	800	80	.1	1.8	2.5	0.5	5.0	Q8025L6-ND	7.76	69.00	621.00	2587.50	4485.00
	TO-220AB (Non-Isolated)	400	125	.05	1.8	2.5	0.5	5.0	Q4025R9-ND	4.57	40.60	365.40	1522.50	2639.00
	TO-220AB (Non-Isolated)	600	125	.05	1.8	2.5	0.5	5.0	Q6025R9-ND	5.31	47.20	424.80	1770.00	3068.00
	TO-220AB (Non-Isolated)	200	80	.01	1.8	2.5	0.5	4.0	Q2025R6-ND	4.86	43.20	388.80	1620.00	2808.00
	TO-220AB (Non-Isolated)	400	80	.01	1.8	2.5	0.5	4.0	Q4025R6-ND	5.29	47.00	423.00	1762.50	3055.00
	TO-220AB (Non-Isolated)	600	80	.01	1.8	2.5	0.5	4.0	Q6025R6-ND	6.17	54.80	493.20	2055.00	3562.00
	TO-220AB (Non-Isolated)	800	80	.1	1.8	2.5	0.5	5.0	Q8025R6-ND	7.52	66.80	601.20	2505.00	4342.00
	TO-218AC (Isolated)	200	80	.05	1.8	2.5	0.5	5.0	Q2025K6-ND	7.27	64.60	581.40	2422.50	4199.00
	TO-218AC (Isolated)	400	80	.05	1.8	2.5	0.5	5.0	Q4025K6-ND	8.08	71.80	646.20	2692.50	4667.00
	TO-218AC (Isolated)	600	80	.05	1.8	2.5	0.5	5.0	Q6025K6-ND	9.36	83.20	748.80	3120.00	5408.00
	TO-218AC (Isolated)	800	80	.1	1.8	2.5	0.5	5.0	Q8025K6-ND	11.41	101.40	912.60	3802.50	6591.00
	TO-218X (Isolated)	200	80	.05	1.8	2.5	0.5	5.0	Q2025J6-ND	7.43	66.00	594.00	2475.00	4290.00
	TO-218X (Isolated)	400	80	.05	1.8	2.5	0.5	5.0	Q4025J6-ND	8.24	73.20	658.80	2745.00	4758.00
	TO-218X (Isolated)	600	80	.05	1.8	2.5	0.5	5.0	Q6025J6-ND	9.54	84.80	763.20	3180.00	5512.00
	TO-218X (Isolated)	800	80	.1	1.8	2.5	0.5	5.0	Q8025J6-ND	11.66	103.60	932.40	3885.00	6734.00
	TO-3-BASE (Isolated)	200	80	.01	1.8	2.5	0.5	4.0	Q2025P-ND	9.47	84.20	757.80	3157.50	5473.00
	TO-3-BASE (Isolated)	400	80	.01	1.8	2.5	0.5	4.0	Q4025P-ND	10.49	93.20	838.80	3495.00	6058.00
	TO-3-BASE (Isolated)	600	80	.01	1.8	2.5	0.5	3.0	Q6025P-ND	12.17	108.20	973.80	4057.50	7033.00
	FASTPAK (Isolated)	800	80	.1	1.8	2.5	0.5	5.0	Q8025P-ND	14.78	131.40	1182.60	4927.50	8541.00
40.0	TO-218X (Isolated)	400	125	.2	1.8	2.5	0.8	5.0	Q4040J9-ND	9.29	82.60	743.40	3097.50	5369.00
	TO-218X (Isolated)	600	125	.2	1.8	2.5	0.8	5.0	Q6040J9-ND	10.76	95.60	860.40	3585.00	6214.00
	TO-218X (Isolated)	200	100	.2	1.8	2.5	0.8	5.0	Q2040J7-ND	8.44	75.00	675.00	2812.50	4875.00
	TO-218X (Isolated)	400	100	.2	1.8	2.5	0.8	5.0	Q4040J7-ND	9.38	83.40	750.60	3127.50	5421.00
	TO-218X (Isolated)	600	100	.2	1.8	2.5	0.8	5.0	Q6040J7-ND	10.87	96.60	869.40	3622.50	6279.00
	TO-218X (Isolated)	800	100	.2	1.8	2.5	0.8	5.0	Q8040J7-ND	13.16	117.00	1053.00	4387.50	7605.00
	TO-218AC (Isolated)	200	100	.2	1.8	2.5	0.8	5.0	Q2040K7-ND	8.24	73.20	658.80	2745.00	4758.00
	TO-218AC (Isolated)	400	100	.2	1.8	2.5	0.8	5.0	Q4040K7-ND	9.18	81.60	734.40	3060.00	5304.00
	TO-218AC (Isolated)	600	100	.2	1.8	2.5	0.8	5.0	Q6040K7-ND	10.64	94.60	851.40	3547.50	6149.00
	TO-218AC (Isolated)	800	100	.2	1.8	2.5	0.8	5.0	Q8040K7-ND	13.12	116.60	1049.40	4372.50	7579.00
	TO-3-BASE (Isolated)	200	100	.2	1.8	2.5	0.8	5.0	Q2040P-ND	11.43	101.60	914.40	3810.00	6604.00
	TO-3-BASE (Isolated)	400	100	.2	1.8	2.5	0.8	5.0	Q4040P-ND	12.69	112.80	1015.20	4230.00	7332.00
	TO-3-BASE (Isolated)	600	100	.2	1.8	2.5	0.8	5.0	Q6040P-ND	14.74	131.00	1179.00	4912.50	8515.00

TECCOR ELECTRONICS, INC **SIDACtor™**

The New Standard In Surge Protection
For Electronic Equipment

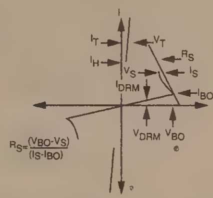


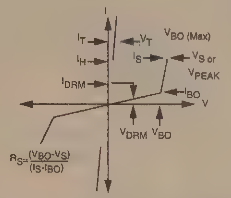
General Description:

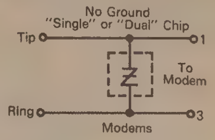
SIDACtors® are non-degenerative crowbar/foldback devices that protect telecom circuits from hazardous transient voltages. Connected across tip and ring, the SIDACtor offers the fastest and most reliable overvoltage protection on the market today. In the standby mode, the SIDACtor is transparent to the circuit, due to its high off-state resistance. This equates to a very low leakage current (IDRM), which is especially important during FCC Part 68 testing. Upon application of a voltage exceeding the breakover voltage (VBO), the SIDACtor will switch from its high off-state resistance to essentially a short, protecting your sensitive components from "fast" rising dv/dt's. The SIDACtor will continue to simulate this short until the current flowing through the device is either interrupted or drops below the SIDACtor's minimum holding current (IH), at which time the SIDACtor resets itself.

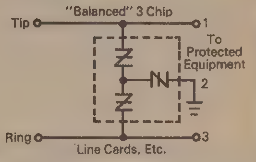
With the SIDACtor, the design engineer is guaranteed the most cost effective and reliable solution to FCC Part 68, UL 1459, and Bellcore 1089. Because the SIDACtor is a solid state solution, it offers the only technology that can be above the 268V ringing requirement of FCC Part 68 and still protect a 350V rated component. And because the SIDACtor has such a low on-state resistance, the SIDACtor can operate continuously at one full amp and withstand both FCC's 200A 10x160 µs surge without any additional series resistance.

9097B-ND **Teccor Data Book** **$3.00**









Package	Fig.	V_{BO} Min.	Max.	V_{DRM}	IPP(A)	ITS	I_H (mA)	Digi-Key Part No.	Pricing 1	10	100	500	1,000
TO-92	A	27	36	±20	50	30	50	P0300EA70-ND	1.04	9.20	82.80	345.00	598.00
TO-92	A	58	70	±50	75	30	150	P0640EA70-ND	1.06	9.40	84.60	352.50	611.00
TO-92	A	60	95	±50	75	30	150	P0800EA70-ND	.99	8.80	79.20	330.00	572.00
TO-92	A	65	80	±50	75	30	150	P0720EA70-ND	1.10	9.80	88.20	367.50	637.00
TO-92	A	90	125	±75	50	30	150	P1100EA70-ND	.88	7.80	70.20	292.50	507.00
TO-92	A	120	145	±95	50	30	150	P1300EA70-ND	.92	8.20	73.80	307.50	533.00
TO-92	A	135	165	±110	50	30	150	P1500EA70-ND	.99	8.80	79.20	330.00	572.00
TO-92	A	220	300	±180	50	30	150	P2600EA70-ND	.90	8.00	72.00	300.00	520.00
TO-92	A	275	350	±220	50	30	150	P3100EA70-ND	.92	8.20	73.80	307.50	533.00
Modified TO-220	B	220	250	±175	50	30	150	P2400AA61-ND	1.94	17.20	154.80	645.00	1118.00
Modified TO-220	B	270	330	±215	50	30	150	P3000AA61-ND	2.00	17.80	160.20	667.50	1157.00
Modified TO-220	C	54	72	±20	50	30	50	P0602AA-ND	2.25	20.00	180.00	750.00	1300.00
Modified TO-220	C	120	190	±50	100	60	200	P1602AB-ND	2.63	23.40	210.60	877.50	1521.00
Modified TO-220	C	140	140	±110	100	60	200	P1553AB-ND	3.53	31.40	282.60	1177.50	2041.00
Modified TO-220	C	190	250	±75	100	60	200	P2202AB-ND	2.77	24.60	221.40	922.50	1599.00
Modified TO-220	C	210	265	±170	100	60	200	P2353AB-ND	3.67	32.60	293.40	1222.50	2119.00
Modified TO-220	C	240	240	±190	100	60	200	P2703AB-ND	3.80	33.80	304.20	1267.50	2197.00
Modified TO-220	C	280	320	±110	50	30	150	P3002AB-ND	2.84	25.20	226.80	945.00	1638.00
Modified TO-220	C	280	280	±225	100	60	200	P3203AB-ND	3.96	35.20	316.80	1320.00	2288.00
Modified TO-220	C	300	380	±240	100	60	200	P3403AB-ND	3.94	35.00	315.00	1312.50	2275.00
Modified TO-220	C	540	660	±215	100	60	200	P6002AB-ND	2.41	21.40	192.60	802.50	1391.00

Package	Fig.	V_{BO} Min.	Max.	V_{DRM}	IPP(A)	ITS	I_H (mA)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape and Reel Pricing 2500	5000
DO-214	D	27	36	±20	50	30	50	P0300SARPCT-ND	2.65	21.20	159.00	P0300SARPTR-ND	689.00/M	662.50/M
DO-214	D	58	70	±50	75	30	150	P0640SARPCT-ND	2.75	22.00	165.00	P0640SARPTR-ND	715.00/M	687.50/M
DO-214	D	65	80	±50	75	30	150	P0720SARPCT-ND	2.60	20.80	156.00	P0720SARPTR-ND	676.00/M	650.00/M
DO-214	D	135	165	±110	50	30	150	P1500SARPCT-ND	2.75	22.00	165.00	P1500SARPTR-ND	715.00/M	687.50/M
DO-214	D	220	300	±180	50	30	150	P2600SARPCT-ND	2.60	20.80	156.00	P2600SARPTR-ND	676.00/M	650.00/M
DO-214	D	275	350	±220	50	30	150	P3100SARPCT-ND	2.75	22.00	165.00	P3100SARPTR-ND	715.00/M	687.50/M

Sidac

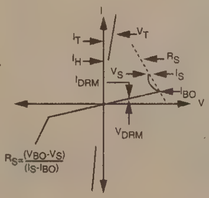
General Description: The Sidac is a silicon bilateral voltage triggered switch with greater power-handling capabilities than standard diacs. Upon application of a voltage exceeding the Sidac breakover voltage point, the Sidac switches on through a negative resistance region to a low on-state voltage. Conduction will continue until the current is interrupted or drops below the minimum holding current of the device.

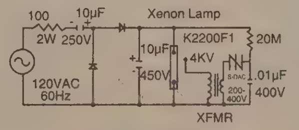
Applications: • High voltage lamp ignitors • Natural gas ignitors • Gas oil ignitors • High voltage power supplies • Xenon ignitors • Over voltage protector • Pulse generators • Fluorescent lighting ignitors • HID lighting ignitors

Features: • AC circuit oriented • Glass passivated junctions • High surge current capability

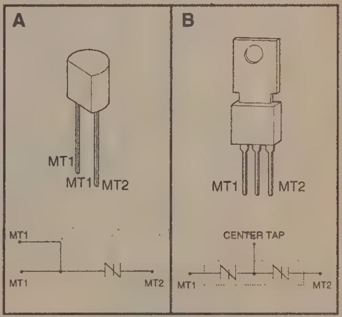
General Notes: • All measurements are made at 60Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified. • Storage temperature range (TS) is -65°C to +150°C. • Junction temperature range (TJ) is -40°C to +110°C. • Lead solder temperature is a maximum of +230°C for 10 seconds maximum; ≥ 1/16" (1.59mm) from case.

9097B-ND **Teccor Data Book** **$3.00**



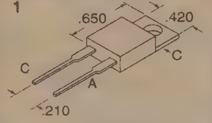


Example Circuit

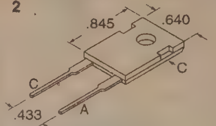


Package	Fig.	$I_{T(RMS)}$	V_{DRM}	V_{BO} Min.	Max	I_{DRM}	V_{BO}	Digi-Key Part No.	Pricing 1	10	100	500	1,000
TO-92	A	1.0	±90	95	113	5	10	K1050E70-ND	1.06	9.40	84.60	352.50	611.00
TO-92	A	1.0	±90	104	118	5	10	K1100E70-ND	1.06	9.40	84.60	352.50	611.00
TO-92	A	1.0	±90	110	125	5	10	K1200E70-ND	1.06	9.40	84.60	352.50	611.00
TO-92	A	1.0	±90	120	138	5	10	K1300E70-ND	1.06	9.40	84.60	352.50	611.00
TO-92	A	1.0	±90	130	146	5	10	K1400E70-ND	1.15	10.20	91.80	382.50	663.00
TO-92	A	1.0	±90	140	170	5	10	K1500E70-ND	1.15	10.20	91.80	382.50	663.00
TO-202AB (Non-Isolated)	B	1.0	±180	190	215	5	10	K2000F1-ND	1.40	12.40	111.60	465.00	806.00
TO-202AB (Non-Isolated)	B	1.0	±180	205	230	5	10	K2200F1-ND	1.40	12.40	111.60	465.00	806.00
TO-202AB (Non-Isolated)	B	1.0	±190	220	250	5	10	K2400F1-ND	1.40	12.40	111.60	465.00	806.00
TO-202AB (Non-Isolated)	B	1.0	±190	240	280	5	10	K2500F1-ND	1.40	12.40	111.60	465.00	806.00
TO-202AB (Non-Isolated)	B	1.0	±190	270	330	5	10	K3000F1-ND	1.40	12.40	111.60	465.00	806.00

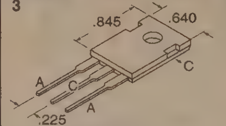
NEW! IXYS Semiconductors

1


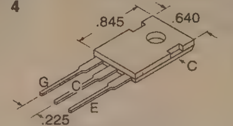
TO-220AC

2


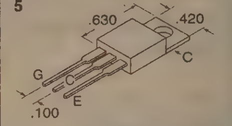
TO-247AD

3


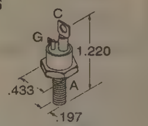
TO-247AD

4


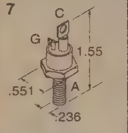
TO-247AD

5


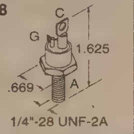
TO-220AB

6


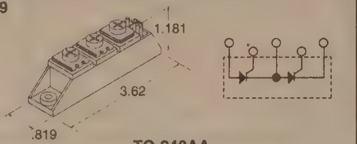
TO-64

7


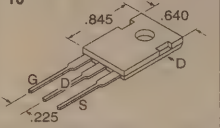
TO-48

8


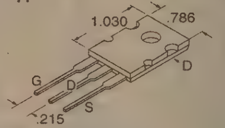
TO-65

9


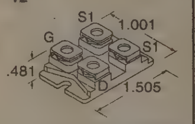
TO-240AA

10


TO-247AD

11


TO-264AA

12


TO-227B miniBLOC™

Fast Recovery Epitaxial Diodes (FRED)

Fig.	V_{RRM} V	I_{FAV} @ T_C A	°C	t_{rr} typ. T_{VJ} = 25°C ns	Digi-Key Part No.	Price Each 1	10	100	IXYS Part No.
1	600	8	115	35	DSEI8-06A-ND	1.38	1.05	.97	DSEI8-06A
1	600	14	100	35	DSEI12-06A-ND	1.93	1.62	1.35	DSEI12-06A
	1000	12	100	50	DSEI12-10A-ND	2.31	2.02	1.43	DSEI12-10A
	1200	11	100	50	DSEI12-12A-ND	2.89	2.43	1.72	DSEI12-12A
1	1200	17	85	40	DSEI20-12A-ND	3.50	3.04	2.15	DSEI20-12A
2	600	37	85	35	DSEI30-06A-ND	4.62	4.00	3.08	DSEI30-06A
	1000	30	85	35	DSEI30-10A-ND	7.02	5.79	4.48	DSEI30-10A
	1200	26	85	40	DSEI30-12A-ND	7.37	6.08	4.70	DSEI30-12A
3	600	2x30	85	35	DSEK30-06A-ND	8.71	7.20	5.54	DSEK30-06A
	1200	2x26	85	40	DSEK30-12A-ND	14.39	12.10	9.25	DSEK30-12A
2	600	60	70	35	DSEI60-06A-ND	8.53	6.47	5.32	DSEI60-06A
	1000	60	60	35	DSEI60-10A-ND	11.53	9.53	7.34	DSEI60-10A
	1200	52	60	40	DSEI60-12A-ND	12.10	10.01	7.71	DSEI60-12A

IGBTs

Fig.	V_{CES} V	I_C T_C = 25°C A	V_{CE} (sat) max. V	t_{fi} typ. 25°C A/μs	Digi-Key Part No.	Price Each 1	10	100	IXYS Part No.
Insulated Gate Bipolar Transistors – High Speed									
4	600	48	2.7	0.275	IXGH24N60A-ND	8.28	6.98	5.40	IXGH24N60A
	600	60	2.5	0.080	IXGH32N60B-ND	15.78	13.29	10.29	IXGH32N60B
	600	75	2.7	0.275	IXGH50N60A-ND	19.73	16.63	12.88	IXGH50N60A
Insulated Gate Bipolar Transistors with Diode, Combi Pack – low V_{CE} (sat)									
5	600	24	2.5	0.3	IXGP12N60U1-ND	6.58	4.81	4.53	IXGP12N60U1
4	600	20	2.5	0.3	IXGH10N60U1-ND	7.59	6.39	4.94	IXGH10N60U1
	600	40	2.5	0.4	IXGH20N60U1-ND	10.93	9.21	7.12	IXGH20N60U1
	600	50	2.5	0.2	IXGH30N60U1-ND	19.32	16.28	12.60	IXGH30N60U1
4	1000	20	3.5	0.8	IXGH10N100U1-ND	12.77	10.76	8.33	IXGH10N100U1
	1000	34	3.5	0.75	IXGH17N100U1-ND	21.83	18.38	14.23	IXGH17N100U1
Insulated Gate Bipolar Transistors with Diode, Combi Pack – High Speed									
4	600	20	3.0	0.3	IXGH10N60AU1-ND	7.45	6.28	4.86	IXGH10N60AU1
	600	48	2.7	0.275	IXGH24N60AU1-ND	10.40	8.76	6.78	IXGH24N60AU1
	600	60	2.9	0.125	IXGH32N60AU1-ND	18.40	15.50	12.00	IXGH32N60AU1
4	1000	20	4.0	0.5	IXGH10N100AU1-ND	12.37	10.43	8.08	IXGH10N100AU1
	1000	34	4.0	0.45	IXGH17N100AU1-ND	20.79	17.52	13.56	IXGH17N100AU1

Phase Control SCRs

Fig.	V_{RRM} V_{DRM} V	I_{TAV} T_C = 85°C A	I_{TRMS} A	Digi-Key Part No.	Price Each 1	10	IXYS Part No.
6	800	16	25	CS8-08IO2-ND	31.62	17.12	CS8-08IO2
	1200	16	25	CS8-12IO2-ND	47.37	20.80	CS8-12IO2
7	800	25	50	CS23-08IO2-ND	52.82	28.92	CS23-08IO2
	1200	25	50	CS23-12IO2-ND	63.36	34.95	CS23-12IO2
	1600	25	50	CS23-16IO2-ND	79.91	44.30	CS23-16IO2
8	800	60	120	CS35-08IO4-ND	61.73	34.00	CS35-08IO4
	1200	60	120	CS35-12IO4-ND	77.91	42.39	CS35-12IO4
	1400	60	120	CS35-14IO4-ND	81.81	44.51	CS35-14IO4

SCR Module

Fig.	V_{RRM} V_{DRM} V	I_{TAV} @ T_C A	°C	I_{TRMS} A	Digi-Key Part No.	Price Each 1	10	IXYS Part No.
9	1600	116	85	180	MCC95-16IO8B-ND	51.68	37.58	MCC95-16IO8B

MOSFETs

Fig.	V_{DSS} max. V	I_{D25} T_C = 25°C A	$R_{DS(on)}$ T_C = 25°C Ω	t_{rr} typ. 25°C ns	Digi-Key Part No.	Price Each 1	10	100	IXYS Part No.
N-Channel Enhancement-Mode									
10	100	67	0.025	300	IXTH67N10-ND	16.97	14.31	11.08	IXTH67N10
	100	75	0.02	300	IXTH75N10-ND	18.86	15.89	12.30	IXTH75N10
	200	50	0.045	400	IXTH50N20-ND	19.83	16.71	12.94	IXTH50N20
	500	14	0.4	500	IRFP450X-ND	10.70	8.91	6.45	IRFP450
N-Channel Enhancement-Mode with Fast Intrinsic Diode									
10	70	76	0.011	150*	IXFH76N07-11-ND	16.15	13.61	10.54	IXFH76N07-11
	70	76	0.012	150*	IXFH76N07-12-ND	14.54	12.25	9.48	IXFH76N07-12
10	100	67	0.025	200*	IXFH67N10-ND	17.83	15.02	11.63	IXFH67N10
	100	75	0.02	200*	IXFH75N10-ND	19.80	16.68	12.91	IXFH75N10
10	200	42	0.06	200	IXFH42N20-ND	18.75	15.79	12.23	IXFH42N20
	200	50	0.045	200	IXFH50N20-ND	20.84	17.55	13.58	IXFH50N20
	200	58	0.04	200	IXFH58N20-ND	21.67	18.24	14.12	IXFH58N20
10	300	35	0.1	200	IXFH35N30-ND	19.67	16.57	12.83	IXFH35N30
	300	40	0.08	200	IXFH40N30-ND	21.85	18.41	14.26	IXFH40N30
10	500	13	0.4	250	IXFH13N50-ND	11.18	9.42	7.30	IXFH13N50
	500	21	0.25	250	IXFH21N50-ND	13.25	11.16	8.64	IXFH21N50
	500	24	0.23	250	IXFH24N50-ND	19.57	16.49	12.77	IXFH24N50
	500	26	0.20	250	IXFH26N50-ND	20.40	17.19	13.31	IXFH26N50
10	550	22	0.27	250	IXFH22N55-ND	19.57	16.49	12.77	IXFH22N55
10	600	15	0.5	250	IXFH15N60-ND	20.01	16.86	13.06	IXFH15N60
	600	20	0.35	250	IXFH20N60-ND	23.90	20.13	15.59	IXFH20N60
10	800	7	1.4	250	IXFH7N80-ND	9.29	7.83	6.06	IXFH7N80
	800	11	0.95	250	IXFH11N80-ND	21.48	18.10	14.02	IXFH11N80
	800	13	0.80	250	IXFH13N80-ND	23.78	20.04	15.52	IXFH13N80
10	900	6	1.8	250	IXFH6N90-ND	17.50	14.76	11.42	IXFH6N90
	900	10	1.1	250	IXFH10N90-ND	25.55	21.53	16.67	IXFH10N90
	900	12	0.9	250	IXFH12N90-ND	28.41	23.93	18.53	IXFH12N90
10	1000	6	2.0	250	IXFH6N100-ND	12.72	10.73	8.30	IXFH6N100
	1000	10	1.2	250	IXFH10N100-ND	26.82	22.60	17.50	IXFH10N100
	1000	12	1.05	250	IXFH12N100-ND	29.81	25.11	19.44	IXFH12N100
11	70	110	0.006	150*	IXFK110N07-ND	27.06	21.53	17.69	IXFK110N07
11	200	90	0.020	200	IXFK90N20-ND	29.19	23.23	19.08	IXFK90N20
11	300	73	0.045	200	IXFK73N30-ND	30.67	24.40	20.05	IXFK73N30
11	500	44	0.12	250	IXFK44N50-ND	29.92	23.80	19.55	IXFK44N50
	500	48	0.10	250	IXFK48N50-ND	30.80	24.50	20.12	IXFK48N50
11	600	36	0.18	250	IXFK36N60-ND	31.02	24.68	20.27	IXFK36N60
MiniBLOC™ N-Channel Enhancement-Mode with Fast Intrinsic Diode									
12	70	200	0.006	150*	IXFN200N07-ND	46.80	38.38	30.71	IXFN200N07
12	100	150	0.012	200*	IXFN150N10-ND	48.10	39.45	31.57	IXFN150N10
12	200	106	0.020	200	IXFN106N20-ND	48.59	39.86	31.89	IXFN106N20
12	500	48	0.10	250	IXFN48N50-ND	49.40	40.51	32.41	IXFN48N50

* Typical Value

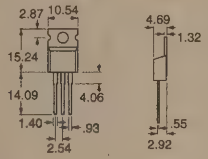
IOR International Rectifier

N and P Channel HEXFETS

Electrical characteristics at 25°C unless otherwise noted.

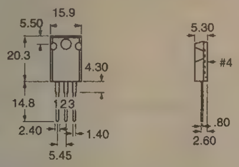
TO-220AB Package HEXFETs

- T_J = 55°C to + 150°C operating.
- $V_{GS(th)}$ Gate Threshold = 2.0 to 4.0 volts.
- Lead Temperature = 300°C for 10 seconds max.



TO-247AC Package HEXFETS

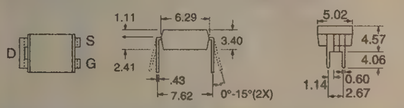
Third Generation HEXFETs from International Rectifier provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The TO-247 package is preferred for commercial-industrial applications where higher power levels preclude the use of TO-220 devices.



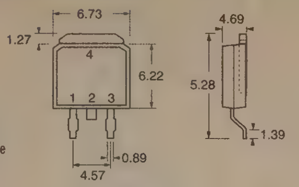
1. Gate
2. Drain
3. Source
4. Drain

4-Pin Dual In-Line HEXDIPs

HEXDIPs combine automatic insertion efficiency, a 1 watt heat sink tab with the HEXFET high performance, quality and reliability.



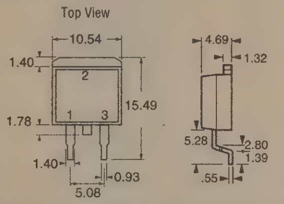
TO-252AA (D-Pak)



1. Gate
2. Drain
3. Source
4. Drain

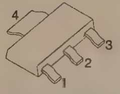
SMD-220 (TO-263) Surface Mount

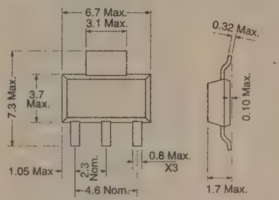
The SMD-220 offers the greatest power handling capability of International Rectifier's surface-mount discrete devices. The Package is a low profile (4.5mm) alternative to the through-hole mount TO-220 (19mm).



1. Gate
2. Drain
3. Source

SOT-223



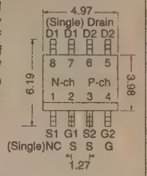


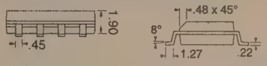
1. Gate
2. Drain
3. Source
4. Drain

SO-8 Surface Mount

The SO-8 utilizes an 8-lead SOIC outline and can house two HEXFET dies. Its profile is only 1.8mm, and the footprint occupies half that of a D-Pak. With a power dissipation range of 0.5W to 1.5W, this package offers 90°C/W junction-to-ambient thermal resistance. The SO-8 is an ideal choice when the lowest on-resistance in the smallest footprint is critical.

Pins 5 - 8 on single are the drain



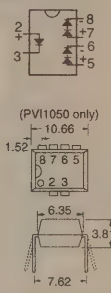


Photovoltaic Isolators

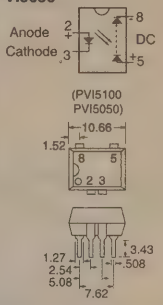
The PhotoVoltaic Isolator (PVI) generates an electrically isolated DC voltage upon receipt of a DC input signal.

The PVI is ideally suited for driving power MOSFETs, IGBTs or sensitive gate SCRs to form solid state relays.

PVI1050



PVI5050



Input Circuit			Output Circuit			Digi-Key	Pricing		
Vf (led)	Imin (MA)	Imax (A)	Vout (dc)	Imin(μA)	Ton/Toff Max(μs)	Part No.	1	10	100
1.2	10	50	5/10	10/5	40/400	PVI1050-ND	5.63	45.00	393.75
1.2	10	50	5	5	40/400	PVI5050-ND	3.00	24.00	210.00

VDS (V)	RDS (on) (Ω)	ID Cont. (A) 25°C	IDM (A)	PD Max (W)	Digi-Key Part No.	Pricing 1	10	100
P-CHANNEL TYPES								
TO-220AB Package								
–50	0.50	–4.7	–19	20	IRF9Z10-ND	1.61	11.39	93.80
-55	0.02	-64	-260	150	IRF4905-ND **NEW!**	8.40	59.50	490.00
–60	0.14	–18	–72	88	IRF9Z34-ND	3.00	21.25	175.00
–100	1.2	–3.0	–12	20	IRF9510-ND	2.06	14.62	120.40
–100	0.6	–6.0	–27	60	IRF9520-ND	2.14	15.13	124.60
–100	0.3	–12	–48	88	IRF9530-ND	2.40	17.00	140.00
–100	0.2	–19	–76	125	IRF9540-ND	5.40	38.25	315.00
–200	3.0	–1.75	–7	20	IRF9610-ND	2.21	15.64	128.80
–200	1.5	–3.5	–14	40	IRF9620-ND	2.54	18.02	148.40
–200	0.8	–6.5	–26	75	IRF9630-ND	2.74	19.38	159.60
–200	0.5	–11	–44	125	IRF9640-ND	5.76	40.80	336.00
P-Channel TO-247AC								
-200	.50	-12	—	150	IRFP9240-ND	18.74	132.77	1093.40
-100	.20	-21	—	180	IRFP9140-ND	14.81	104.89	863.80
4-Pin Dual In-Line Package								
–80	1.6	–0.6	–2.5	1.0	IRFD9113-ND	2.16	15.30	126.00
–80	0.8	–0.8	–6.4	1.0	IRFD9123-ND	2.98	21.08	173.60
–100	1.2	–0.7	–3.0	1.0	IRFD9110-ND	2.16	15.30	126.00
–100	0.6	–1.0	–8.0	1.0	IRFD9120-ND	2.98	21.08	173.60
–200	3.0	–0.4	–1.6	1.0	IRFD9210-ND	2.40	17.00	140.00
–200	1.5	–0.6	–4.8	1.0	IRFD9220-ND	3.82	27.03	222.60
Dual Logic Level P-Channel SO-8 (Surface Mount)								
-20	.25	–2.3	—	2.0	IRF7104-ND	2.40	17.00	140.00
Single Logic Level P-Channel SO-8 (Surface Mount)								
-20	.25	–2.5	—	2.5	IRF7202-ND	1.44	10.20	84.00
-20	.06	–5.3	—	2.5	IRF7204-ND	2.71	19.21	158.20
-30	.07	–5.3	—	2.5	IRF7205-ND	2.88	20.40	168.00
Single P-Channel SO-8 (Surface Mount)								
-30	0.020	-5.6	-45	1	IRF7416-ND **NEW!**	4.56	32.30	266.00
N-CHANNEL TYPES								
TO-220AB Package								
30	0.007	100.0	400	130	IRL2203N-ND **NEW!**	5.59	39.61	326.20
30	0.006	120.0	470	150	IRL3803-ND **NEW!**	7.92	56.10	462.00
50	0.1	15.0	60	40	IRFZ20-ND	1.27	9.01	74.20
55	0.040	26.0	100	56	IRFZ34N-ND	2.02	14.28	117.60
55	0.020	46.0	180	88	IRFZ46N-ND	4.13	29.24	240.80
55	0.010	77.0	310	130	IRL3705N-ND **NEW!**	5.28	37.40	308.00
55	0.016	53.0	210	94	IRFZ48N-ND **NEW!**	5.47	38.76	319.20
55	0.012	72.0	290	130	IRF1010N-ND	5.11	36.21	298.20
55	0.008	98.0	390	150	IRF3205-ND **NEW!**	7.44	52.70	434.00
60	0.20	10.0	40	36	IRFZ14-ND	.98	6.97	57.40
60	0.10	17.0	68	60	IRFZ24-ND	1.27	9.01	74.20
60	0.050	30.0	120	90	IRFZ34-ND	2.02	14.28	117.60
100	0.6	4.0	16	20	IRF510-ND	1.22	8.67	71.40
100	0.3	8.0	32	40	IRF520-ND	1.44	10.20	84.00
100	0.11	15.0	60	63	IRF530N-ND	1.51	10.71	88.20

VDS (V)	RDS (on) (Ω)	ID Cont. (A) 25°C	IDM (A)	PD Max (W)	Digi-Key Part No.	Pricing 1	10	100
100	0.18	14.0	56	75	IRF530-ND	1.51	10.71	88.20
100	0.052	27.0	110	94	IRF540N-ND	3.12	22.10	182.00
100	0.028	46.0	180	150	IRF3710-ND **NEW!**	7.92	56.10	462.00
200	1.5	2.5	10	20	IRF610-ND	1.30	9.18	75.60
200	0.8	5.0	20	40	IRF620-ND	1.49	10.54	86.80
200	0.4	9.0	36	75	IRF630-ND	1.66	11.73	96.60
200	0.18	18.0	72	125	IRF640-ND	3.36	23.80	196.00
400	3.6	1.5	6	20	IRF710-ND	1.44	10.20	84.00
400	1.8	3.0	12	40	IRF720-ND	1.61	11.39	93.80
400	1.0	5.5	22	75	IRF730-ND	1.78	12.58	103.60
400	0.55	10.0	40	125	IRF740-ND	3.60	25.50	210.00
500	3.0	2.5	10	40	IRF820-ND	1.66	11.73	96.60
500	1.5	4.5	18	75	IRF830-ND	1.92	13.60	112.00
500	0.85	8.0	32	125	IRF840-ND	3.84	27.20	224.00
600	4.4	2.2	6.8	50	IRFBC20-ND	3.70	26.18	215.60
600	2.2	3.6	14	74	IRFBC30-ND	7.20	51.00	420.00
800	6.5	1.8	—	54	IRFBE20-ND	5.28	37.40	308.00
800	3.0	4.1	—	125	IRFBE30-ND	8.88	62.90	518.00
900	8.0	1.7	—	54	IRFBF20-ND	6.12	43.35	357.00
900	3.7	3.6	—	125	IRFBF30-ND	9.65	68.34	562.80
1000	11.0	1.4	—	54	IRFBG20-ND	6.48	45.90	378.00
1000	5.0	3.1	—	125	IRFBG30-ND	10.68	75.65	623.00
Logic Level Hexfets (Will turn on at 5 volts) TO-220AB								
55	0.074	18.0	72	45	IRLZ24N-ND **NEW!**	1.44	10.20	84.00
55	0.042	27.0	110	56	IRLZ34N-ND **NEW!**	2.21	15.64	128.80
55	0.022	41.0	160	83	IRLZ44N-ND **NEW!**	3.96	28.05	231.00
60	.20	10.0	40	43	IRLZ14-ND	.90	7.65	62.55
100	.54	5.6	16	43	IRL510-ND	1.12	9.52	77.84
100	.27	9.2	31	60	IRL520-ND	1.28	10.88	88.96
100	.16	14.0	52	79	IRL530-ND	1.38	11.73	95.91
100	.077	28.0	110	150	IRL540-ND	2.86	24.31	198.77
N-Channel SMD-220								
250	2.0	2.7	—	36	IRF614S-ND	1.94	13.77	113.40
250	1.1	4.4	—	50	IRF624S-ND	2.11	14.96	123.20
250	.45	8.1	—	74	IRF634S-ND	2.30	16.32	134.40
250	.28	14.0	—	125	IRF644S-ND	4.06	28.73	236.60
400	3.6	2	—	36	IRF710S-ND	2.04	14.45	119.00
400	1.8	3.3	—	50	IRF720S-ND	2.21	15.64	128.80
400	1.0	5.5	—	74	IRF730S-ND	2.38	16.83	138.60
400	.55	10	—	125	IRF740S-ND	4.20	29.75	245.00
500	3.0	2.5	—	50	IRF820S-ND	2.26	15.98	131.60
500	1.5	4.5	—	74	IRF830S-ND	2.52	17.85	147.00
500	.85	8.0	—	125	IRF840S-ND	4.44	31.45	259.00
N-Channel TO-247AC								
55	0.024	49	180	100	IRFP044N-ND **NEW!**	6.79	48.11	396.20
55	0.012	72	290	130	IRFP054N-ND **NEW!**	10.44	73.95	609.00
55	0.080	98	390	150	IRFP064N-ND **NEW!**	19.92	141.10	1162.00
200	.18	20	—	150	IRFP240-ND	7.06	49.98	411.60
200	.055	46	—	280	IRFP260-ND	18.12	128.35	1057.00
250	.28	15	—	150	IRFP244-ND	7.22	51.17	421.40
250	.075	38	—	280	IRFP264-ND	18.84	133.45	1099.00
400	.55	11	—	150	IRFP340-ND	7.80	55.25	455.00
400	.20	23	—	280	IRFP360-ND	22.25	157.59	1297.80
500	.85	8.8	—	150	IRFP440-ND	8.26	58.48	481.60
500	.40	14	—	190	IRFP450IR-ND	11.16	79.05	651.00

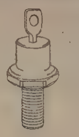
VDS (V)	RDS (on) (Ω)	ID Cont. (A) 25°C	IDM (A)	PD Max (W)	Digi-Key Part No.	Pricing 1	10	100
500	.27	20	—	280	IRFP460-ND	23.42	165.92	1366.40
600	2.2	4.3	—	100	IRFPC30-ND	9.60	68.00	560.00
600	.60	11	—	180	IRFPC50-ND	24.00	170.00	1400.00
800	3.0	4.1	—	125	IRFPE30-ND	9.96	70.55	581.00
800	1.2	7.8	—	190	IRFPE50-ND	20.40	144.50	1190.00
900	3.7	3.6	—	125	IRFPF30-ND	10.82	76.67	631.40
900	1.6	6 7	—	190	IRFPF50-ND	21.60	153.00	1260.00
1000	5.0	3.1	—	125	IRFPG30-ND	12.02	85.17	701.40
1000	2.0	6.1	—	190	IRFPG50-ND	24.00	170.00	1400.00
4-Pin Dual In-Line Package								
80	0.8	0.8	6.4	1.0	IRFD113-ND	1.37	9.69	79.80
80	0.4	1.1	4.4	1.0	IRFD123-ND	1.97	13.94	114.80
100	0.6	1.0	8.0	1.0	IRFD110-ND	1.37	9.69	79.80
100	0.3	1.3	5.2	1.0	IRFD120-ND	1.97	13.94	114.80
200	1.5	0.6	2.5	1.0	IRFD210-ND	1.61	11.39	93.80
200	0.8	0.8	6.4	1.0	IRFD220-ND	2.11	14.96	123.20
Logic Level Hexfets (Will turn on at 5 volts) 4-Pin Dual								
60	.20	1.7	14	1.3	IRLD014-ND	1.36	11.56	94.52
60	.10	2.5	20	1.3	IRLD024-ND	2.04	17.34	141.78
100	.54	1	8	1.3	IRLD110-ND	1.32	11.22	91.74
100	.27	1.3	10	1.3	IRLD120-ND	1.80	15.30	125.10
Dual Logic Level N-Channel SO-8 (Surface Mount)								
20	.10	3.5	—	2.0	IRF7101-ND	2.40	17.00	140.00
50	.30	2.0	—	2.0	IRF7102-ND	1.92	13.60	112.00
50	.13	3.0	—	2.0	IRF7103-ND	2.33	16.49	135.80
Single Logic Level N-Channel SO-8 (Surface Mount)								
30	.03	7.0	—	2.5	IRF7201-ND	2.42	17.17	141.40
Dual Logic Level N & P-Channel SO-8 (Surface Mount)								
20 -20	.125 .20	3.0 -2.8	—	2.0	IRF7106-ND	2.40	17.00	140.00
25 -25	.10 .25	3.5 -2.3	—	2.0	IRF7105-ND	2.50	17.68	145.60
Single N-Channel SO-8 (Surface Mount)								
30	0.011	7.3	58	1	IRF7413-ND **NEW!**	4.20	29.75	245.00
D-PAK N-Channel TO-252AA (Surface Mount)								
55	0.075	16	68	38	IRFR024N-ND **NEW!**	2.26	15.98	131.60
55	0.065	17	72	38	IRLR024N-ND **NEW!**	2.47	17.51	144.20
55	0.045	25	100	46	IRFR4105-ND **NEW!**	2.52	17.85	147.00
55	0.027	37	150	69	IRFR1205-ND **NEW!**	3.48	24.65	203.00
100	0.210	9.1	38	39	IRFR120N-ND **NEW!**	1.97	13.94	114.80
100	0.120	15	60	52	IRFR3910-ND **NEW!**	2.40	17.00	140.00

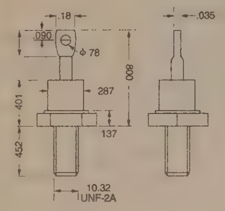
VDS (V)	RDS (on) (Ω)	ID Cont. (A) 25°C	IDM (A)	PD Max (W)	Digi-Key Part No.	Pricing 1	10	Tape & Reel Pricing* 2500
N-Channel SOT-223								
30	0.031	4.6	37	1	IRLL3303CT-ND **NEW!**	3.02	21.42	1575.00/M
55	0.045	3.7	30	1	IRFL4105CT-ND **NEW!**	2.78	19.72	1450 00/M
55	0.040	3.8	30	1	IRLL2705CT-ND **NEW!**	2.90	20.57	1512 50/M
100	0.200	1.6	13	1	IRFL4310CT-ND **NEW!**	2.57	18.19	1337.50/M

* For Tape & Reel Part No., change CT to TR.

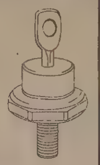
IOR International Rectifier Stud Mount Rectifiers

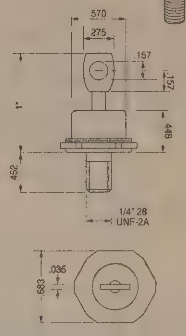
Case Style
DO-203AA
(DO-4)



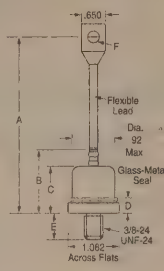


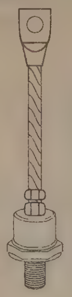
Case Style
DO-203AB
(DO-5)





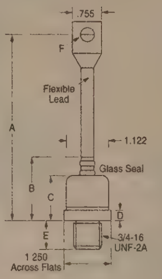
Case Style
DO-205AA
(DO-8)





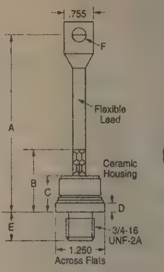
Dimensions (Inches)					
A	B	C	D	E	F
4.5	1.825	1.083	0.347	0.64	0.264

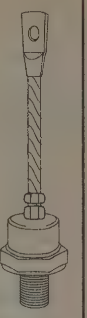
Case Style
DO-205AB
(DO-9)



Dimensions (Inches)					
A	B	C	D	E	F
R13A					
5.60	2.250	1.19	0.360	0.828	0.338

Case Style
DO-205AB
(DO-9)





Dimensions (Inches)					
A	B	C	D	E	F
R14B					
8.26	2.08	1.12	0.62	0.826	0.32

V_{RRM}	I_F@V_{FM}		Digi-Key Part No.		Pricing		
(V)	(A)	(V)	Cathode To Stud	Anode To Stud	1	10	100
DO-203AA							
100	6	1.1	6F10-ND	6FR10-ND	2.35	17.69	131.67
200			6F20-ND	6FR20-ND	2.49	18.76	139.65
400			6F40-ND	6FR40-ND	3.13	23.59	175.56
600			6F60-ND	6FR60-ND	3.53	26.63	198.17
800			6F80-ND	6FR80-ND	3.91	29.49	219.45
1000			6F100-ND	6FR100-ND	5.40	40.74	303.24
100	12	1.26	12F10-ND	12FR10-ND	2.86	19.30	143.64
200			12F20-ND	12FR20-ND	2.97	20.01	148.96
400			12F40-ND	12FR40-ND	3.71	25.02	186.20
600			12F60-ND	12FR60-ND	4.37	29.49	219.45
800			12F80-ND	12FR80-ND	4.82	32.52	242.06
1000			12F100-ND	12FR100-ND	6.57	44.32	329.84
100	12	1.2	12F10B-ND	12FR10B-ND	3.02	20.37	151.62
200			12F20B-ND	12FR20B-ND	3.29	22.16	164.92
400			12F40B-ND	12FR40B-ND	4.11	27.70	206.15
600			12F60B-ND	12FR60B-ND	4.82	32.52	242.06
800			12F80B-ND	12FR80B-ND	5.30	35.74	266.00
1000			12F100B-ND	12FR100B-ND	7.21	48.61	361.76
50	12	1.35	1N1199A-ND	1N1199RA-ND	2.39	16.08	119.70
100			1N1200A-ND	1N1200RA-ND	2.46	16.62	123.69
150			1N1201A-ND	1N1201RA-ND	2.57	17.33	129.01
200			1N1202A-ND	1N1202RA-ND	2.65	17.87	133.00
300			1N1203A-ND	1N1203RA-ND	3.05	20.55	152.95
400			1N1204A-ND	1N1204RA-ND	3.18	21.44	159.60
500			1N1205A-ND	1N1205RA-ND	3.71	25.02	186.20
600			1N1206A-ND	1N1206RA-ND	4.11	27.70	206.15
700			1N3670A-ND	1N3670RA-ND	4.58	30.92	230.09
1800			1N3671A-ND	1N3671RA-ND	4.82	32.52	242.06
900			1N3672A-ND	1N3672RA-ND	5.25	35.38	263.34
1000			1N3673A-ND	1N3673RA-ND	6.57	44.32	329.84
DO-203AB							
50	15	1.5	1N3208-ND	1N3208R-ND	3.05	20.55	152.95
100			1N3209-ND	1N3209R-ND	3.18	21.44	159.60
200			1N3210-ND	1N3210R-ND	3.31	22.34	166.25
300			1N3211-ND	1N3211R-ND	3.58	24.12	179.55
400			1N3212-ND	1N3212R-ND	4.11	27.70	206.15
500			1N3213-ND	1N3213R-ND	5.17	34.85	259.35
600			1N3214-ND	1N3214R-ND	5.96	40.21	299.25
DO-203AA							
100	16	1.23	16F10-ND	16FR10-ND	3.15	21.27	158.27
200			16F20-ND	16FR20-ND	3.37	22.69	168.91
400			16F40-ND	16FR40-ND	4.16	28.06	208.81
600			16F60-ND	16FR60-ND	4.82	32.52	242.06
800			16F80-ND	16FR80-ND	5.25	35.38	263.34
1000			16F100-ND	16FR100-ND	7.05	47.53	353.78
DO-203AB							
50	35	1.7	1N1183-ND	1N1183R-ND	2.92	19.66	146.30
100			1N1184-ND	1N1184R-ND	3.31	22.34	166.25
150			1N1185-ND	1N1185R-ND	3.84	25.91	192.85
200			1N1186-ND	1N1186R-ND	4.11	27.70	206.15
300			1N1187-ND	1N1187R-ND	4.64	31.27	232.75
400			1N1188-ND	1N1188R-ND	5.17	34.85	259.35
500			1N1189-ND	1N1189R-ND	5.64	38.06	283.29
600			1N1190-ND	1N1190R-ND	6.76	45.57	339.15
700	35	1.8	1N3765-ND	1N3765R-ND	9.62	64.87	482.79
800	35	1.8	1N3766-ND	1N3766R-ND	10.49	70.77	526.68
900			1N3767-ND	1N3767R-ND	11.37	76.66	570.57
1000			1N3768-ND	1N3768R-ND	14.07	94.89	706.23
50	40	1.3	1N1183A-ND	1N1183RA-ND	2.92	19.66	146.30
100			1N1184A-ND	1N1184RA-ND	3.31	22.34	166.25
150			1N1185A-ND	1N1185RA-ND	3.84	25.91	192.85
200			1N1186A-ND	1N1186RA-ND	4.21	28.41	211.47
300			1N1187A-ND	1N1187RA-ND	4.74	31.99	238.07
400			1N1188A-ND	1N1188RA-ND	5.27	35.56	264.67
500			1N1189A-ND	1N1189RA-ND	5.83	39.31	292.60
600			1N1190A-ND	1N1190RA-ND	6.76	45.57	339.15
100	40	1.3	40HF10-ND	40HFR10-ND	3.72	28.06	208.81
200			40HF20-ND	40HFR20-ND	4.22	31.81	236.74
400			40HF40-ND	40HFR40-ND	5.47	41.28	307.23
600			40HF60-ND	40HFR60-ND	6.26	47.18	351.12
800			40HF80-ND	40HFR80-ND	7.04	53.07	395.01
1000			40HF100-ND	40HFR100-ND	7.82	58.97	438.90
50	60	1.3	1N2128A-ND	1N2128RA-ND	6.52	43.96	327.18
100			1N2129A-ND	1N2129RA-ND	6.92	46.64	347.13
150			1N2130A-ND	1N2130RA-ND	7.31	49.32	367.08
200			1N2131A-ND	1N2131RA-ND	7.69	51.82	385.70
300			1N2133A-ND	1N2133RA-ND	9.62	64.87	482.79
400			1N2135A-ND	1N2135RA-ND	10.28	69.34	516.04
500			1N2137A-ND	1N2137RA-ND	10.94	73.80	549.29
600			1N2138A-ND	1N2138RA-ND	12.24	82.56	614.46
100	70	1.35	70HF10-ND	70HFR10-ND	6.19	46.64	347.13
200			70HF20-ND	70HFR20-ND	6.54	49.32	367.08
400			70HF40-ND	70HFR40-ND	7.82	58.97	438.90
600			70HF60-ND	70HFR60-ND	8.60	64.87	482.79
800			70HF80-ND	70HFR80-ND	9.39	70.77	526.68
1000			70HF100-ND	70HFR100-ND	11.68	88.10	655.69
DO-205AA							
100	100	1.5	1N3288A-ND	1N3288RA-ND	23.64	159.40	1186.36
200			1N3289A-ND	1N3289RA-ND	24.78	167.08	1243.55
300			1N3290A-ND	1N3290RA-ND	25.49	171.91	1279.46
400			1N3291A-ND	1N3291RA-ND	26.10	176.02	1310.05
500			1N3292B-ND	1N3292RB-ND	26.95	181.74	1352.61
600			1N3293A-ND	1N3293RA-ND	27.93	188.35	1401.82
800			1N3294A-ND	1N3294RA-ND	30.02	202.47	1506.89
1000			1N3295A-ND	1N3295RA-ND	38.00	256.26	1907.22
50	150	1.33	150K5A-ND	150KR5A-ND	23.85	160.83	1197.00
100			150K10A-ND	150KR10A-ND	24.86	167.62	1247.54
200			150K20A-ND	150KR20A-ND	26.10	176.02	1310.05
300			150K30A-ND	150KR30A-ND	26.95	181.74	1352.61
400			150K40A-ND	150KR40A-ND	27.56	185.85	1383.20
600			150K60A-ND	150KR60A-ND	29.42	198.36	1476.30
800			150K80A-ND	150KR80A-ND	31.67	213.55	1589.35
1000			150K100A-ND	150KR100A-ND	38.56	260.01	1935.15
DO-205AB							
50	250	1.25	1N2054-ND	1N2054R-ND	31.99	215.69	1605.31
100			1N2055-ND	1N2055R-ND	32.62	219.98	1637.23
200			1N2057-ND	1N2057R-ND	33.36	224.98	1674.47
300			1N2059-ND	1N2059R-ND	34.72	234.10	1742.30
400			1N2061-ND	1N2061R-ND	36.12	243.57	1812.79
600			1N2064-ND	1N2064R-ND	37.74	254.47	1893.92
800	250	1.25	1N2066-ND	1N2066R-ND	39.99	269.66	2006.97
900			1N2067-ND	1N2067R-ND	43.25	291.64	2170.56
1000			1N2068-ND	1N2068R-ND	45.55	307.19	2286.27
100	250	1.3	1N3735-ND	1N3735R-ND	32.62	219.98	1637.23
200			1N3736-ND	1N3736R-ND	33.36	224.98	1674.47
300			1N3737-ND	1N3737R-ND	34.72	234.10	1742.30
400			1N3738-ND	1N3738R-ND	36.12	243.57	1812.79
500			1N3739-ND	1N3739R-ND	36.84	248.39	1848.70
600			1N3740-ND	1N3740R-ND	37.74	254.47	1893.92
800			1N3741-ND	1N3741R-ND	39.99	269.66	2006.97
1000			1N3742-ND	1N3742R-ND	45.55	307.19	2286.27
1200			1N3743-ND	1N3743R-ND	47.89	322.91	2403.31
50	275	1.35	1N4044-ND	1N4044R-ND	31.99	215.69	1605.31
100			1N4045-ND	1N4045R-ND	32.81	221.23	1646.54
150			1N4046-ND	1N4046R-ND	33.26	224.27	1669.15
200			1N4047-ND	1N4047R-ND	34.11	229.99	1711.71
250			1N4048-ND	1N4048R-ND	34.50	232.67	1731.66
300			1N4049-ND	1N4049R-ND	34.93	235.53	1752.94
400			1N4050-ND	1N4050R-ND	35.78	241.25	1795.50
500			1N4051-ND	1N4051R-ND	36.84	248.39	1848.70
600			1N4052-ND	1N4052R-ND	37.74	254.47	1893.92
700			1N4053-ND	1N4053R-ND	39.03	263.23	1959.09
800			1N4054-ND	1N4054R-ND	39.91	269.12	2002.98
900			1N4055-ND	1N4055R-ND	43.25	291.64	2170.56
1000			1N4056-ND	1N4056R-ND	46.43	313.08	2330.16
100	300	1.4	300U10A-ND*	300UR10A-ND	33.26	224.27	1669.15
200			300U20A-ND*	300UR20A-ND	33.87	228.38	1699.74
400			300U40A-ND*	300UR40A-ND	35.14	236.96	1763.58
600			300U60A-ND*	300UR60A-ND	35.78	241.25	1795.50
800			300U80A-ND*	300UR80A-ND	39.17	264.12	1965.74
1000			300U100A-ND*	300UR100A-ND	46.43	313.08	2330.16
1200			300U120A-ND*	300UR120A-ND	50.77	342.39	2548.28
800	300	1.62	301U80-ND	301UR80-ND	44.20	—	—
1000			301U100-ND	301UR100-ND	46.05	—	—
1200			301U120-ND	301UR120-ND	50.55	—	—
1400			301U140-ND	301UR140-ND	52.50	—	—
1600			301U160-ND•	301UR160-ND	54.42	—	—

All rectifiers include nut, washer and internal tooth lock washer.

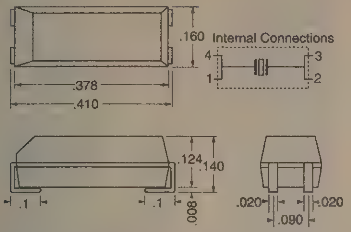
HARDWARE KITS	Digi-Key Part No.	Price Each
DO-4 INSULATING KIT		
Includes 2 Mica Washers, 1 Teflon Spacer and 1 Terminal		
1 set	40-8022-ND	.39
Bag of 50 Sets	40-1307-ND	7.17
DO-5 INSULATING KIT		
Includes 2 Mica Washers, 1 Glass Mel. Bushing and 1 Terminal		
1 set	40-8034-ND	.29
Bag of 50 Sets	40-1309-ND	10.74
DO-8 STUD ADAPTER KIT		
Stud Adapter 3/8-24 to 1/2-20		
1 Set	40-1361-ND	.45

* Case Style DO-205AB, DO-9, R13A.
• Case Style DO-205AB, DO-9, R14B.

EPSON AMERICA, INC.

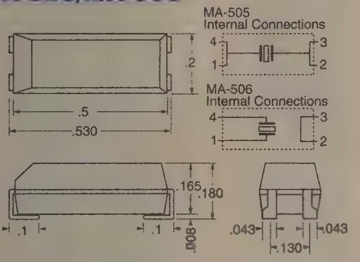
Surface-Mount Quartz Crystal Products

MC-405



Temperature Range: Operating: –40~ +85°C; Storage: –55~ +125°C.
Drive Level: Maximum: 1µW Max.; Typical: 0.1µW Typ.
Frequency Tolerance: ±20ppm; Ta=25°C, DL=0.1µW.
Series Resistance: 50kΩ Max.; DL=0.1µW.
Motional Capacitance: 2.0fF Typ.
Shunt Capacitance: 0.85pF Typ.
Insulation Resistance: 100MΩ Min.
Turn Over Temperature: 25°C ±5°C.
Temperature Co-efficient: –0.04ppm/°C² Max.
Load Capacitance: 12.5pF.

MA-505/MA-506



Temperature Range: Operating: –20 to 70°C; Storage: –55 ~ +125°C.

Drive Level: Maximum: 2mW Max.; Typical: 100µW Typ.

Frequency Tolerance: ±50ppm; Ta=25°C.

Frequency Temperature Characteristics: <5.3MHz: ±50ppm, >5.5MHz: ±30ppm, (-20°C~+70°C, DL = 100µW).

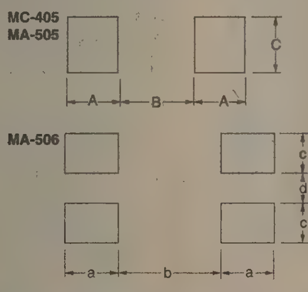
Shunt Capacitance: 5pF Max. **Insulation Resistance:** 500MΩ Min.

Frequency...Series Resistance (–20~ +70°C): 5.5~ 6.0MHz...100Ω Max. 6.0~10.0MHz...80Ω Max. 10.0~12.0MHz...60Ω Max. 12.0~16.0MHz...50Ω Max. 16.0~26.0MHz...40Ω Max. 26.0~36.0MHz...100 Ω Max. 36.0~60.0MHz...80Ω Max.

Load Capacitance: 18pF.

Recommended Soldering Pattern

- Capable of withstanding reflow temperatures of 260°C for 20 seconds
- Suitable for use in today's high density surface mount boards



(Unit in.)

MC-405	Symbol	A	B	C	
	Size	.161	.154	.161	
MA-505	Symbol	A	B	C	
	Size	.161	.276	.221	
MA-506	Symbol	a	b	c	d
	Size	.161	.270	.081	.060

◊ Except when otherwise noted.

* **SE1-KIT-ND** 3 each of values denoted (51 total pieces). Notebook style storage case and bin storage guide included. **$99.00**

• **SE2-KIT-ND** 3 each of values denoted (51 total pieces). Notebook style storage case and bin storage guide included. **$99.00**

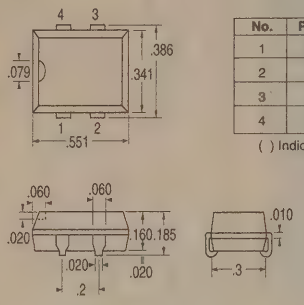
Series	Frequency (MHz)◊	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Pricing 500	1,000	Epson Part No.
MC-405	32.768kHz	SE2405CT-ND	2.01	18.00	150.00	SE2405TR-ND	498.00	900.00	MC-405-32.768K-A2
MA-505	4.000	SE2518CT-ND	2.51	22.50	187.50	SE2518TR-ND	622.50	1125.00	MA-505-4.000M-C2
	4.096	SE2519CT-ND	2.51	22.50	187.50	SE2519TR-ND	622.50	1125.00	MA-505-4.096M-C2
	4.915	SE2520CT-ND	2.51	22.50	187.50	SE2520TR-ND	622.50	1125.00	MA-505-4.915M-C2
	6.000	SE2501CT-ND*	2.01	18.00	150.00	SE2501TR-ND	498.00	900.00	MA-505-6.00M-C2
	6.144	SE2502CT-ND*	2.01	18.00	150.00	SE2502TR-ND	498.00	900.00	MA-505-6.144M-C2
	7.3728	SE2503CT-ND*	2.01	18.00	150.00	SE2503TR-ND	498.00	900.00	MA-505-7.3728M-C2
	8.000	SE2504CT-ND*	2.01	18.00	150.00	SE2504TR-ND	498.00	900.00	MA-505-8.00M-C2
	9.830	SE2524CT-ND	2.01	18.00	150.00	SE2524TR-ND	498.00	900.00	MA-505-9.830M-C2
	10.000	SE2505CT-ND*	2.01	18.00	150.00	SE2505TR-ND	498.00	900.00	MA-505-10.00M-C2
	10.240	SE2525CT-ND	2.01	18.00	150.00	SE2525TR-ND	498.00	900.00	MA-505-10.240M-C2
	11.000	SE2526CT-ND	2.01	18.00	150.00	SE2526TR-ND	498.00	900.00	MA-505-11.000M-C2
	11.0592	SE2506CT-ND*	2.01	18.00	150.00	SE2506TR-ND	498.00	900.00	MA-505-11.0592M-C2
	12.000	SE2507CT-ND*	2.01	18.00	150.00	SE2507TR-ND	498.00	900.00	MA-505-12.00M-C2
	12.288	SE2527CT-ND	2.01	18.00	150.00	SE2527TR-ND	498.00	900.00	MA-505-12.288M-C2
	14.318	SE2528CT-ND	2.01	18.00	150.00	SE2528TR-ND	498.00	900.00	MA-505-14.318M-C2
	14.745	SE2529CT-ND	2.01	18.00	150.00	SE2529TR-ND	498.00	900.00	MA-505-14.745M-C2
	15.000	SE2530CT-ND	2.01	18.00	150.00	SE2530TR-ND	498.00	900.00	MA-505-15.000M-C2
	16.000	SE2508CT-ND*	2.01	18.00	150.00	SE2508TR-ND	498.00	900.00	MA-505-16.00M-C2
	16.257	SE2531CT-ND	2.01	18.00	150.00	SE2531TR-ND	498.00	900.00	MA-505-16.257M-C2
	18.000	SE2532CT-ND	2.01	18.00	150.00	SE2532TR-ND	498.00	900.00	MA-505-18.000M-C2
	18.432	SE2533CT-ND	2.01	18.00	150.00	SE2533TR-ND	498.00	900.00	MA-505-18.432M-C2
	18.869	SE2534CT-ND	2.01	18.00	150.00	SE2534TR-ND	498.00	900.00	MA-505-18.869M-C2
	19.660	SE2535CT-ND	2.01	18.00	150.00	SE2535TR-ND	498.00	900.00	MA-505-19.660M-C2
	20.000	SE2509CT-ND*	2.01	18.00	150.00	SE2509TR-ND	498.00	900.00	MA-505-20.00M-C2
	20.480	SE2536CT-ND	2.01	18.00	150.00	SE2536TR-ND	498.00	900.00	MA-505-20.480M-C2
	22.118	SE2537CT-ND	2.01	18.00	150.00	SE2537TR-ND	498.00	900.00	MA-505-22.118M-C2
	24.000	SE2510CT-ND*	2.01	18.00	150.00	SE2510TR-ND	498.00	900.00	MA-505-24.00M-C2
	24.576	SE2538CT-ND	2.01	18.00	150.00	SE2538TR-ND	498.00	900.00	MA-505-24.576M-C2
	25.000	SE2539CT-ND	2.01	18.00	150.00	SE2539TR-ND	498.00	900.00	MA-505-25.000M-C2
	25.175	SE2540CT-ND	2.01	18.00	150.00	SE2540TR-ND	498.00	900.00	MA-505-25.175M-C2
	27.000	SE2541CT-ND	2.01	18.00	150.00	SE2541TR-ND	498.00	900.00	MA-505-27.000M-C2
	28.000	SE2511CT-ND*	2.01	18.00	150.00	SE2511TR-ND	498.00	900.00	MA-505-28.00M-C2
	28.322	SE2512CT-ND*	2.01	18.00	150.00	SE2512TR-ND	498.00	900.00	MA-505-28.322M-C2
	28.636	SE2542CT-ND	2.01	18.00	150.00	SE2542TR-ND	498.00	900.00	MA-505-28.636M-C2
	29.491	SE2543CT-ND	2.01	18.00	150.00	SE2543TR-ND	498.00	900.00	MA-505-29.491M-C2
	30.000	SE2544CT-ND	2.01	18.00	150.00	SE2544TR-ND	498.00	900.00	MA-505-30.000M-C2
	32.000	SE2513CT-ND*	2.01	18.00	150.00	SE2513TR-ND	498.00	900.00	MA-505-32.00M-C2
	32.514	SE2545CT-ND	2.01	18.00	150.00	SE2545TR-ND	498.00	900.00	MA-505-32.514M-C2
	32.768	SE2546CT-ND	2.01	18.00	150.00	SE2546TR-ND	498.00	900.00	MA-505-32.768M-C2
	33.000	SE2547CT-ND	2.01	18.00	150.00	SE2547TR-ND	498.00	900.00	MA-505-33.000M-C2
	33.3333	SE2514CT-ND*	2.01	18.00	150.00	SE2514TR-ND	498.00	900.00	MA-505-33.3333M-C2
	36.000	SE2548CT-ND	2.01	18.00	150.00	SE2548TR-ND	498.00	900.00	MA-505-36.000M-C2
	38.000	SE2549CT-ND	2.01	18.00	150.00	SE2549TR-ND	498.00	900.00	MA-505-38.000M-C2
	40.000	SE2515CT-ND*	2.01	18.00	150.00	SE2515TR-ND	498.00	900.00	MA-505-40.00M-C2
	44.900	SE2550CT-ND	2.01	18.00	150.00	SE2550TR-ND	498.00	900.00	MA-505-44.900M-C2
	48.000	SE2551CT-ND	2.01	18.00	150.00	SE2551TR-ND	498.00	900.00	MA-505-48.000M-C2
	50.000	SE2516CT-ND*	2.01	18.00	150.00	SE2516TR-ND	498.00	900.00	MA-505-50.00M-C2
	55.000	SE2552CT-ND	2.01	18.00	150.00	SE2552TR-ND	498.00	900.00	MA-505-55.000M-C2
	60.000	SE2517CT-ND*	2.18	19.50	162.50	SE2517TR-ND	539.50	975.00	MA-505-60.00M-C2
	64.000	SE2553CT-ND	2.18	19.50	162.50	SE2553TR-ND	539.50	975.00	MA-505-64.000M-C2
MA-506	4.000	SE2618CT-ND	2.51	22.50	187.50	SE2618TR-ND	622.50	1125.00	MA-506-4.000M-C2
	4.096	SE2619CT-ND	2.51	22.50	187.50	SE2619TR-ND	622.50	1125.00	MA-506-4.096M-C2
	4.915	SE2620CT-ND	2.51	22.50	187.50	SE2620TR-ND	622.50	1125.00	MA-506-4.915M-C2
	6.000	SE2601CT-ND•	2.01	18.00	150.00	SE2601TR-ND	498.00	900.00	MA-506-6.0000M-C2
	6.144	SE2602CT-ND•	2.01	18.00	150.00	SE2602TR-ND	498.00	900.00	MA-506-6.144M-C2
	7.3728	SE2603CT-ND•	2.01	18.00	150.00	SE2603TR-ND	498.00	900.00	MA-506-7.3728M-C2
	8.000	SE2604CT-ND•	2.01	18.00	150.00	SE2604TR-ND	498.00	900.00	MA-506-8.0000M-C2
	9.830	SE2624CT-ND	2.01	18.00	150.00	SE2624TR-ND	498.00	900.00	MA-506-9.830M-C2
	10.000	SE2605CT-ND•	2.01	18.00	150.00	SE2605TR-ND	498.00	900.00	MA-506-10.0000M-C2
	10.240	SE2625CT-ND	2.01	18.00	150.00	SE2625TR-ND	498.00	900.00	MA-506-10.240M-C2
	11.000	SE2626CT-ND	2.01	18.00	150.00	SE2626TR-ND	498.00	900.00	MA-506-11.000M-C2
	11.0592	SE2606CT-ND•	2.01	18.00	150.00	SE2606TR-ND	498.00	900.00	MA-506-11.0592M-C2
	12.000	SE2607CT-ND•	2.01	18.00	150.00	SE2607TR-ND	498.00	900.00	MA-506-12.0000M-C2
	12.288	SE2627CT-ND	2.01	18.00	150.00	SE2627TR-ND	498.00	900.00	MA-506-12.288M-C2
	14.318	SE2628CT-ND	2.01	18.00	150.00	SE2628TR-ND	498.00	900.00	MA-506-14.318M-C2
	14.745	SE2629CT-ND	2.01	18.00	150.00	SE2629TR-ND	498.00	900.00	MA-506-14.745M-C2
	15.000	SE2630CT-ND	2.01	18.00	150.00	SE2630TR-ND	498.00	900.00	MA-506-15.000M-C2
	16.000	SE2608CT-ND•	2.01	18.00	150.00	SE2608TR-ND	498.00	900.00	MA-506-16.0000M-C2
	16.257	SE2631CT-ND	2.01	18.00	150.00	SE2631TR-ND	498.00	900.00	MA-506-16.257M-C2
	18.000	SE2632CT-ND	2.01	18.00	150.00	SE2632TR-ND	498.00	900.00	MA-506-18.000M-C2
	18.432	SE2633CT-ND	2.01	18.00	150.00	SE2633TR-ND	498.00	900.00	MA-506-18.432M-C2
	18.869	SE2634CT-ND	2.01	18.00	150.00	SE2634TR-ND	498.00	900.00	MA-506-18.869M-C2
	19.660	SE2635CT-ND	2.01	18.00	150.00	SE2635TR-ND	498.00	900.00	MA-506-19.660M-C2
	20.000	SE2609CT-ND•	2.01	18.00	150.00	SE2609TR-ND	498.00	900.00	MA-506-20.0000M-C2
	20.480	SE2636CT-ND	2.01	18.00	150.00	SE2636TR-ND	498.00	900.00	MA-506-20.480M-C2
	22.118	SE2637CT-ND	2.01	18.00	150.00	SE2637TR-ND	498.00	900.00	MA-506-22.118M-C2
	24.000	SE2610CT-ND•	2.01	18.00	150.00	SE2610TR-ND	498.00	900.00	MA-506-24.0000M-C2
	24.576	SE2638CT-ND	2.01	18.00	150.00	SE2638TR-ND	498.00	900.00	MA-506-24.576M-C2
	25.000	SE2639CT-ND	2.01	18.00	150.00	SE2639TR-ND	498.00	900.00	MA-506-25.000M-C2
	25.175	SE2640CT-ND	2.01	18.00	150.00	SE2640TR-ND	498.00	900.00	MA-506-25.175M-C2
	27.000	SE2641CT-ND	2.01	18.00	150.00	SE2641TR-ND	498.00	900.00	MA-506-27.000M-C2
	28.000	SE2611CT-ND•	2.01	18.00	150.00	SE2611TR-ND	498.00	900.00	MA-506-28.0000M-C2
	28.322	SE2612CT-ND•	2.01	18.00	150.00	SE2612TR-ND	498.00	900.00	MA-506-28.3220M-C2
	28.636	SE2642CT-ND	2.01	18.00	150.00	SE2642TR-ND	498.00	900.00	MA-506-28.636M-C2
	29.491	SE2643CT-ND	2.01	18.00	150.00	SE2643TR-ND	498.00	900.00	MA-506-29.491M-C2
	30.000	SE2644CT-ND	2.01	18.00	150.00	SE2644TR-ND	498.00	900.00	MA-506-30.000M-C2
	32.000	SE2613CT-ND•	2.01	18.00	150.00	SE2613TR-ND	498.00	900.00	MA-506-32.0000M-C2
	32.514	SE2645CT-ND	2.01	18.00	150.00	SE2645TR-ND	498.00	900.00	MA-506-32.514M-C2
	32.768	SE2646CT-ND	2.01	18.00	150.00	SE2646TR-ND	498.00	900.00	MA-506-32.768M-C2
	33.000	SE2647CT-ND	2.01	18.00	150.00	SE2647TR-ND	498.00	900.00	MA-506-33.000M-C2
	33.3333	SE2614CT-ND•	2.01	18.00	150.00	SE2614TR-ND	498.00	900.00	MA-506-33.3333M-C2
	36.000	SE2648CT-ND	2.01	18.00	150.00	SE2648TR-ND	498.00	900.00	MA-506-36.000M-C2
	38.000	SE2649CT-ND	2.01	18.00	150.00	SE2649TR-ND	498.00	900.00	MA-506-38.000M-C2
	40.000	SE2615CT-ND•	2.01	18.00	150.00	SE2615TR-ND	498.00	900.00	MA-506-40.0000M-C2
	44.900	SE2650CT-ND	2.01	18.00	150.00	SE2650TR-ND	498.00	900.00	MA-506-44.900M-C2
	48.000	SE2651CT-ND	2.01	18.00	150.00	SE2651TR-ND	498.00	900.00	MA-506-48.000M-C2
	50.000	SE2616CT-ND•	2.01	18.00	150.00	SE2616TR-ND	498.00	900.00	MA-506-50.0000M-C2
	55.000	SE2652CT-ND	2.01	18.00	150.00	SE2652TR-ND	498.00	900.00	MA-506-55.000M-C2
	60.000	SE2617CT-ND•	2.18	19.50	162.50	SE2617TR-ND	539.50	975.00	MA-506-60.0000M-C2
	64.000	SE2653CT-ND	2.18	19.50	162.50	SE2653TR-ND	539.50	975.00	MA-506-64.000M-C2

EPSON AMERICA, INC.

Surface-Mount Quartz Crystal Products

SG-615 Series Oscillators

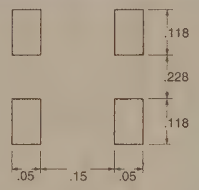
- SG-615/615P (C-MOS, TTL compatible type)
- SG-615T/615PT (TTL compatible type)
- SG-615H (C-MOS compatible type)
- Provided with an OE (Output Enable) function (SG-615P/615PT) (Contains internal pull-up resistor.)



No.	Pin Conn.
1	NC(OE)
2	GND
3	Out
4	VDDD

( ) Indicates P Type

Recommended Soldering Pattern



Supply Voltage: Operating: 5.0±0. 5V; Maximum: –0.3~ +7.0V.

Temperature Range: Operating: -40~ +85°C; Storage: -55~ +125°C.

Frequency Stability: C: ±100ppm, –10~ +70°C; C: ±200ppm, –40~ +85°C.

Current Consumption: 25mA Max. (SG-615/615P); 35mA Max. (SG-615T/615PT); 32mA Max. (SG-615H). Values are with no load.

Duty Cycle: 40~60%, 1.4V or 1/2VDD level.

Output Voltage: VDD -0.4V Min. (SG-615/615P), IOH = -400µA; VDD -0.4 Min. (SG-615T/ 615PT), IOH = -400µA; VDD -0.37V Min. (SG-615H), IOH = 4mA; 0.4V Max. (SG-615/ 615P), IOL = 16mA; 0.4V Max. (SG-615T/615PT), IOL =16mA; 0.37V Max. (SG-615H), IOL = 4mA.

OE Input Voltage (SG-615P/ 615PT): 2.0V Min., IOH = 1µA (VIH = VDD); 0.8V Max., IIL = 100µA (VIL = GND).

Rise Time: 8 nsec Max., 5 nsec Typ. (SG-615/615P); 10 nsec Max., 5 nsec Typ. (SG-615T/615PT); 7 nsec Max., 3.5 nsec Typ. (SG-615H).

Fall Time: 8 nsec Max., 5 nsec Typ. (SG-615/615P); 8 nsec Max., 3 nsec Typ. (SG-615T/615PT); 7 nsec Max., 3.5 nsec Typ. (SG-615H).

Oscillation Start Time: 4 msec Max., (SG-615/615P); 10 msec Max., (SG-615T/615PT); 10 msec Max., (SG-615H).

Series	Frequency (MHz)◊	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Pricing 500	Epson Part No.
SG-615	2.000	SE2102CT-ND	6.03	54.00	450.00	—	—	SG-615-2.0MC2
	2.4576	SE2103CT-ND	6.03	54.00	450.00	SE2103TR-ND	1494.00	SG-615-2.4576MC2
	4.9152	SE2106CT-ND	6.03	54.00	450.00	SE2106TR-ND	1494.00	SG-615-4.9152MC2
	6.000	SE2107CT-ND	6.03	54.00	450.00	SE2107TR-ND	1494.00	SG-615-6.0MC2
	18.432	SE2113CT-ND	6.03	54.00	450.00	SE2113TR-ND	1494.00	SG-615-18.432MC2
SG-615P (OE)	1.544	SE2217CT-ND	5.53	49.50	412.50	SE2217TR-ND	1369.50	SG-615P-1.544MC2
	1.8432	SE2201CT-ND†	5.53	49.50	412.50	SE2201TR-ND	1369.50	SG-615P-1.8432MC2
	2.000	SE2202CT-ND†	5.53	49.50	412.50	SE2202TR-ND	1369.50	SG-615P-2.0000MC2
	2.048	SE2218CT-ND	5.53	49.50	412.50	SE2218TR-ND	1369.50	SG-615P-2.048MC2
	2.4576	SE2203CT-ND†	5.53	49.50	412.50	SE2203TR-ND	1369.50	SG-615P-2.4576MC2
	3.072	SE2219CT-ND	5.53	49.50	412.50	SE2219TR-ND	1369.50	SG-615P-3.072MC2
	3.088	SE2220CT-ND	5.53	49.50	412.50	SE2220TR-ND	1369.50	SG-615P-3.088MC2
	3.276	SE2221CT-ND	5.53	49.50	412.50	SE2221TR-ND	1369.50	SG-615P-3.276MC2
	3.579	SE2222CT-ND	5.53	49.50	412.50	SE2222TR-ND	1369.50	SG-615P-3.579MC2
	3.6864	SE2204CT-ND†	5.53	49.50	412.50	SE2204TR-ND	1369.50	SG-615P-3.6864MC2
	4.000	SE2205CT-ND†	5.53	49.50	412.50	SE2205TR-ND	1369.50	SG-615P-4.0000MC2
	4.096	SE2223CT-ND	5.53	49.50	412.50	SE2223TR-ND	1369.50	SG-615P-4.096MC2
	4.9152	SE2206CT-ND†	5.53	49.50	412.50	SE2206TR-ND	1369.50	SG-615P-4.9152MC2
	5.000	SE2224CT-ND	5.53	49.50	412.50	SE2224TR-ND	1369.50	SG-615P-5.000MC2
	5.068	SE2225CT-ND	5.53	49.50	412.50	SE2225TR-ND	1369.50	SG-615P-5.068MC2
	6.000	SE2207CT-ND†	5.53	49.50	412.50	SE2207TR-ND	1369.50	SG-615P-6.0000MC2
	6.144	SE2226CT-ND	5.53	49.50	412.50	SE2226TR-ND	1369.50	SG-615P-6.144MC2
	7.372	SE2227CT-ND	5.53	49.50	412.50	SE2227TR-ND	1369.50	SG-615P-7.372MC2
	8.000	SE2208CT-ND†	5.53	49.50	412.50	SE2208TR-ND	1369.50	SG-615P-8.0000MC2
	8.192	SE2228CT-ND	5.53	49.50	412.50	SE2228TR-ND	1369.50	SG-615P-8.192MC2
	9.830	SE2229CT-ND	5.53	49.50	412.50	SE2229TR-ND	1369.50	SG-615P-9.830MC2
	10.000	SE2209CT-ND†	5.53	49.50	412.50	SE2209TR-ND	1369.50	SG-615P-10.0000MC2
	10.240	SE2230CT-ND	5.53	49.50	412.50	SE2230TR-ND	1369.50	SG-615P-10.240MC2
	11.000	SE2231CT-ND	5.53	49.50	412.50	SE2231TR-ND	1369.50	SG-615P-11.000MC2
	11.059	SE2232CT-ND	5.53	49.50	412.50	SE2232TR-ND	1369.50	SG-615P-11.059MC2
	12.000	SE2210CT-ND†	5.53	49.50	412.50	SE2210TR-ND	1369.50	SG-615P-12.0000MC2
	12.288	SE2233CT-ND	5.53	49.50	412.50	SE2233TR-ND	1369.50	SG-615P-12.288MC2
	14.31818	SE2211CT-ND†	5.53	49.50	412.50	SE2211TR-ND	1369.50	SG-615P-14.31818MC2
	14.475	SE2234CT-ND	5.53	49.50	412.50	SE2234TR-ND	1369.50	SG-615P-14.475MC2
	15.000	SE2235CT-ND	5.53	49.50	412.50	SE2235TR-ND	1369.50	SG-615P-15.000MC2
	16.000	SE2212CT-ND†	5.53	49.50	412.50	SE2212TR-ND	1369.50	SG-615P-16.0000MC2
	16.257	SE2236CT-ND	5.53	49.50	412.50	SE2236TR-ND	1369.50	SG-615P-16.257MC2
	18.000	SE2237CT-ND	5.53	49.50	412.50	SE2237TR-ND	1369.50	SG-615P-18.000MC2
	18.432	SE2213CT-ND†	5.53	49.50	412.50	SE2213TR-ND	1369.50	SG-615P-18.4320MC2
	18.869	SE2238CT-ND	5.53	49.50	412.50	SE2238TR-ND	1369.50	SG-615P-18.869MC2
	19.660	SE2239CT-ND	5.53	49.50	412.50	SE2239TR-ND	1369.50	SG-615P-19.660MC2
	20.000	SE2214CT-ND†	5.53	49.50	412.50	SE2214TR-ND	1369.50	SG-615P-20.0000MC2
	20.480	SE2240CT-ND	5.53	49.50	412.50	SE2240TR-ND	1369.50	SG-615P-20.480MC2
	22.118	SE2241CT-ND	5.53	49.50	412.50	SE2241TR-ND	1369.50	SG-615P-22.118MC2
	24.000	SE2215CT-ND†	5.53	49.50	412.50	SE2215TR-ND	1369.50	SG-615P-24.0000MC2
	25.000	SE2242CT-ND	5.53	49.50	412.50	SE2242TR-ND	1369.50	SG-615P-25.000MC2
	25.175	SE2216CT-ND†	5.53	49.50	412.50	SE2216TR-ND	1369.50	SG-615P-25.1750MC2
SG-615T	36.000	SE2313CT-ND	6.20	55.50	462.50	—	—	SG-615T36.0000MC2
SG-615PT (OE)	36.000	SE2304CT-ND	6.20	55.50	462.50	—	—	SG-615PT36.0000MC2
SG-615H (C-MOS)	32.000	SE2321CT-ND	6.20	55.50	462.50	—	—	SG-615H32.0000MC2
SG-615PTJ	27.000	SE2326CT-ND	5.53	49.50	412.50	SE2326TR-ND	1369.50	SG-615PTJ-27.000MC2
	28.322	SE2327CT-ND	5.53	49.50	412.50	SE2327TR-ND	1369.50	SG-615PTJ-28.322MC2
	28.636	SE2328CT-ND	5.53	49.50	412.50	SE2328TR-ND	1369.50	SG-615PTJ-28.636MC2
	29.491	SE2329CT-ND	5.53	49.50	412.50	SE2329TR-ND	1369.50	SG-615PTJ-29.491MC2
	30.000	SE2330CT-ND	5.53	49.50	412.50	SE2330TR-ND	1369.50	SG-615PTJ-30.000MC2
	32.000	SE2331CT-ND	5.53	49.50	412.50	SE2331TR-ND	1369.50	SG-615PTJ-32.000MC2
	32.514	SE2332CT-ND	5.53	49.50	412.50	SE2332TR-ND	1369.50	SG-615PTJ-32.514MC2
	32.768	SE2333CT-ND	5.53	49.50	412.50	SE2333TR-ND	1369.50	SG-615PTJ-32.768MC2
	33.000	SE2334CT-ND	5.53	49.50	412.50	SE2334TR-ND	1369.50	SG-615PTJ-33.000MC2
	33.333	SE2335CT-ND	5.53	49.50	412.50	SE2335TR-ND	1369.50	SG-615PTJ-33.333MC2
	36.000	SE2336CT-ND	5.53	49.50	412.50	SE2336TR-ND	1369.50	SG-615PTJ-36.000MC2
SG-615PH	32.000	SE2337CT-ND	5.53	49.50	412.50	SE2337TR-ND	1369.50	SG-615PH-32.000MC2
	32.768	SE2338CT-ND	5.53	49.50	412.50	SE2338TR-ND	1369.50	SG-615PH-32.768MC2
	33.000	SE2339CT-ND	5.53	49.50	412.50	SE2339TR-ND	1369.50	SG-615PH-33.000MC2
	33.333	SE2340CT-ND	5.53	49.50	412.50	SE2340TR-ND	1369.50	SG-615PH-33.333MC2
	36.000	SE2341CT-ND	5.53	49.50	412.50	SE2341TR-ND	1369.50	SG-615PH-36.000MC2
	38.000	SE2342CT-ND	5.53	49.50	412.50	SE2342TR-ND	1369.50	SG-615PH-38.000MC2
	40.000	SE2343CT-ND	5.53	49.50	412.50	SE2343TR-ND	1369.50	SG-615PH-40.000MC2
	44.900	SE2344CT-ND	5.53	49.50	412.50	SE2344TR-ND	1369.50	SG-615PH-44.900MC2
	48.000	SE2345CT-ND	5.53	49.50	412.50	SE2345TR-ND	1369.50	SG-615PH-48.000MC2
	50.000	SE2346CT-ND	5.53	49.50	412.50	SE2346TR-ND	1369.50	SG-615PH-50.000MC2
	55.000	SE2347CT-ND	5.53	49.50	412.50	SE2347TR-ND	1369.50	SG-615PH-55.000MC2
	60.000	SE2348CT-ND	5.70	51.00	425.00	SE2348TR-ND	1411.00	SG-615PH-60.000MC2
	64.000	SE2349CT-ND	5.70	51.00	425.00	SE2349TR-ND	1411.00	SG-615PH-64.000MC2
	65.000	SE2350CT-ND	5.70	51.00	425.00	SE2350TR-ND	1411.00	SG-615PH-65.000MC2
	66.000	SE2351CT-ND	5.70	51.00	425.00	SE2351TR-ND	1411.00	SG-615PH-66.000MC2
	66.666	SE2352CT-ND	5.70	51.00	425.00	SE2352TR-ND	1411.00	SG-615PH-66.666MC2

◊ Except when otherwise noted.

† **SE3-KIT-ND** 2 each of values denoted (32 total pieces). Notebook style storage case and bin storage guide included **$169.00**

EPSON AMERICA, INC.

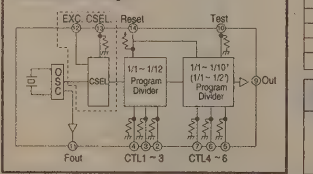
Programmable Crystal Oscillators/Frequency Dividers*

- **Supply Voltage:** 4.5 ~ 5.5V • **Operating Temperature:** –10 ~ +70°C
- **Electrical Characteristics:**
- **L. Output Voltage:** VOL = 0.4V. • **H. Output Voltage:** VOH = VDD –1.0V. • **L. Output Current:** IOL = 1.6mA. • **H. Output Current:** IOH = –40µA. • **Rise Time:** 30 nsec Typ. • **Fall Time:** 25 nsec Typ. • **Start-up Time:** 0.2 l sec.

**The SPG-864N series can also be used to divide down an external clock source of up to 1Mhz by tying the clock select (CSEL) pin high*

Features: • Provides 57 different frequencies from a single quartz crystal. • Packaged in standard 16-pin DIP containing both IC and quartz crystal. • SPG Series is high precision time-base frequency generators each comprised of a small quartz-crystal element and a CMOS monolithic chip integrated hybrid configuration.

Function Block Diagram


EXC.
CSEL.
Reset
Test
⑫
⑬
⑭
⑩
OSC
CSEL
1/1 ~ 1/12 Program Divider
1/1 ~ 1/10⁷ (1/1 ~ 1/2⁷) Program Divider
⑨Out
①
Fout
④③②
CTL1 ~ 3
⑦⑥⑤
CTL4 ~6

Set Of Output Frequency

CTL1	CTL2	CTL3	Dividing Ratio	CTL4	CTL5	CTL6	Dividing Ratio
0	0	0	1/1	0	0	0	1/1
0	0	1	1/10	0	0	1	1/10
0	1	0	1/2	0	1	0	$1/10^2$
0	1	1	1/3	0	1	1	$1/10^3$
1	0	0	1/4	1	0	0	$1/10^4$
1	0	1	1/5	1	0	1	$1/10^5$
1	1	0	1/6	1	1	0	$1/10^6$
1	1	1	1/12	1	1	1	$1/10^7$

Base Frequency	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Epson Part No.
600kHz±100ppm±	SE3101-ND	21.00	175.00	1400.00	SPG-8640AN
1MHz±100ppm	SE3102-ND	21.00	175.00	1400.00	SPG-8640BN
60kHz±5ppm	SE3103-ND	19.65	163.75	1310.00	SPG-8651A
100kHz±5ppm	SE3104-ND	19.65	163.75	1310.00	SPG-8651B

EPSON AMERICA, INC.

CMOS Oscillators

• High reliability by cylinder type AT Crystal • Automatic mountable • Lower current consumption by C-MOS IC • TTL-10 output load by using C-MOS IC • DIP 14-PIN plastic package compatible with metal package oscillator • DIP 8-PIN plastic package compatible with half size metal package oscillator

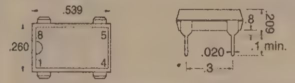
SG-51P, SG-531P, SG-51PH Specifications: Input Voltage: Operating: 5.0±0.5V. **Temperature Range:** Operating: –10 to +70°C. **Frequency Stability:** C:±100ppm. **Current Consumption:** 25mA Max. Typ. **Output Voltage:** VDD -0.4V Min., IOH = –400mA; 0.4V Max., IOL = 16mA. **Input Voltage:** VIH 2.0V Min., IOH = ImA (VIH = VDD); VIL 0.8V Max., IIL = –100uA (VIL = GND). **Output Rise Time:** 8 nsec Max., 4 nsec Typ. **Output Fall Time:** 8 nsec Max., 5 nsec Typ. **Oscillation Time:** 4 msec Max., 0.3 msec.

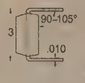
SG-51KT, SG-51PT, SG-531PT, SG-531PTJ, SG-51PTJ Specifications: Input Voltage: Operating: 5.0±0.5V. **Temperature Range:** Operating: –10 to +70°C. **Frequency Stability:** C:±100ppm. **Current Consumption:** 25mA (32MHz) without load Typ. **Output Voltage:** VDD –0.4V Min., IOH = –400 mA; 0.4V Max., IOL = 16mA. **Input Voltage:** VIH 2.0V Min., IIH = ImA (VIH = VDD); VIL 0.8V Max., IIL = 100uA (VIL = GND). **Output Rise Time:** 10 nsec Max., 5 nsec Typ. **Output Fall Time:** 8 nsec Max., 3 nsec Typ. **Oscillation Time:** 10 msec Max., 5 msec.

SG-531H, SG-531PH Specifications: Input Voltage: Operating: 5.0±0.5V. **Temperature Range:** Operating: –10 to +70°C. **Frequency Stability:** C:±100ppm. **Current Consumption:** 32mA Max. Typ. **Output Voltage:** VDD –0.37V Min., IOH = –4mA; 0.37V Max., IOL = 4mA. **Output Rise Time:** 7 nsec Max., 3.5 nsec Typ. **Output Fall Time:** 7 nsec Max., 3.5 nsec Typ. **Oscillation Time:** 10 msec Max., 3 msec Typ.

	Terminal	Load Condition		Output Control Function
Model	DIP 4-Pin	C-MOS	TTL-10	OE Function
SG-51P, SG-531P	•	•	•	•
SG-51PT, SG-51PTJ, SG-531PT, SG-531PTJ	•		•	•
SG-51KT	•		•	
SG-531H	•	•		
SG-531 PH, 51PH	•	•		•

SG-531P, SG-531H, SG531PT,SG531PTJ, SG-531PH

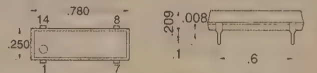


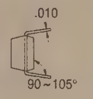


Pin	SG-531 H
1	NC
4	GND
5	Out
8	VDD

Pin	SG-531P, PT, PH, PTJ
1	OE
4	GND
5	Out
8	VDD

SG-51P, SG-51KT, SG-51PT, SG-51PTJ, SG-51PH





Pin	SG-51KT
1	NC
7	GND
8	Out
14	VDD

Pin	51P, PT PH, PTJ
1	OE
7	GND
8	Out
14	VDD

Case	Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	1,000	Epson Part No.
SG-531H	60.000	SE1110-ND	3.45	28.75	230.00	1725.00	SG-531H-60.0000MC
SG-531PH	32.000	SE1111-ND	3.45	28.75	230.00	1725.00	SG-531PH-32.000MC
	32.514	SE1112-ND	3.45	28.75	230.00	1725.00	SG-531PH-32.514MC
	32.768	SE1113-ND	3.45	28.75	230.00	1725.00	SG-531PH-32.768MC
	33.000	SE1114-ND	3.45	28.75	230.00	1725.00	SG-531PH-33.000MC
	33.333	SE1115-ND	3.45	28.75	230.00	1725.00	SG-531PH-33.333MC
	36.000	SE1116-ND	3.45	28.75	230.00	1725.00	SG-531PH-36.000MC
	38.000	SE1117-ND	3.45	28.75	230.00	1725.00	SG-531PH-38.000MC
	40.000	SE1118-ND	3.45	28.75	230.00	1725.00	SG-531PH-40.000MC
	42 000	SE1119-ND	3.45	28.75	230.00	1725.00	SG-531PH-42.000MC
	44.900	SE1120-ND	3.45	28.75	230.00	1725.00	SG-531PH-44.900MC
	46.000	SE1121-ND	3.45	28.75	230.00	1725.00	SG-531PH-46.000MC
	48.000	SE1122-ND	3.45	28.75	230.00	1725.00	SG-531PH-48.000MC
	50.000	SE1123-ND	3.45	28.75	230.00	1725.00	SG-531PH-50.000MC
	55.000	SE1124-ND	3.45	28.75	230.00	1725.00	SG-531PH-55.000MC
	60.000	SE1125-ND	3.45	28.75	230.00	1725.00	SG-531PH-60.000MC
	64.000	SE1126-ND	3.45	28.75	230.00	1725.00	SG-531PH-64.000MC
	65.000	SE1127-ND	3.45	28.75	230.00	1725.00	SG-531PH-65.000MC
	66.000	SE1128-ND	3.45	28.75	230.00	1725.00	SG-531PH-66.000MC
	66.666	SE1129-ND	3.45	28.75	230.00	1725.00	SG-531PH-66.666MC
SG-531P (OE)	1.544	SE1216-ND	3.45	28.75	230.00	1725.00	SG-531P-1.544MC
	1.8432	SE1201-ND	3.45	28.75	230.00	1725.00	SG-531P-1.8432MC
	2.000	SE1217-ND	3.45	28.75	230.00	1725.00	SG-531P-2.000MC
	2.048	SE1218-ND	3.45	28.75	230.00	1725.00	SG-531P-2.048MC
	2.4576	SE1202-ND	3.45	28.75	230.00	1725.00	SG-531P-2.4576MC
	3.072	SE1219-ND	3.45	28.75	230.00	1725.00	SG-531P-3.072MC
	3.088	SE1220-ND	3.45	28.75	230.00	1725.00	SG-531P-3.088MC
	3.276	SE1221-ND	3.45	28.75	230.00	1725.00	SG-531P-3.276MC
	3.579	SE1222-ND	3.45	28.75	230.00	1725.00	SG-531P-3.579MC
	3.686	SE1223-ND	3.45	28.75	230 00	1725.00	SG-531P-3.686MC
	4.000	SE1203-ND	3.45	28.75	230.00	1725.00	SG-531P-4.0000MC
	4.096	SE1224-ND	3.45	28.75	230.00	1725.00	SG-531P-4.096MC
	4.9152	SE1204-ND	3.45	28.75	230.00	1725.00	SG-531P-4.9152MC
	5.000	SE1205-ND	3.45	28.75	230.00	1725.00	SG-531P-5.0000MC
	5.068	SE1225-ND	3.45	28.75	230.00	1725.00	SG-531P-5.068MC
	6.000	SE1206-ND	3.45	28.75	230.00	1725.00	SG-531P-6.0000MC
	6.144	SE1226-ND	3.45	28.75	230.00	1725.00	SG-531P-6.144MC
	7.372	SE1227-ND	3.45	28.75	230.00	1725.00	SG-531P-7.372MC
	8.000	SE1207-ND	3.45	28.75	230.00	1725.00	SG-531P-8.0000MC
	8.192	SE1228-ND	3.45	28.75	230.00	1725.00	SG-531P-8.192MC
	9.830	SE1229-ND	3.45	28.75	230.00	1725.00	SG-531P-9.830MC
	10.000	SE1208-ND	3.45	28.75	230.00	1725.00	SG-531P-10.0000MC
	10.240	SE1230-ND	3.45	28.75	230.00	1725.00	SG-531P-10.240MC
	11.000	SE1231-ND	3.45	28.75	230.00	1725.00	SG-531P-11.000MC
	11.059	SE1232-ND	3.45	28.75	230.00	1725.00	SG-531P-11.059MC
	12.000	SE1209-ND	3.45	28.75	230.00	1725.00	SG-531P-12.0000MC
	12.288	SE1233-ND	3.45	28.75	230.00	1725.00	SG-531P-12.288MC
	14.31818	SE1210-ND	3.45	28.75	230.00	1725.00	SG-531P-14.31818MC
	14.745	SE1234-ND	3.45	28.75	230.00	1725.00	SG-531P-14.745MC
	15.000	SE1235-ND	3.45	28.75	230.00	1725.00	SG-531P-15.000MC
	16.000	SE1211-ND	3.45	28.75	230.00	1725.00	SG-531P-16.0000MC
	16.257	SE1236-ND	3.45	28.75	230.00	1725.00	SG-531P-16.257MC
	18.000	SE1237-ND	3.45	28.75	230.00	1725.00	SG-531P-18.000MC
	18.432	SE1238-ND	3.45	28.75	230.00	1725.00	SG-531P-18.432MC
	18.869	SE1239-ND	3.45	28.75	230.00	1725.00	SG-531P-18.869MC
	19.660	SE1240-ND	3.45	28.75	230.00	1725.00	SG-531P-19.660MC
	20.000	SE1212-ND	3.45	28.75	230.00	1725.00	SG-531P-20.0000MC
	20.480	SE1241-ND	3.45	28.75	230.00	1725.00	SG-531P-20.480MC
	22.118	SE1242-ND	3.45	28.75	230.00	1725.00	SG-531P-22.118MC
	24.000	SE1213-ND	3.45	28.75	230.00	1725.00	SG-531P-24.0000MC
	25.000	SE1214-ND	3.45	28.75	230.00	1725.00	SG-531P-25.0000MC
	25.175	SE1215-ND	3.45	28.75	230.00	1725.00	SG-531P-25.1750MC
	25.676	SE1243-ND	3.45	28.75	230.00	1725.00	SG-531P-25.576MC
SG-531PT (OE)	28.322	SE1302-ND	3.30	27.50	220.00	1650.00	SG-531PT-28.3220MC
	29.491	SE1308-ND	3.30	27.50	220.00	1650.00	SG-531PT-29.491MC
	32.514	SE1310-ND	3.30	27.50	220.00	1650.00	SG-531PT-32.514MC
	36.000	SE1305-ND	3.30	27.50	220.00	1650.00	SG-531PT-36.0000MC
SG-531PTJ	27.000	SE1817-ND	3.45	28 75	230.00	1725.00	SG-531PTJ-27.000MC
	28.000	SE1818-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-28.0000MC
	28.322	SE1819-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-28.322MC
	28.636	SE1820-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-28.636MC
	29 491	SE1821-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-29.491MC
	30.000	SE1822-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-30.000MC
	32.000	SE1823-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-32.0000MC
	32.514	SE1824-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-32.514MC
	32.768	SE1825-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-32.768MC
SG-531PTJ	33.000	SE1826-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-33.000MC
	33.333	SE1827-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-33.333MC
	36.000	SE1828-ND	3.45	28.75	230.00	1725.00	SG-531PTJ-36.000MC
SG-51KT (TTL)	28.322	SE1602-ND	3.30	27.50	220.00	1650.00	SG-51KT-28.3220MC
	36.000	SE1605-ND	3.30	27.50	220.00	1650.00	SG-51KT-36.0000MC
SG-51P (OE)	1.544	SE1716-ND	3.45	28.75	230.00	1725.00	SG-51P-1.544MC
	1.8432	SE1701-ND	3.45	28.75	230.00	1725.00	SG-51P-1.8432MC
	2.000	SE1717-ND	3.45	28.75	230.00	1725.00	SG-51P-2.000MC
	2.048	SE1718-ND	3.45	28.75	230.00	1725.00	SG-51P-2.048MC
	2.4576	SE1702-ND	3.45	28.75	230.00	1725.00	SG-51P-2.4576MC
	3.072	SE1719-ND	3.45	28.75	230.00	1725.00	SG-51P-3.072MC
	3.088	SE1720-ND	3.45	28.75	230.00	1725.00	SG-51P-3.088MC
	3.276	SE1721-ND	3.45	28.75	230.00	1725.00	SG-51P-3.276MC
	3.579	SE1722-ND	3.45	28.75	230.00	1725.00	SG-51P-3.579MC
	3.686	SE1723-ND	3.45	28.75	230.00	1725.00	SG-51P-3.686MC
	4.000	SE1703-ND	3.45	28.75	230.00	1725.00	SG-51P-4.0000MC
	4.096	SE1724-ND	3.45	28.75	230.00	1725.00	SG-51P-4.096MC
	4.9152	SE1704-ND	3.45	28.75	230.00	1725.00	SG-51P-4.9152MC
	5.000	SE1705-ND	3.45	28.75	230.00	1725.00	SG-51P-5.0000MC
	5.068	SE1725-ND	3.45	28.75	230.00	1725.00	SG-51P-5.068MC
	6.000	SE1706-ND	3.45	28.75	230.00	1725.00	SG-51P-6.0000MC
	6.144	SE1726-ND	3.45	28.75	230.00	1725.00	SG-51P-6.144MC
	7.372	SE1727-ND	3.45	28.75	230.00	1725.00	SG-51P-7.372MC
	8.000	SE1707-ND	3.45	28.75	230.00	1725.00	SG-51P-8.0000MC
	8.192	SE1728-ND	3.45	28.75	230.00	1725.00	SG-51P-8.192MC
	9.830	SE1729-ND	3.45	28.75	230.00	1725.00	SG-51P-9.830MC
	10.000	SE1708-ND	3.45	28.75	230.00	1725.00	SG-51P-10.0000MC
	10.240	SE1730-ND	3.45	28.75	230.00	1725.00	SG-51P-10.240MC
	11.000	SE1731-ND	3.45	28.75	230.00	1725.00	SG-51P-11.000MC
	11.059	SE1732-ND	3.45	28.75	230.00	1725.00	SG-51P-11.059MC
	12.000	SE1709-ND	3.45	28.75	230.00	1725.00	SG-51P-12.0000MC
	12.288	SE1733-ND	3.45	28.75	230.00	1725.00	SG-51P-12.288MC
	14.31818	SE1710-ND	3.45	28.75	230.00	1725.00	SG-51P-14.31818MC
	14.745	SE1734-ND	3.45	28.75	230.00	1725.00	SG-51P-14.745MC
	15.000	SE1735-ND	3.45	28.75	230.00	1725.00	SG-51P-15.000MC
	16.000	SE1711-ND	3.45	28.75	230.00	1725.00	SG-51P-16.0000MC
	16.257	SE1736-ND	3.45	28.75	230.00	1725.00	SG-51P-16.257MC
	18.000	SE1737-ND	3.45	28.75	230.00	1725.00	SG-51P-18.000MC
	18.432	SE1738-ND	3.45	28.75	230.00	1725.00	SG-51P-18.432MC
	18.869	SE1739-ND	3.45	28.75	230.00	1725.00	SG-51P-18.869MC
	19.660	SE1740-ND	3.45	28.75	230.00	1725.00	SG-51P-19.660MC
	20.000	SE1712-ND	3.45	28.75	230.00	1725.00	SG-51P-20.0000MC
	20.480	SE1741-ND	3.45	28.75	230.00	1725.00	SG-51P-20.480MC
	22.118	SE1742-ND	3.45	28.75	230.00	1725.00	SG-51P-22.118MC
	24.000	SE1713-ND	3.45	28.75	230.00	1725.00	SG-51P-24.0000MC
	24.576	SE1743-ND	3.45	28.75	230.00	1725.00	SG-51P-24.576MC
	25.000	SE1714-ND	3.45	28.75	230.00	1725.00	SG-51P-25.0000MC
	25.175	SE1715-ND	3.45	28.75	230.00	1725.00	SG-51P-25.1750MC
SG-51PT (OE)	28.322	SE1802-ND	3.30	27.50	220.00	1650.00	SG-51PT-28.3220MC
SG-51PTJ	28.000	SE1806-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-28.000MC
	28.322	SE1807-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-28.322MC
	28.636	SE1808-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-28.636MC
	29.491	SE1809-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-29.491MC
	30.000	SE1810-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-30.000MC
	32.000	SE1811-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-32.000MC
	32.514	SE1812-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-32.514MC
	32.768	SE1813-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-32.768MC
	33.000	SE1814-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-33.000MC
	33.333	SE1815-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-33.333MC
	36.000	SE1816-ND	3.45	28.75	230.00	1725.00	SG-51PTJ-36.000MC
SG-51PH	32.000	SE1901-ND	3.45	28.75	230.00	1725.00	SG-51PH-32.000MC
	32.768	SE1902-ND	3.45	28.75	230.00	1725.00	SG-51PH-32.768MC
	33.000	SE1903-ND	3.45	28.75	230.00	1725.00	SG-51PH-33.000MC
	33.333	SE1904-ND	3.45	28.75	230.00	1725.00	SG-51PH-33.333MC
	36.000	SE1905-ND	3.45	28.75	230.00	1725.00	SG-51PH-36.000MC
	38.000	SE1906-ND	3.45	28.75	230.00	1725.00	SG-51PH-38.000MC
	40.000	SE1907-ND	3.45	28.75	230.00	1725.00	SG-51PH-40.000MC
	42.000	SE1908-ND	3.45	28.75	230.00	1725.00	SG-51PH-42.000MC
	44.900	SE1909-ND	3.45	28.75	230.00	1725.00	SG-51PH-44.900MC
	46.000	SE1910-ND	3.45	28.75	230.00	1725.00	SG-51PH-46.000MC
	48.000	SE1911-ND	3.45	28.75	230.00	1725.00	SG-51PH-48.000MC
	50.000	SE1912-ND	3.45	28.75	230.00	1725.00	SG-51PH-50.000MC
	55.000	SE1913-ND	3.45	28.75	230.00	1725.00	SG-51PH-55.000MC
	60.000	SE1914-ND	3.45	28.75	230.00	1725.00	SG-51PH-60.000MC

EPSON AMERICA, INC.

Cylinder-Type Quartz Crystals

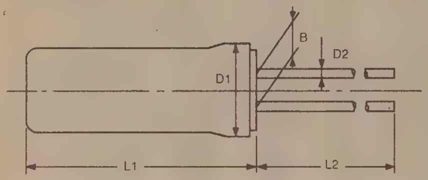
C-Type/C-2-Type

Specifications For C-Type (Characteristics):

Nominal Frequency: 32.768KHz.
Operating Temperature: -10°C~ +60°C.
Maximum Drive Level: 1.0μW MAX.
Frequency Tolerance (Standard): ±20ppm.
Load Capacitance: (SE3201, SE3202, SE3203) 12.5pf; (SE3204) 9pf.
Series Resistance: C-001R – 35K Ω MAX. (18K Ω TYP.); C-002RX and C-004R – 50K Ω MAX. (30K Ω TYP.); and C-005R – 50K Ω MAX. (37K Ω TYP.).

Specifications For C-2-Type (Characteristics):

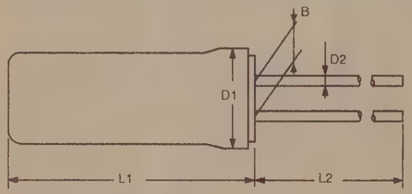
Operating Temperature: -10°C~ +60°C.
Maximum Drive Level: 1.0μW MAX.
Crystal Load Capacitance/Tolerance: All parts have 11 pfd. load capacitance, ±100 ppm except:
(SE3307) C-2 31.200KI-AG, 7 pfd.,±200 ppm;
(SE3311) C-2 32.560KH-AG, 7pfd., ±190 ppm;
(SE3314) C-2 38.000KA-P 12.5 pfd., ±100 ppm.
Series Resistance Over 20KHz and Under 99KHz: 35K Ω~15K Ω.
Series Resistance Over 100KHz and Under 200KHz: 12K Ω~8K Ω.



Model	L_1	L_2	D_1	D_2	B
C-2-Type	6.2 MAX	4.0 MIN	ø2.0 MAX	ø0.2	0.6
C-001R	8.0 MAX	9.0 MIN	ø3.1 MAX	ø0.3	1.1
C-002RX	6.0 MAX	4.0 MIN	ø2.0 MAX	ø0.2	0.6
C-004R	5.0 MAX	4.0 MIN	ø1.5 MAX	ø0.18	0.5
C-005R	4.6 MAX	4.0 MIN	ø1 2 MAX	ø0.15	0.3

CA-301 Type

SPECIFICATIONS (Characteristics):
Operating Temperature: -20°C~ +70°C. **Maximum Drive Level:** 2mW MAX. **Recommended Level:** 10μW~100μW TYP. **Frequency Tolerance (Standard):** ±30ppm. **Load Capacitance:** 18 pfd. **Series Resistance:** As per table below.



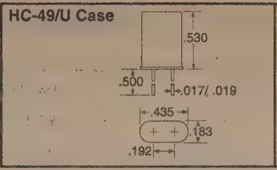
Model	L_1	L_2	D_1	D_2	B
Under 5.3MHz	10.3 MAX	9.0 MIN	ø3.1 MAX	ø0.3	1.1
Over 5.5 MHz	8.9 MAX	9.0 MIN	ø3.1 MAX	ø0.3	1.1

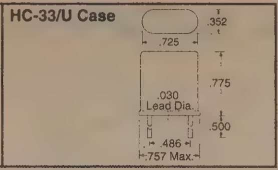
Frequency (MHz)	Series Resistance (Ω)	Mode
Over 4.0MHz Under 5.3MHz	150 Ω MAX.	Fundamental
Over 5.5MHz Under 6.0MHz	100 Ω MAX.	
Over 6.0MHz Under 10.0MHz	80 Ω MAX.	
Over 10.0MHz Under 12.0MHz	60 Ω MAX.	
Over 12.0MHz Under 16.0MHz	50 Ω MAX.	
Over 16.0MHz Under 26.0MHz	40 Ω MAX.	
Over 26.0MHz Under 36.0MHz	100 Ω MAX.	3rd Overtone
Exceeding 36.0MHz Below 60.0MHz	80 Ω MAX.	

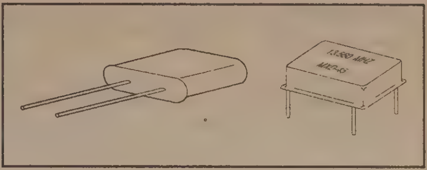
Series	Frequency	Digi-Key Part No.	Pricing 1	10	100	1,000	Epson Part No.
C-Type	32.768KHz	SE3201-ND	.60	5.00	40.00	300.00	C-001R 32.768K-A
	32.768KHz	SE3202-ND	.60	5.00	40.00	300.00	C-002RX 32.768K-A
	32.768KHz	SE3203-ND	1.35	11.25	90.00	675.00	C-004R 32.768K-A
	32.768KHz	SE3204-ND	4.50	37.50	300.00	2250.00	C-005R 32.768K-AC
C-2 Type	20.000KHz	SE3301-ND	1.35	11.25	90.00	675.00	C-2 20.000KC-P
	25.600KHz	SE3302-ND	1.35	11.25	90.00	675.00	C-2 25.600KC-P
	26.667KHz	SE3303-ND	1.35	11.25	90.00	675.00	C-2 26.667KC-P
	28.000KHz	SE3304-ND	1.35	11.25	90.00	675.00	C-2 28.000KC-P
	30.000KHz	SE3305-ND	1.35	11.25	90.00	675.00	C-2 30.000KC-P
	30.760KHz	SE3306-ND	1.35	11.25	90.00	675.00	C-2 30.760KC-P
	31.200KHz	SE3307-ND	1.35	11.25	90.00	675.00	C-2 31.200KI-AG
	31.250KHz	SE3308-ND	1.35	11.25	90.00	675.00	C-2 31.250KC-P
	31.500KHz	SE3309-ND	1.35	11.25	90.00	675.00	C-2 31.500KC-P
	32.000KHz	SE3310-ND	1.35	11.25	90.00	675.00	C-2 32.000KC-P
	32.560KHz	SE3311-ND	1.35	11.25	90.00	675.00	C-2 32.560KH-AG
	32.919KHz	SE3312-ND	1.35	11.25	90.00	675.00	C-2 32.919KC-P
	36.000KHz	SE3313-ND	1.35	11.25	90.00	675.00	C-2 36.000KC-P
	38.000KHz	SE3314-ND	1.35	11.25	90.00	675.00	C-2 38.000KA-P
	38.400KHz	SE3315-ND	1.35	11.25	90.00	675.00	C-2 38.400KC-P
	40.000KHz	SE3316-ND	1.35	11.25	90.00	675.00	C-2 40.000KC-P
	46.6084KHz	SE3317-ND	1.35	11.25	90.00	675.00	C-2 46.6084KC-P
	50.000KHz	SE3318-ND	1.35	11.25	90.00	675.00	C-2 60.000KC-P
	59.787KHz	SE3319-ND	1.35	11.25	90.00	675.00	C-2 59.787KC-P
	60.000KHz	SE3320-ND	1.35	11.25	90.00	675.00	C-2 60.000KC-P
	60.002KHz	SE3321-ND	1.35	11.25	90.00	675.00	C-2 60.002KC-P
	65.535KHz	SE3322-ND	1.35	11.25	90.00	675.00	C-2 65.535KC-P
	75.000KHz	SE3323-ND	1.35	11.25	90.00	675.00	C-2 75.000KC-P
	76.800KHz	SE3324-ND	1.35	11.25	90.00	675.00	C-2 76.800KC-P
	77.204KHz	SE3325-ND	1.35	11.25	90.00	675.00	C-2 77.204KC-P
	77.287KHz	SE3326-ND	1.35	11.25	90.00	675.00	C-2 77.287KC-P
	77.500KHz	SE3327-ND	1.35	11.25	90.00	675.00	C-2 77.500KC-P
	77.503KHz	SE3328-ND	1.35	11.25	90.00	675.00	C-2 77.503KC-P
	77.504KHz	SE3329-ND	1.35	11.25	90.00	675.00	C-2 77.504KC-P
	83.000KHz	SE3330-ND	1.50	12.50	100.00	750.00	C-2 83.000KC-P
	96.000KHz	SE3331-ND	1.50	12.50	100.00	750.00	C-2 96.000KC-P
	96.006KHz	SE3332-ND	1.50	12.50	100.00	750.00	C-2 96.006KC-P
	100.000KHz	SE3333-ND	1.50	12.50	100.00	750.00	C-2 100.000KC-P
	111.000KHz	SE3334-ND	1.50	12.50	100.00	750.00	C-2 111.000KC-P
	120.000KHz	SE3335-ND	1.50	12.50	100.00	750.00	C-2 120.000KC-P
	120.8475KHz	SE3336-ND	1.50	12.50	100.00	750.00	C-2 120.8475KC-P
	131.072KHz	SE3337-ND	1.80	15.00	120.00	900.00	C-2 131.072KC-P
	149.475KHz	SE3338-ND	1.80	15.00	120.00	900.00	C-2 149.475KC-P
CA-301 Type	4.0000MHz	SE3404-ND	1.65	13.75	110.00	825.00	CA-301 4.0000M-C
	4.194304MHz	SE3405-ND	1.65	13.75	110.00	825.00	CA-301 4.194304M-C
	4.433619MHz	SE3406-ND	1.65	13.75	110.00	825.00	CA-301 4.433619M-C
	4.9152MHz	SE3407-ND	1.65	13.75	110.00	825.00	CA-301 4.9152M-C
	5.500MHz	SE3408-ND	1.20	10.00	80.00	600.00	CA-301 5.500M-C
	6.000MHz	SE3409-ND	1.20	10.00	80.00	600.00	CA-301 6.000M-C
	6.144MHz	SE3410-ND	1.20	10.00	80.00	600.00	CA-301 6.144M-C
	6.767MHz	SE3411-ND	1.20	10.00	80.00	600.00	CA-301 6.757M-C
	7.200MHz	SE3412-ND	1.20	10.00	80.00	600.00	CA-301 7.200M-C
	7.3728MHz	SE3413-ND	1.20	10.00	80.00	600.00	CA-301 7.3728M-C
	8.000MHz	SE3414-ND	1.20	10.00	80.00	600.00	CA-301 8.000M-C
	8.388608MHz	SE3415-ND	1.20	10.00	80.00	600.00	CA-301 8.388608M-C
	8.432MHz	SE3416-ND	1.20	10.00	80.00	600.00	CA-301 8.432M-C
	8.6432MHz	SE3417-ND	1.20	10.00	80.00	600.00	CA-301 8.6432M-C
	9.600MHz	SE3418-ND	1.20	10.00	80.00	600.00	CA-301 9.600M-C
	9.8304MHz	SE3419-ND	1.20	10.00	80.00	600.00	CA-301 9.8304M-C
	10.000MHz	SE3420-ND	1.20	10.00	80.00	600.00	CA-301 10.000M-C
	10.240MHz	SE3421-ND	1.20	10.00	80.00	600.00	CA-301 10.240M-C
	10.6244MHz	SE3422-ND	1.20	10.00	80.00	600.00	CA-301 10.6244M-C
	11.0592MHz	SE3423-ND	1.20	10.00	80.00	600.00	CA-301 11.0592M-C
	12.000MHz	SE3424-ND	1.20	10.00	80.00	600.00	CA-301 12.000M-C
	12.096MHz	SE3425-ND	1.20	10.00	80.00	600.00	CA-301 12.096M-C
	12.288MHz	SE3426-ND	1.20	10.00	80.00	600.00	CA-301 12.288M-C
	13.500MHz	SE3427-ND	1.20	10.00	80.00	600.00	CA-301 13.500M-C
	14.000MHz	SE3428-ND	1.20	10.00	80.00	600.00	CA-301 14.000M-C
	14.31818MHz	SE3429-ND	1.20	10.00	80.00	600.00	CA-301 14.31818M-C
	14.500MHz	SE3430-ND	1.20	10.00	80.00	600.00	CA-301 14.500M-C
	14.7456MHz	SE3431-ND	1.20	10.00	80.00	600.00	CA-301 14.7456M-C
	15.000MHz	SE3432-ND	1.20	10.00	80.00	600.00	CA-301 15.000M-C
	16.000MHz	SE3433-ND	1.20	10.00	80.00	600.00	CA-301 16.000M-C
	16.257MHz	SE3434-ND	1.20	10.00	80.00	600.00	CA-301 16.257M-C
	18.000MHz	SE3435-ND	1.20	10.00	80.00	600.00	CA-301 18.000M-C
	18.432MHz	SE3436-ND	1.20	10.00	80.00	600.00	CA-301 18.432M-C
	19.6608MHz	SE3437-ND	1.20	10.00	80.00	600.00	CA-301 19.6608M-C
	20.000MHz	SE3438-ND	1.20	10.00	80.00	600.00	CA-301 20.000M-C
	22.1184MHz	SE3439-ND	1.20	10.00	80.00	600.00	CA-301 22.1184M-C
	24.000MHz	SE3440-ND	1.20	10.00	80.00	600.00	CA-301 24.000M-C
	25.000MHz	SE3441-ND	1.20	10.00	80.00	600.00	CA-301 25.000M-C
	25.175MHz	SE3442-ND	1.20	10.00	80.00	600.00	CA-301 25.175M-C
	27.000MHz	SE3443-ND	1.20	10.00	80.00	600.00	CA-301 27.000M-C
	28.000MHz	SE3444-ND	1.20	10.00	80.00	600.00	CA-301 28.000M-C
	28.322MHz	SE3445-ND	1.20	10.00	80.00	600.00	CA-301 28.322M-C
	32.000MHz	SE3446-ND	1.20	10.00	80.00	600.00	CA-301 32.000M-C
	32.768MHz	SE3447-ND	1.20	10.00	80.00	600.00	CA-301 32.768M-C
	33.000MHz	SE3448-ND	1.20	10.00	80.00	600.00	CA-301 33.000M-C
	33.333MHz	SE3449-ND	1.20	10.00	80.00	600.00	CA-301 33.333M-C
	36.000MHz	SE3450-ND	1.20	10.00	80.00	600.00	CA-301 36.000M-C
	40.000MHz	SE3451-ND	1.20	10.00	80.00	600.00	CA-301 40.000M-C
	42.000MHz	SE3452-ND	1.20	10.00	80.00	600.00	CA-301 42.000M-C
	46.000MHz	SE3453-ND	1.20	10.00	80.00	600.00	CA-301 46.000M-C
	49.860MHz	SE3454-ND	1.20	10.00	80.00	600.00	CA-301 49.860M-C
	50.000MHz	SE3455-ND	1.20	10.00	80.00	600.00	CA-301 50.000M-C
	55.000MHz	SE3456-ND	1.20	10.00	80.00	600.00	CA-301 55.000M-C
	60.000MHz	SE3457-ND	1.35	11.25	90.00	675.00	CA-301 60.000M-C

CTS
Microprocessor Crystals

- Frequency Tolerance ± .005% (50PPM) @ 25°C
- ± .005% (50PPM) 0°C to +70°C
- Fully Hermetic Package
- Low Start-Up Resistance







* Case Style HC-49 has same dimensions as Solder Welded Case HC-18.

Freq. (MHz)	Case	Load Capacit.	Max. Series Resist.	Digi-Key Part No.	Pricing 1	10	100	1,000	Microprocessor
1.000	HC33/51	13pF	750	CTX045-ND	9.45	78.96	634.50	4089.00	MC6800 Series, 6860, MC6809E; 6500 Series; INS8060 SC/MPII; 2150; 2650, CDP1802, 1802C, 1804, 1804C
1.8432	HC33/51	13pF	540	CTX046-ND	10.89	91.00	731.25	4712.50	MC14411 Baud Rate Gen., MC6802; CPD1802, 1802C, 1804, 1804C
1.8432	HC49	13pF	540	CTX067-ND	3.22	26.88	216.00	1392.00	—
2.000	HC33/51	20pF	250	CTX001-ND	4.59	38.36	308.25	1986.50	MC6800 Series MC6802, MC68BO9E; 6500 Series; INS 8060, SC/MPII, INS8900; F8(3850CPU); IM6102; 2650
2.0000	HC49	20pF	300	CTX068-ND	3.22	26.88	216.00	1392.00	—
2.4576	HC33/51	32pF	250	CTX047-ND	4.29	35.84	288.00	1856.00	34702 Baud Rate Gen.; CDP1702, 1802C, 1804, 1804C; MC6802
2.4576	HC49	32pF	300	CTX069-ND	2.08	17.36	139.50	899.00	—
3.000	HC33/51	18pF	100	CTX048-ND	4.12	34.44	276.75	1783.50	MCS-48, 8021, 8022, 8035, 8041; 8048, 8741, 8748; IM8048, IM8748; CDP1802, 1802C, 1804, 1804C; MC6802
3.2768	HC33/51	15pF	100	CTX094-ND	3.92	32.76	263.25	1696.50	IM6100C, 1CM7205; CDP1802, 1802C, 1804, 1804C; MC6802
3.579545	HC33/51	18pF	100	CTX005-ND	3.55	29.68	238.50	1537.00	MM5369 (Color burst); IM6102; PPS-8; MC6801, 6803, MC6802, 6809; CDP1802, 1802C, 1804, 1804C
3.579545	HC49	18pF	150	CTX049-ND	1.27	10.64	85.50	551.00	MM5369 (Color burst); IM6102; PPS-8; MC6801, 6803, MC6802, 6809; CDP1802, 1802C, 1804, 1804C
3.6864	HC49	20pF	150	CTX071-ND	1.27	10.64	85.50	551.00	—
4.000	HC49	20pF	75	CTX006-ND	1.27	10.64	85.50	551.00	MCS-40, 4004, 4040, 4201; MC-6802, 6808, 6809; MK-3870, 3872, 3883, 3876; IM 6102; CDP1802, 1802C, 1804, 1804C
4.000	HC49	Series	75	CTX080-ND	1.27	10.64	85.50	551.00	Pace; MC6875; Z80, Z80A; TMS9940
4.194304	HC49	12pF	75	CTX007-ND	1.27	10.64	85.50	551.00	ICM7038, 7213, 7049; CDP1802, 1802C, 1804, 1804C
4.91520	HC49	20pF	75	CTX050-ND	1.27	10.64	85.50	551.00	CDP1802, 1802C, 1804, 1804C
5.000	HC49	20pF	50	CTX051-ND	1.27	10.64	85.50	551.00	General Purpose; CDP1802, 1802C, 1804, 1804C
5.000	HC49	Series	50	CTX081-ND	1.27	10.64	85.50	551.00	CDP1802, 1803, 1802C, 1804, 1804C; TMS 9985, 9940; IM6100A
5.0688	HC49	Series	50	CTX052-ND	1.27	10.64	85.50	551.00	COM5016, 5016T Dual Brg.
6.000	HC49	20pF	50	CTX026-ND	1.27	10.64	85.50	551.00	MCS-48, 8035, 8041, 8048, 8741, 8748; IM8048, IM8748; CDP1802, 1802C, 1804, 1804C, MC68A09
6.144	HC49	20pF	50	CTX054-ND	1.27	10.64	85.50	551.00	MCS-85, 8086; CDP1802, 1802C, 1804, 1804C
7.3728	HC49	Series	45	CTX074-ND	1.27	10.64	85.50	551.00	—
8.000	HC49	Series	45	CTX056-ND	1.27	10.64	85.50	551.00	8 x 300; MC6875, 68000; Z8000; AMZ8000
8.000	HC49	20pF	45	CTX082-ND	1.27	10.64	85.50	551.00	IM6100A; CDP1807; Z8; 9940-B; MC68B09
9.8304	HC49	20pF	45	CTX084-ND	1.27	10.64	85.50	551.00	General Purpose
10.000	HC49	Series	35	CTX057-ND	1.27	10.64	85.50	551.00	General Purpose
10.000	HC49	30pF	35	CTX083-ND	1.27	10.64	85.50	551.00	MCS-85, 8085A-2; 9940-10
10.738635	HC49/51	32pF	35	CTX085-ND	1.27	10.64	85.50	551.00	TI9918A
11.0	HC49	18pF	35	CTX086-ND	1.27	10.64	85.50	551.00	MCS-48, 8039, 8049
11.0592	HC49	Series	35	CTX078-ND	1.27	10.64	85.50	551.00	—
12.000	HC49	Series	35	CTX058-ND	1.27	10.64	85.50	551.00	MCS-86, 8086/8284; 8202 Ram Controller; 9940-12
12.288	HC49	32pF	35	CTX087-ND	1.27	10.64	85.50	551.00	General Purpose
14.31818	HC49	Series	35	CTX088-ND	1.27	10.64	85.50	551.00	General Purpose
14.7456	HC49	Series	35	CTX089-ND	1.27	10.64	85.50	551.00	General Purpose
15.000	HC49	Series	35	CTX059-ND	1.27	10.64	85.50	551.00	MCS-86, 8086/8284; 8202 Ram Controller
16.000	HC49	Series	35	CTX077-ND	1.27	10.64	85.50	551.00	General Purpose
18.432	HC49	Series	35	CTX061-ND	1.37	11.48	92.25	594.50	MCS-80, 8080A/8224
19.6608	HC49	Series	35	CTX090-ND	1.37	11.48	92.25	594.50	General Purpose
20.000	HC49	Series	35	CTX062-ND	1.74	14.56	117.00	754.00	MCS-80, 8080A/8224
22.1184	HC49	Series	35	CTX063-ND	1.74	14.56	117.00	754.00	MCS-80, 8080A/8224
24.0	HC49	Series	35	CTX091-ND	2.51	21.00	168.75	1087.50	MCS-86, 8086, 8284
24.576	HC49	Series	35	CTX092-ND	2.51	21.00	168.75	1087.50	General Purpose
25.0	HC49	Series	35	CTX093-ND	2.51	21.00	168.75	1087.50	8202 Ram Controller

CTS Clock Oscillators

Fig. A — Half Size

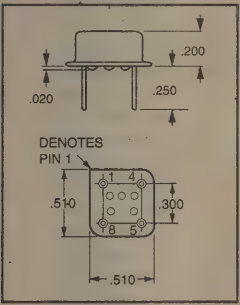
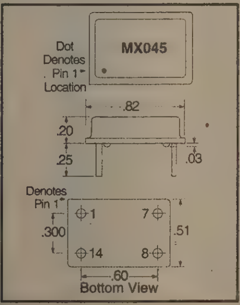


Fig. B — Full Size



Pin # Fig. A	Pin # Fig. B	Connection
#1	#1	NC
#4	#7	Ground
#5	#8	Output
#8	#14	+5 V DC

- Freq. Tolerance ± 100 PPM 0°C to 70°C
- Fully Hermetic Resistance Weld Package
- 8/14-Pin Compatible
- Drives Up To 10 Std. TTL Loads
- C-MOS Compatible
- Input Voltage +5 V DC ± .5V

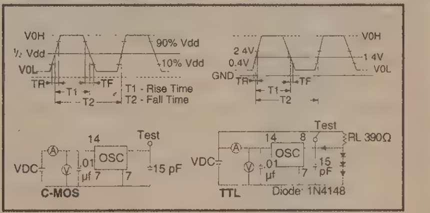


Fig. A, Half Size Clock Oscillators

Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	1,000
1.000	CTX150-ND	4.08	36.11	290.45	2276.50
1.8432	CTX151-ND	4.08	36.11	290.45	2276.50
2.000	CTX152-ND	4.08	36.11	290.45	2276.50
2.4576	CTX153-ND	4.08	36.11	290.45	2276.50
3.6864	CTX154-ND	3.25	28.75	231.25	1812.50
4.000	CTX155-ND	3.25	28.75	231.25	1812.50
4.9152	CTX156-ND	3.25	28.75	231.25	1812.50
5.000	CTX157-ND	3.25	28.75	231.25	1812.50
5.0688	CTX158-ND	3.25	28.75	231.25	1812.50
6.000	CTX159-ND	3.25	28.75	231.25	1812.50
6.144	CTX160-ND	3.25	28.75	231.25	1812.50
7.3728	CTX161-ND	3.25	28.75	231.25	1812.50
8.000	CTX162-ND	3.25	28.75	231.25	1812.50
10.000	CTX163-ND	3.25	28.75	231.25	1812.50
12.000	CTX164-ND	3.25	28.75	231.25	1812.50
14.31818	CTX165-ND	3.25	28.75	231.25	1812.50
16.000	CTX166-ND	3.25	28.75	231.25	1812.50
18.432	CTX167-ND	3.25	28.75	231.25	1812.50
19.6608	CTX168-ND	3.25	28.75	231.25	1812.50
20.000	CTX169-ND	3.25	28.75	231.25	1812.50
24.000	CTX170-ND	3.25	28.75	231.25	1812.50
25.000	CTX171-ND	3.25	28.75	231.25	1812.50
25.175	CTX172-ND	3.25	28.75	231.25	1812.50
28.322	CTX173-ND	3.25	28.75	231.25	1812.50
32.000	CTX174-ND	3.25	28.75	231.25	1812.50
40.000	CTX175-ND	3.25	28.75	231.25	1812.50
50.000	CTX176-ND	3.25	28.75	231.25	1812.50
64.000	CTX177-ND	4.45	39.33	316.35	2479.50
66.6666	CTX178-ND	4.45	39.33	316.35	2479.50
80.000	CTX179-ND	10.01	88.55	712.25	5582.50

Fig. B, Full Size Clock Oscillators

Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	1,000
1.000	CTX101-ND	4.08	36.11	290.45	2276.50
1.8432	CTX103-ND	4.08	36.11	290.45	2276.50
2.000	CTX104-ND	4.08	36.11	290.45	2276.50
2.4576	CTX105-ND	3.90	34.50	277.50	2175.00
3.6864	CTX106-ND	3.25	28.75	231.25	1812.50
4.000	CTX107-ND	3.25	28.75	231.25	1812.50
4.9152	CTX108-ND	3.25	28.75	231.25	1812.50
5.000	CTX109-ND	3.25	28.75	231.25	1812.50
5.0688	CTX110-ND	3.25	28.75	231.25	1812.50
6.000	CTX111-ND	3.25	28.75	231.25	1812.50
6.144	CTX122-ND	3.25	28.75	231.25	1812.50
7.3728	CTX123-ND	3.25	28.75	231.25	1812.50
8.000	CTX112-ND	3.25	28.75	231.25	1812.50
10.000	CTX114-ND	3.25	28.75	231.25	1812.50
12.000	CTX131-ND	3.25	28.75	231.25	1812.50
14.31818	CTX115-ND	3.25	28.75	231.25	1812.50
16.000	CTX116-ND	3.25	28.75	231.25	1812.50
18.432	CTX118-ND	3.25	28.75	231.25	1812.50
19.6608	CTX124-ND	3.25	28.75	231.25	1812.50
20.000	CTX119-ND	3.25	28.75	231.25	1812.50
24.000	CTX125-ND	3.25	28.75	231.25	1812.50
25.000	CTX126-ND	3.25	28.75	231.25	1812.50
25.175	CTX127-ND	3.25	28.75	231.25	1812.50
28.322	CTX128-ND	3.25	28.75	231.25	1812.50
32.000	CTX129-ND	3.25	28.75	231.25	1812.50
40.000	CTX120-ND	3.25	28.75	231.25	1812.50
50.000	CTX121-ND	3.25	28.75	231.25	1812.50
64.000	CTX130-ND	4.45	89.33	316.35	2479.50
66.6666	CTX137-ND	4.45	39.33	316.35	2479.50
80.000	CTX138-ND	10.01	88.55	712.25	5582.50

CTS *NEW!* Clock Oscillators with Tri-State Output

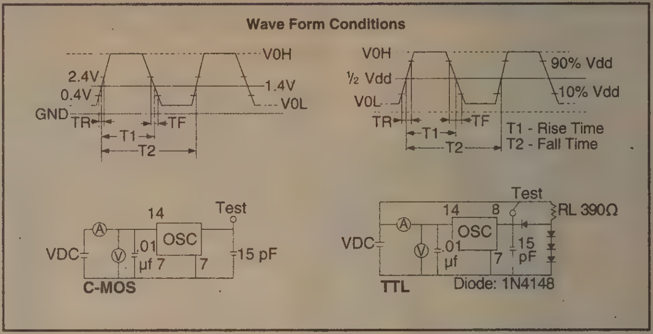
Tri-State Logic uses the two standard logic levels of high (logic 1) and low (logic 0) but has added a third state that is not a logic level but an open circuit condition that effectively disconnects the output from your circuit with a high impedance (floating) state. Thereby enabling the use of numerous oscillators on the same bus line. Also, by using the enable pin to control the output, the crystal is still running even when the output is disabled (stand-by mode), thus eliminating any start-up time for the oscillator.

CTS HCMOS/TTL products utilize an Application Specific Integrated Circuit (ASIC) design strategy. Employing a single design family supporting both HCMOS/TTL applications helps in reducing costs and lead times. Utilizing ASIC technology reduces the number of components inside the XO (crystal oscillator), thus increasing reliability and further reducing cost.

Features:

- C-MOS/TTL Compatible
- Drives Up To 10 Std. TTL Loads
- 100 PPM Tolerance
- Tri-State Output
- Fully Hermetic Resistance Weld Package
- Zero Start-Up Time

Pin # Fig. A	Pin # Fig. B	Connection
#1	#1	O/E
#4	#7	Ground
#5	#8	Output
#8	#14	+5 V DC



Parameter	Symbol	Condition	Minimum	Typical	Maximum	Units
Supply Voltage	VCC	—	4.5	5.0	5.5	V
Supply Current	Icc	1.0->7.0MHz	—	5	12	mA
	—	>7.0->25MHz	—	15	25	mA
	—	>25->50MHz	—	30	40	mA
Output Load	—	—	—	—	10	TTL
Output Current	IOH	VOH = 3.9V	—	—	-16	mA
	IOH	VOH = 0.4V	—	—	16	mA
Symmetry	Duty	1.0->50MHz	45	—	55	%
		>50->70MHz	40	—	60	%
Rise & Fall Time	Tr/Tf	1.0->25MHz	—	5	8	ns
	Tr/Tf	>25->70MHz	—	3	5	ns
Enable Input V	VIH	—	2.0	—	—	V
	VIL	—	—	—	0.8	V
Enable Input Load	Cin	—	—	—	10	pF
Tri-state Leakage	Iz	VIL = 0.8V	—	—	0.05	mA
Jitter	—	Peak-Peak	—	30	50	ps
Temperature	0-70°C					

Fig. A — Half Size

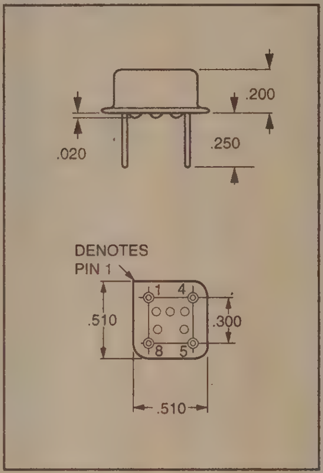


Fig. B — Full Size

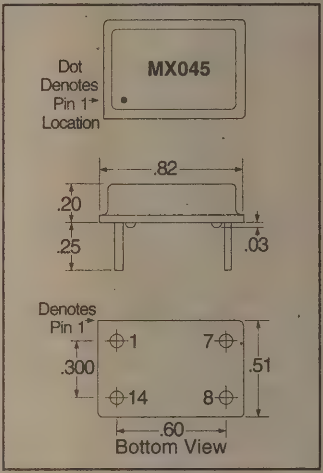


Fig. A, Half Size Clock Oscillators

Frequency (MHz)	Digi-Key Part No.	Price Each 1	10	100	500	CTS Part No.
1.000	CTX180-ND	4.24	3.75	3.02	2.69	MXO-45HST-1.000
1.8432	CTX181-ND	4.24	3.75	3.02	2.69	MXO-45HST-1.8432
2.000	CTX182-ND	4.24	3.75	3.02	2.69	MXO-45HST-2.000
2.4576	CTX183-ND	4.06	3.59	2.89	2.58	MXO-45HST-2.4576
3.6864	CTX184-ND	3.41	3.02	2.43	2.17	MXO-45HST-3.6864
4.000	CTX185-ND	3.41	3.02	2.43	2.17	MXO-45HST-4.000
4.9152	CTX186-ND	3.41	3.02	2.43	2.17	MXO-45HST-4.9152
5.000	CTX187-ND	3.41	3.02	2.43	2.17	MXO-45HST-5.000
5.0688	CTX188-ND	3.41	3.02	2.43	2.17	MXO-45HST-5.0688
6.000	CTX189-ND	3.41	3.02	2.43	2.17	MXO-45HST-6.000
6.144	CTX190-ND	3.41	3.02	2.43	2.17	MXO-45HST-6.144
7.3728	CTX191-ND	3.41	3.02	2.43	2.17	MXO-45HST-7.3728
8.000	CTX192-ND	3.41	3.02	2.43	2.17	MXO-45HST-8.000
10.000	CTX193-ND	3.41	3.02	2.43	2.17	MXO-45HST-10.000
12.000	CTX194-ND	3.41	3.02	2.43	2.17	MXO-45HST-12.000
14.31818	CTX195-ND	3.41	3.02	2.43	2.17	MXO-45HST-14.31818
16.000	CTX196-ND	3.41	3.02	2.43	2.17	MXO-45HST-16.000
18.432	CTX197-ND	3.41	3.02	2.43	2.17	MXO-45HST-18.432
19.6608	CTX198-ND	3.41	3.02	2.43	2.17	MXO-45HST-19.6608
20.000	CTX199-ND	3.41	3.02	2.43	2.17	MXO-45HST-20.000
24.000	CTX250-ND	3.41	3.02	2.43	2.17	MXO-45HST-24.000
25.000	CTX251-ND	3.41	3.02	2.43	2.17	MXO-45HST-25.000
25.175	CTX252-ND	3.41	3.02	2.43	2.17	MXO-45HST-25.175
28.332	CTX253-ND	3.41	3.02	2.43	2.17	MXO-45HST-28.332
32.000	CTX254-ND	3.41	3.02	2.43	2.17	MXO-45HST-32.000
40.000	CTX255-ND	3.41	3.02	2.43	2.17	MXO-45HST-40.000
50.000	CTX256-ND	3.41	3.02	2.43	2.17	MXO-45HST-50.000
64.000	CTX257-ND	4.60	4.08	3.28	2.93	MXO-45HST-64.000
66.6666	CTX258-ND	4.60	4.08	3.28	2.93	MXO-45HST-66.6666
80.000	CTX259-ND	10.17	9.00	7.24	6.46	MXO-45HST-80.000

Fig. B, Full Size Clock Oscillators

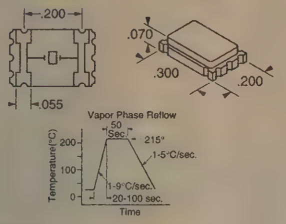
Frequency (MHz)	Digi-Key Part No.	Price Each 1	10	100	500	CTS Part No.
1.000	CTX139-ND	4.24	3.75	3.02	2.69	MXO-45T-1.000
1.8432	CTX140-ND	4.24	3.75	3.02	2.69	MXO-45T-1.8432
2.000	CTX141-ND	4.24	3.75	3.02	2.69	MXO-45T-2.000
2.4576	CTX142-ND	4.06	3.59	2.89	2.58	MXO-45T-2.4576
3.6864	CTX143-ND	3.41	3.02	2.43	2.17	MXO-45T-3.6864
4.000	CTX144-ND	3.41	3.02	2.43	2.17	MXO-45T-4.000
4.9152	CTX145-ND	3.41	3.02	2.43	2.17	MXO-45T-4.9152
5.000	CTX146-ND	3.41	3.02	2.43	2.17	MXO-45T-5.000
5.0688	CTX147-ND	3.41	3.02	2.43	2.17	MXO-45T-5.0688
6.000	CTX148-ND	3.41	3.02	2.43	2.17	MXO-45T-6.000
6.144	CTX200-ND	3.41	3.02	2.43	2.17	MXO-45T-6.144
7.3728	CTX201-ND	3.41	3.02	2.43	2.17	MXO-45T-7.3728
8.000	CTX202-ND	3.41	3.02	2.43	2.17	MXO-45T-8.000
10.000	CTX203-ND	3.41	3.02	2.43	2.17	MXO-45T-10.000
12.000	CTX204-ND	3.41	3.02	2.43	2.17	MXO-45T-12.000
14.31818	CTX205-ND	3.41	3.02	2.43	2.17	MXO-45T-14.31818
16.000	CTX206-ND	3.41	3.02	2.43	2.17	MXO-45T-16.000
18.432	CTX207-ND	3.41	3.02	2.43	2.17	MXO-45T-18.432
19.6608	CTX208-ND	3.41	3.02	2.43	2.17	MXO-45T-19.6608
20.000	CTX209-ND	3.41	3.02	2.43	2.17	MXO-45T-20.000
24.000	CTX210-ND	3.41	3.02	2.43	2.17	MXO-45T-24.000
25.000	CTX211-ND	3.41	3.02	2.43	2.17	MXO-45T-25.000
25.175	CTX212-ND	3.41	3.02	2.43	2.17	MXO-45T-25.175
28.332	CTX213-ND	3.41	3.02	2.43	2.17	MXO-45T-28.332
32.000	CTX214-ND	3.41	3.02	2.43	2.17	MXO-45T-32.000
40.000	CTX215-ND	3.41	3.02	2.43	2.17	MXO-45T-40.000
50.000	CTX216-ND	3.41	3.02	2.43	2.17	MXO-45T-50.000
64.000	CTX217-ND	4.60	4.08	3.28	2.93	MXO-45T-64.000
66.6666	CTX218-ND	4.60	4.08	3.28	2.93	MXO-45T-66.6666
80.000	CTX219-ND	10.17	9.00	7.24	6.46	MXO-45T-80.000

Connor-Winfield

Surface Mount Crystals and Oscillators

Fig. A Dim. in inches

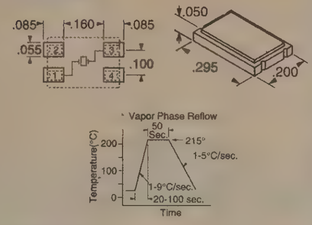
XL-1C Series



Specifications:
Frequency Tolerance: +/-50 ppm (at 25°C)
Temperature Stability: +/-50 ppm
Operating Temperature: -10°C to +65°C
Drive Level: .1MW Typical

Fig. B Dim. in inches

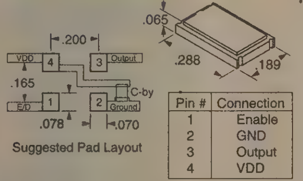
XM-1 Series



Specifications:
Frequency Tolerance: +/-50 ppm (at 25°C)
Temperature Stability: +/-50 ppm
Operating Temperature: -10°C to +65°C
Drive Level: .1 MW Typical

Fig. C Dim. in inches

HSM92 - HSM93 Series



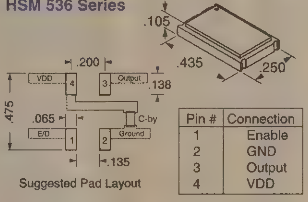
Suggested Pad Layout

Pin #	Connection
1	Enable
2	GND
3	Output
4	VDD

Specifications:
Frequency Stability: HSM92 - ±50ppm HSM93 - ±100ppm. **Temperature Range** 0°C to +70°C. **Waveform:** HCMOS Squarewave. Tri-State. **Output:** Voh - 4.5V Min., Vol - 0.5V Max., **Current :** Ioh -16mA, Iol: 16mA. **Rise/Fall Time** - 7ns Max. **Duty Cycle** - 45/55 max. **Start Up Time** - 10mS Max. **Supply Voltage** - +5Vdc ±10%. **Enable/Disable Time** - 100ns Max. **Output Load:** 50PF

Fig. D Dim. in inches

HSM 536 Series



Suggested Pad Layout

Pin #	Connection
1	Enable
2	GND
3	Output
4	VDD

Specifications:
Frequency Stability: ±100ppm. **Temperature Range:** 0°C to +70°C. **Waveform:** HCMOS Squarewave. **Output:** Voh - 4.5V Min., Vol - 0.5V Max., **Rise/Fall Time** - 7ns Max. **Duty Cycle** - 50/50% ±10% **Start Up Time** - 10mS Max. **Supply Voltage** - +5Vdc ±10%. **Output Load:** 50PF

Fig.	Frequency (MHz)	Load Cap.	Digi-Key Part No.	Pricing 1	10	100	500	Connor-Winfield Part No.
			SMT Quartz Crystals					
A	10.000	16pf	CW401-ND	5.40	45.00	360.00	1450.00	XL-1C-10.0000
A	12.000	16pf	CW402-ND	5.40	45.00	360.00	1450.00	XL-1C-12.0000
A	16.000	16pf	CW403-ND	5.40	45.00	360.00	1450.00	XL-1C-16.0000
A	18.432	16pf	CW404-ND	5.40	45.00	360.00	1450.00	XL-1C-18.4320
A	20.000	16pf	CW405-ND	5.40	45.00	360.00	1450.00	XL-1C-20.0000
A	29.4912	16pf	CW407-ND	6.37	53.10	424.80	1711.00	XL-1C-29.4912
A	40.000	Series	CW408-ND	5.91	49.28	394.20	1587.75	XL-1C-40.0000
A	44.2368	Series	CW409-ND	5.91	49.28	394.20	1587.75	XL-1C-44.2368
A	50.000	Series	CW410-ND	5.91	49.28	394.20	1587.75	XL-1C-50.0000
B	10.000	16pf	CW421-ND	9.02	75.15	601.20	2421.50	XM-1-10.0000
B	12.000	16pf	CW422-ND	9.02	75.15	601.20	2421.50	XM-1-12.0000
B	16.000	16pf	CW423-ND	9.02	75.15	601.20	2421.50	XM-1-16.0000
B	18.432	16pf	CW424-ND	9.02	75.15	601.20	2421.50	XM-1-18.4320
B	20.000	16pf	CW425-ND	9.02	75.15	601.20	2421.50	XM-1-20.0000
B	29.4912	Series	CW427-ND	10.72	89.33	714.60	2878.25	XM-1-29.4912
B	40.000	Series	CW428-ND	9.77	81.45	651.60	2624.50	XM-1-40.0000
B	44.2368	Series	CW429-ND	9.77	81.45	651.60	2624.50	XM-1-44.2368
B	50.000	Series	CW430-ND	9.77	81.45	651.60	2624.50	XM-1-50.0000
			SMT Oscillator					
C	4.9152	—	CW301-ND	13.37	111.38	891.00	3588.75	HSM93-4.9152
C	8.000	—	CW302-ND	13.37	111.38	891.00	3588.75	HSM93-8.0000
C	10.000	—	CW303-ND	13.37	111.38	891.00	3588.75	HSM93-10.0000
C	16.000	—	CW304-ND	13.37	111.38	891.00	3588.75	HSM93-16.0000
C	20.000	—	CW305-ND	13.37	111.38	891.00	3588.75	HSM93-20.0000
C	25.000	—	CW306-ND	13.37	111.38	891.00	3588.75	HSM93-25.0000
C	29.4912	—	CW341-ND	13.99	116.55	932.40	3755.50	HSM92-29.4912
C	32.000	—	CW307-ND	13.37	111.38	891.00	3588.75	HSM93-32.0000
C	40.000	—	CW308-ND	13.37	111.38	891.00	3588.75	HSM93-40.0000
C	44.2368	—	CW342-ND	13.99	116.55	932.40	3755.50	HSM92-44.2368
C	50.000	—	CW309-ND	13.37	111.38	891.00	3588.75	HSM93-50.0000
C	60.000	—	CW310-ND	15.23	126.90	1015.20	4089.00	HSM93-60.0000
D	8.000	—	CW320-ND	12.42	103.50	828.00	3335.00	HSM536-8.0000
D	10.000	—	CW321-ND	12.42	103.50	828.00	3335.00	HSM536-10.0000
D	18.432	—	CW322-ND	12.42	103.50	828.00	3335.00	HSM536-18.4320
D	20.000	—	CW323-ND	12.42	103.50	828.00	3335.00	HSM536-20.0000
D	25.000	—	CW324-ND	12.42	103.50	828.00	3335.00	HSM536-25.0000
D	32.000	—	CW325-ND	12.42	103.50	828.00	3335.00	HSM536-32.0000
D	40.000	—	CW326-ND	12.42	103.50	828.00	3335.00	HSM536-40.0000
D	50.000	—	CW327-ND	12.42	103.50	828.00	3335.00	HSM536-50.0000
D	60.000	—	CW328-ND	12.74	106.20	849.60	3422.00	HSM536-60.0000
D	64.000	—	CW329-ND	12.74	106.20	849.60	3422.00	HSM536-64.0000
D	66.6666	—	CW330-ND	12.74	106.20	849.60	3422.00	HSM536-66.6666

ECS INC. INTERNATIONAL

Ceramic Resonators

Dim. in mm

Fig. 1

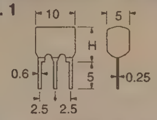


Fig. 2

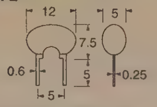
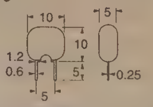


Fig. 3



ZTT Series: • Frequency Accuracy (25°C): ±0.5% • Stability in Temperature: -20 ~ +80°C, ±0.3% • Aging for Ten Years: ±0.3% • Built-in Capacitance: 30pf ±20%

ZTA Series: • Frequency Accuracy (25°C): ±0.5% • Stability in Temperature: -20 ~ +80°C, ±0.3% • Aging for Ten Years ±0.3% • Operating Temperature: -20°C ~ +80°C

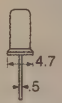
Fig. No.	Frequency MHz	Digi-Key Part No.	Pricing 1	10	100	ECS Part No.
		ZTT Series w/ Caps				
1	3.58	X901-ND	.68	5.63	45.00	ZTT-3.58MG
1	4.00	X902-ND	.68	5.63	45.00	ZTT-4.00MG
1	4.19	X903-ND	.81	6.75	54.00	ZTT-4.19MG
1	6.00	X904-ND	.68	5.63	45.00	ZTT-6.00MT
1	8.00	X905-ND	.70	5.85	46.80	ZTT-8.00MT
1	10.00	X906-ND	.70	5.85	46.80	ZTT-10.00MT
1	12.00	X907-ND	.81	6.75	54.00	ZTT-12.00MT
1	16.00	X908-ND	.81	6.75	54.00	ZTT-16.00MX
1	20.00	X909-ND	.81	6.75	54.00	ZTT-20.00MX
		ZTA Series w/o Caps				
2	3.58	X910-ND	.54	4.50	36.00	ZTA-3.58MG
2	4.00	X911-ND	.54	4.50	36.00	ZTA-4.00MG
2	4.19	X912-ND	.68	5.63	45.00	ZTA-4.19MG
3	6.00	X913-ND	.54	4.50	36.00	ZTA-6.00MT
3	8.00	X914-ND	.59	4.95	39.60	ZTA-8.00MT
3	10.00	X915-ND	.59	4.95	39 60	ZTA-10.00MT
3	12.00	X916-ND	.68	5.63	45.00	ZTA-12.00MT
3	16.00	X917-ND	.68	5.63	45.00	ZTA-16.00MX011
3	20.00	X918-ND	.68	5.63	45.00	ZTA-20.00MX011

ECS INC. INTERNATIONAL

Monolithic Crystal Filters "10.7MHz"

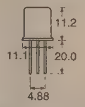
Dim. in mm

12.5kHz Channel Spacing



Operating Temp. Range: -20~+70°C.
Pass Bandwidth: 3dB, ±3.75KHz min.
Stop Bandwidth: 10.7-7.5A = 20dB, +18kHz, 10.7-7.5B = 40dB, +14kHz

25kHz Channel Spacing



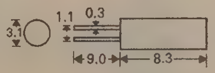
Operating Temp. Range: -20~+70°C.
Pass Bandwidth: 2dB, ±7.5KHz min.
Stop Bandwidth: 10.7-15A = 18dB, +25kHz, 10.7-15B = 40dB, +25kHz

No. of Pole	Ripple (Max.)	Insert. Loss	Term. Impedance OHMS//pf	Digi-Key Part No.	Pricing 1	10	100	500	ECS Part No.
				12.5kHz Channel Spacing					
2	0.5dB	1.5dB	1.8K//5	X701-ND	5.53	45.90	365.50	1411.00	ECS-10.7-7.5A
4	1dB	2.5dB	1.8K//4	X702-ND	12.51	103.95	827.75	3195.50	ECS-10.7-7.5B
				25kHz Channel Spacing					
2	0.5dB	1.5dB	3k//2	X703-ND	3.41	28.35	225.75	871.50	ECS-10.7-15A
4	1dB	2.5dB	3k//2	X704-ND	6.66	55.35	440.75	1701.50	ECS-10.7-15B

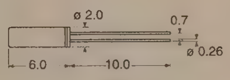
ECS INC. INTERNATIONAL

32.768KHz & 1.000MHz Quartz Crystals

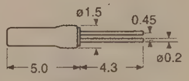
Dimensions in mm



X801



X802



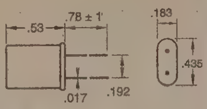
X803 & X804

Part Number	Freq.	Tolerance	Drive Level	Operating Temp.	Load Cap.	Series Resistance
X801-ND	32.768 KHZ	±20 PPM	1μ Watts	-10°C to 60°C	12.5 pf	30K OHMS
X802-ND	32.768 KHZ	±20 PPM	1μ Watts	-10°C to 60°C	12.5 pf	45K OHMS
X803-ND	32.768 KHZ	±20 PPM	1μ Watts	-10°C to 60°C	8.0 pf	45K OHMS
X804-ND	1.00 MHZ	±3000 PPM	0.5μ Watts	-10°C to 60°C	8.0 pf	350 OHMS

Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000	ECS Part No.
X801-ND	.85	7.02	55.90	215.80	364.00	325.00/M	ECS-3X8
X802-ND	.85	7.02	55.90	215.80	364.00	325.00/M	ECS-.327-12-13
X803-ND	3.41	28.35	225.75	871.50	1470.00	1312.50/M	ECS-.327-8-14
X804-ND	9.33	77.49	617.05	2382.10	4018.00	3587.50/M	ECS-10-8-14

ECS INC. INTERNATIONAL Quartz Crystals

9256B-ND	ECS Crystal/Oscillator Databook	**2.95**



HC-49/UA Common To All Frequencies: AT Cut 50 ppm @ +25°C. ±100 ppm from 0°C to +70°C. **Aging:** 10 ppm per year max., **Shock:** 100 G's for 11 Mil Sec, **Vibration:** 3 G's 0 to 60 cps. **Drive Level:** 1 mW.

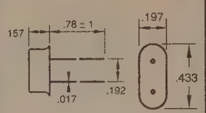
Series resonance appears resistive in the circuit and impedance at fs is at its minimum value. Unless load capacitance is specified, all crystals are manufactured at series resonance. When a crystal is operating at parallel resonance (fL) it will look inductive in a circuit. Crystal frequency varies depending on the value of load capacitance. The load capacitance is the dynamic capacitance of the total circuit as measured or computed across the crystal terminals. Always specify the load capacitance if the crystal will be operated in the parallel mode.

Frequency (MHz)	Max. Series Load Cap.	Max. Res. w. Load Resist. (Ohms)	Cap. (Ohms)	Digi-Key Part No.	Pricing				ECS Part No.
					1	10	100	500	
1.000	13pF	600	800	X066-ND	10.40	86.40	688.00	2656.00	ECS-10-13-1
1.8432	13pF	350	500	X067-ND	2.83	23.49	187.05	722.10	ECS-18-13-1
1.8432	Series	350	—	X002-ND	3.02	25.11	199.95	771.90	ECS-18-S-1
2.000	20pF	300	400	X068-ND	2.57	21.33	169.85	655.70	ECS-20-20-1
2.000	Series	300	—	X004-ND	2.73	22.68	180 60	697.20	ECS-20-S-1
2.048	12pF	250	350	X098-ND	2.73	22.68	180.60	697.20	ECS-20 48-12-1
2.4576	32pF	250	350	X069-ND	2.57	21.33	169.85	655.70	ECS-24-32-1
2.500	Series	300	—	X070-ND	2.57	21.33	169.85	655.70	ECS-25-S-1
3.000	Series	150	—	X009-ND	3.02	25.11	199.95	771.90	ECS-30-S-1
3.2768	15pF	200	250	X022-ND	1.37	11.34	90.30	348 60	ECS-32-17-1
3.579545	17pF	150	200	X049-ND	1.27	10.53	83.85	323.70	ECS-35-17-1
3 579545	Series	120	—	X011-ND	1.37	11.34	90.30	348.60	ECS-35-S-1
3 6864	17-18pF	175	—	X071-ND	1.30	10.80	86.00	332.00	ECS-36-18-1
3.6864	Series	120	—	X080-ND	1.30	10.80	86 00	332.00	ECS-36-S-1
3.932160	17pF	100	—	X013-ND	1.43	11.88	94.60	365 20	ECS-39-17-1
4.000	20pF	100	130	X006-ND	1.30	10.80	86.00	332.00	ECS-40-20-1
4.000	Series	100	—	X081-ND	1.30	10.80	86.00	332.00	ECS-40-S-1
4.032	20pF	120	—	X072-ND	1.30	10.80	86.00	332.00	ECS-40.3-20-1
4.032	Series	100	—	X015-ND	1.30	10.80	86.00	332.00	ECS-40.3-S-1
4.096	20pF	100	120	X082-ND	1.30	10.80	86.00	332.00	ECS-41-20-1
4.194304	12pF	100	150	X007-ND	1.30	10.80	86.00	332.00	ECS-42-12-1
4.433618	20pF	85	120	X083-ND	1.30	10.80	86.00	332.00	ECS-44-20-1
4.9152	Series	70	—	X050-ND	1.30	10.80	86.00	332.00	ECS-49-S-1
4.9152	20pF	55	75	X084-ND	1.30	10.80	86.00	332.00	ECS-49-20-1
5.000	Series	55	—	X099-ND	1 30	10.80	86.00	332.00	ECS-50-S-1
5.000	20pF	70	120	X051-ND	1.30	10.80	86.00	332.00	ECS-50-20-1
5.0688	Series	70	—	X052-ND	1.30	10.80	86.00	332.00	ECS-51-S-1
5.0688	20pF	50	75	X085-ND	1.30	10.80	86.00	332.00	ECS-51-20-1
5.185	Series	60	—	X053-ND	1.89	15.66	124.70	481.40	ECS-52-S-1
5.185	32pF	50	75	X016-ND	1.89	15.66	124.70	481.40	ECS-52-32-1
5.9904	Series	50	—	X073-ND	1.43	11.88	94 60	365.20	ECS-59-S-1
5.9904	20pF	40	75	X017-ND	1 43	11.88	94.60	365.20	ECS-59.9-20-1
6.000	Series	50	—	X026-ND	1.30	10.80	86.00	332.00	ECS-60-S-1
6.000	32pF	50	75	X086-ND	1.30	10.80	86.00	332.00	ECS-60-32-1
6.144	32pF	50	80	X054-ND	1.30	10.80	86.00	332.00	ECS-61-32-1
6.5536	12pF	40	75	X018-ND	1.43	11.88	94.60	365.20	ECS-65-12-1
7.3728	Series	40	—	X074-ND	1.43	11.88	94.60	365.20	ECS-73-S-1
7.3728	20pF	40	75	X019-ND	1.43	11.88	94.60	365.20	ECS-73-20-1
7.680	20pF	40	75	X020-ND	1.43	11.88	94.60	365.20	ECS-76.8-20-1
8.000	Series	40	—	X056-ND	1.30	10.80	86.00	332.00	ECS-80-S-1
8.000	18pF	40	75	X100-ND	1.43	11.88	94.60	365.20	ECS-80-18-1
8.000	20pF	40	75	X021-ND	1.43	11.88	94.60	365.20	ECS-80-20-1
8.000	32pF	40	75	X137-ND	1.10	9.90	79.20	352.00	ECS-80-32-1
9.216	Series	35	—	X075-ND	1.30	10.80	86.00	332.00	ECS-92.1-S-1
9.216	20pF	35	75	X138-ND	1.00	9.00	72.00	320.00	ECS-92.1-20-1
9.8304	20pF	35	—	X087-ND	1.30	10.80	86.00	332.00	ECS-98.3-20-1
9.8304	Series	35	—	X023-ND	1.30	10.80	86.00	332.00	ECS-98.3-S-1
10.000	Series	35	—	X057-ND	1.30	10.80	86.00	332.00	ECS-100-S-1
10.738635	Series	35	—	X024-ND	1.43	11.88	94.60	365.20	ECS-107.3-S-1
11.000	Series	30	—	X088-ND	1.30	10.80	86.00	332.00	ECS-110-S-1
11.046	Series	25	—	X025-ND	1.53	12.69	101.05	390.10	ECS-110.4-S-1
11.0592	Series	30	—	X078-ND	1.37	11.34	90.30	348.60	ECS-110.5-S-1
11.0592	20pF	25	30	X089-ND	1.37	11.34	90.30	348.60	ECS-110.5-20-1
11.0592	32pF	25	30	X139-ND	1.05	9.45	75 60	336.00	ECS-110.5-32-1
11.228	Series	25	—	X028-ND	1.56	12.96	103.20	398.40	ECS-112.2-S-1
11.52	Series	25	—	X140-ND	1.10	9.90	79.20	352.00	ECS-115.2-S-1
11.98135	Series	25	—	X029-ND	1.56	12.96	103.20	398.40	ECS-119.8-S-1
12.000	Series	30	—	X058-ND	1.30	10.80	86.00	332.00	ECS-120-S-1
12.000	32pF	25	30	X030-ND	1.43	11.88	94.60	365.20	ECS-120-32-1
12.000393	18pF	25	30	X147-ND	1.20	10.80	86.40	384.00	ECS-120 003-18-1
12.096	Series	25	—	X031-ND	1.56	12.96	103.20	398.40	ECS-121-S-1
12.288	Series	25	—	X090-ND	1.43	11.88	94.60	365.20	ECS-122.8-S-1
12.288	20pF	25	30	X141-ND	1.10	9.90	79.20	352.00	ECS-122.8-20-1
13.5168	Series	25	—	X032-ND	1.56	12 96	103.20	398.40	ECS-135-S-1
14.31818	Series	25	—	X091-ND	1.43	11.88	94.60	365.20	ECS-143-S-1
14.690	Series	25	—	X033-ND	1.43	11.88	94.60	365.20	ECS-146-S-1
14.7456	Series	25	—	X092-ND	1.43	11.88	94.60	365.20	ECS-147.4-S-1
14.7456	20pF	25	25	X142-ND	1.10	9.90	79.20	352.00	ECS-147.4-20-1
15.000	Series	25	—	X059-ND	1.43	11.88	94.60	365.20	ECS-150-S-1
16.000	Series	30	—	X077-ND	1.43	11.88	94.60	365.20	ECS-160-S-1
16.000	20pF	20	25	X143-ND	1.10	9.90	79.20	352.00	ECS-160-20-1
16.000312	18pF	20	25	X148-ND	1.20	10.80	86.40	384.00	ECS-160.003-18-1
18.000	Series	20	—	X060-ND	1.43	11.88	94.60	365.20	ECS-180-S-1
18.000	20pF	20	25	X144-ND	1.10	9.90	79.20	352.00	ECS-180-20-1
18.432	Series	20	—	X061-ND	1.43	11.88	94.60	365.20	ECS-184-S-1
18.432	18pF	20	25	X145-ND	1.10	9.90	79.20	352.00	ECS-184-18-1
18.432	20pF	20	25	X146-ND	1.10	9.90	79.20	352.00	ECS-184-20-1
19.6608	Series	20	—	X094-ND	1.43	11.88	94.60	365.20	ECS-196.6-S-1
19.6608	20pF	20	25	X035-ND	1.43	11.88	94.60	365.20	ECS-196.6-20-1
20.000	Series	20	—	X062-ND	1.72	14.31	113.95	439.90	ECS-200-S-1
20.000	20pF	20	25	X036-ND	2.11	17.55	139.75	539.50	ECS-200-20-1
22.1184	Series	20	—	X063-ND	1.92	15.93	126.85	489.70	ECS-221-S-1
24.000	20pF	20	25	X037-ND	2.34	19.44	154.80	597.60	ECS-240-20-1
24.000	Series	20	—	X095-ND	2.11	17.55	139.75	539.50	ECS-240-S-1F
24 00014	18pF	20	25	X149-ND	1.80	16.20	129.60	576.00	ECS-240.001-18-1
35.2512	18pF	20	25	X151-ND	1.30	11.70	93.60	416.00	ECS-352.5-18-1
38.000530	18pF	40	50	X150-ND	1.30	11.70	93.60	416.00	ECS-380.005-18-1
40.32	18pF	40	50	X152-ND	1.30	11.70	93 60	416 00	ECS-403.2-18-1
48.000	Series	40	—	X065-ND	1.43	11.88	94.60	365.20	ECS-480-S-1
49.860	20pF	40	50	X038-ND	1.50	12.42	98.90	381.80	ECS-498.6-20-1

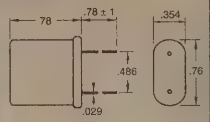
ECS INC. INTERNATIONAL Quartz Crystals

Specifications: Operating Temp. Range: –10 ~ 70°C. **Frequency Tolerance:** AT Cut ±50 ppm @ +25°C, ±100 PPM from -10°C to +70°C. **Drive Level:** 500 µW.

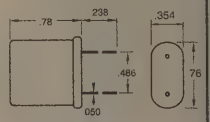
HC-49/US



HC-33



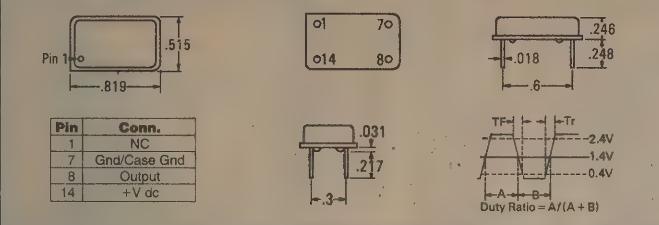
HC-6/U



Frequency (MHz)	Max. Series Load Cap.	Max. Res. w. Load Resist. (Ohms)	Cap. (Ohms)	Digi-Key Part No.	Pricing				ECS Part No.
					1	10	100	500	
HC-49/US									
3.579545	17pF	150	175	X079-ND	1.69	14.04	111.80	431.60	ECS-35-17-4
3.579545	Series	150	—	X153-ND	1.30	11.70	93.60	416.00	ECS-35-S-4
3.6864	18pF	150	175	X402-ND	1.69	14.04	111.80	431.60	ECS-36-18-4
3.6864	Series	150	—	X403-ND	1.69	14.04	111.80	431.60	ECS-36-S-4
4.000	Series	100	—	X404-ND	1.69	14.04	111.80	431.60	ECS-40-S-4
4.000	20pF	100	120	X405-ND	1.69	14.04	111.80	431 60	ECS-40-20-4
4.032	20pF	100	120	X154-ND	1.30	11.70	93.60	416.00	ECS-40.3-20-4
4.032	Series	100	120	X155-ND	1.30	11.70	93.60	416.00	ECS-40.3-S-4
4 096	20pF	100	120	X156-ND	1.30	11.70	93.60	416.00	ECS-41-20-4
4.194304	12pF	100	120	X406-ND	1.69	14.04	111.80	431.60	ECS-42-12-4
4.194304	16pF	100	120	X157-ND	1.30	11.70	93.60	416 00	ECS-42-16-4
4.433618	20pF	100	120	X407-ND	1.69	14.04	111.80	431 60	ECS-44-20-4
4.9152	Series	80	—	X408-ND	1.69	14.04	111.80	431.60	ECS-49-S-4
4 9152	20pF	80	90	X409-ND	1 69	14.04	111.80	431.60	ECS-49-20-4
5.000	20pF	80	90	X410-ND	1.69	14.04	111.80	431.60	ECS-50-20-4
5.000	Series	80	—	X158-ND	1.30	11.70	93.60	416.00	ECS-50-S-4
5.0688	20pF	80	90	X411-ND	1.69	14.04	111.80	431.60	ECS-51-20-4
5.0688	Series	80	—	X159-ND	1.30	11.70	93.60	416.00	ECS-51-S-4
5.185	32pF	80	100	X064-ND	1.69	14.04	111.80	431.60	ECS-52-32-4
5.185	Series	80	100	X160-ND	1.30	11.70	93.60	416.00	ECS-52-S-4
5.9904	Series	70	—	X161-ND	1.30	11.70	93.60	416.00	ECS-59-S-4
5.9904	20pF	70	80	X162-ND	1.30	11.70	93.60	416.00	ECS-59.9-20-4
6.000	Series	70	—	X412-ND	1.69	14.04	111.80	431.60	ECS-60-S-4
6.000	32pF	70	80	X413-ND	1.69	14.04	111.80	431.60	ECS-60-32-4
6.144	32pF	70	80	X414-ND	1.69	14.04	111.80	431.60	ECS-61-32-4
6 500	20pF	70	80	X415-ND	1.69	14.04	111.80	431.60	ECS-65-20-4
7.3728	20pF	60	80	X076-ND	1.85	15.39	122.55	473.10	ECS-73-20-4
7.3728	Series	60	—	X416-ND	1.69	14.04	111.80	431.60	ECS-73-S-4
7.68	20pF	60	80	X163-ND	1.30	11.70	93.60	416.00	ECS-76.8-20-4
8.000	18pF	60	80	X164-ND	1.30	11.70	93.60	416.00	ECS-80-18-4
8 000	20pF	60	80	X165-ND	1.30	11.70	93.60	416.00	ECS-80-20-4
8.000	32pF	60	80	X166-ND	1.30	11.70	93.60	416.00	ECS-80-32-4
8.000	Series	60	—	X417-ND	1 69	14.04	111.80	431.60	ECS-80-S-4
8.500	Series	60	—	X418-ND	1.69	14.04	111.80	431.60	ECS-85-S-4
9.000	Series	50	—	X419-ND	1.69	14.04	111.80	431.60	ECS-90-S-4
9.216	Series	50	—	X167-ND	1.30	11.70	93.60	416.00	ECS-92.1-S-4
9.216	20pF	50	50	X168-ND	1.30	11.70	93.60	416.00	ECS-92.1-20-4
9.545	Series	50	—	X420-ND	1.69	14.04	111.80	431.60	ECS-95.4-S-4
9.8304	20pF	50	50	X169-ND	1.30	11.70	93.60	416.00	ECS-98.3-20-4
9.8304	Series	50	—	X421-ND	1.69	14.04	111.80	431.60	ECS-98.3-S-4
10.000	Series	40	—	X422-ND	1.69	14.04	111.80	431.60	ECS-100-S-4
10.738635	Series	40	—	X423-ND	1.69	14.04	111.80	431.60	ECS-107.3-S-4
11.000	Series	40	—	X424-ND	1.69	14.04	111.80	431.60	ECS-110-S-4
11.0592	Series	40	—	X425-ND	1.69	14.04	111.80	431.60	ECS-110.5-S-4
11.0592	20pF	40	50	X426-ND	1.69	14.04	111.80	431.60	ECS-110.5-20-4
11.0592	32pF	40	50	X170-ND	1.30	11.70	93.60	416.00	ECS-110.5-32-4
11.520	Series	40	—	X171-ND	1.30	11.70	93.60	416.00	ECS-115.2-S-4
11.98135	Series	40	—	X427-ND	1.69	14.04	111.80	431.60	ECS-119.8-S-4
12.000	32pF	40	50	X172-ND	1.30	11.70	93.60	416.00	ECS-120-32-4
12.000	Series	40	—	X428-ND	1.69	14.04	111.80	431.60	ECS-120-S-4
12.000393	18pF	40	50	X173-ND	1.63	14.63	117.00	520.00	ECS-120.003-18-4
12.096	Series	40	—	X429-ND	1.69	14.04	111.80	431.60	ECS-121-S-4
12.288	Series	40	—	X174-ND	1.30	11.70	93.60	416.00	ECS-122.8-S-4
12.960	18pF	40	50	X097-ND	1.85	15.39	122.55	473.10	ECS-129.6-18-4
14 31818	Series	30	—	X430-ND	1.69	14.04	111.80	431.60	ECS-143-S-4
14.7456	Series	30	—	X431-ND	1.69	14.04	111.80	431.60	ECS-147.4-S-4
14.7456	20pF	30	50	X175-ND	1.30	11.70	93.60	416.00	ECS-147.4-20-4
15.000	Series	30	—	X432-ND	1.69	14.04	111.80	431.60	ECS-150-S-4
15.360	20pF	40	50	X096-ND	1.85	15.39	122.55	473.10	ECS-153-20-4
16.000	Series	30	—	X433-ND	1.69	14.04	111.80	431.60	ECS-160-S-4
16.000	20pF	30	40	X176-ND	1.30	11.70	93.60	416.00	ECS-160-20-4
16.000312	18pF	30	40	X177 ND	1.63	14.63	117.00	520.00	ECS-160.003-18-4
16.257	20pF	30	40	X039-ND	1.69	14.04	111.80	431.60	ECS-162.5-20-4
16.257	Series	30	—	X434-ND	1.69	14.04	111.80	431.60	ECS-162.5-S-4
18.000	Series	30	—	X435-ND	1.69	14.04	111.80	431.60	ECS-180-S-4
18.000	20pF	30	40	X178-ND	1.30	11.70	93.60	416.00	ECS-180-20-4
18.432	Series	30	—	X436-ND	1.69	14.04	111.80	431.60	ECS-184-S-4
18.432	18pF	30	40	X179-ND	1.30	11.70	93.60	416.00	ECS-184-18-4
18.432	20pF	30	40	X180-ND	1.30	11.70	93.60	416.00	ECS-184-20-4
19.6608	Series	30	—	X437-ND	1.69	14.04	111.80	431.60	ECS-196.6-S-4
19.6608	20pF	30	40	X181-ND	1.30	11.70	93.60	416.00	ECS-196.6-20-4
20 000	Series	30	—	X438-ND	1.69	14.04	111.80	431.60	ECS-200-S-4
20.000	20pF	30	40	X439-ND	1.69	14.04	111.80	431.60	ECS-200-20-4
21.47727	Series	30	—	X044-ND	1.85	15.39	122.55	473.10	ECS-214.7-S-4
22.1184	Series	30	—	X182-ND	1.43	12.83	102.60	456.00	ECS-221-S-4
24.000	Series	30	—	X440-ND	1.85	15.39	122.55	473.10	ECS-240-S-4
24.000	16pF	30	40	X441-ND	1.85	15.39	122 55	473.10	ECS-240-16-4
24.000	20pF	30	40	X442-ND	1.85	15.39	122.55	473.10	ECS-240-20-4
24 00014	18pF	30	40	X183-ND	1.80	16.20	129.60	576.00	ECS-240.001-18-4
HC-33									
1.000	13pF	600	800	X045-ND	13.16	109.35	870.75	3361.50	ECS-10-13-2
1.8432	Series	350	—	X040-ND	6.34	52.65	419.25	1618.50	ECS-18-S-2
2.097152	32pF	250	350	X042-ND	6.34	52.65	419.25	1618.50	ECS-21-32-2
2.4576	Series	200	—	X043-ND	6.34	52.65	419.25	1618.50	ECS-24-S-2
2.4576	32pF	250	350	X047-ND	6.34	52.65	419.25	1618.50	ECS-24-32-2
2.94912	32pF	90	150	X014-ND	1.37	11.34	90.30	348.60	ECS-29.4-32-2P
3.000	32pF	150	200	X048-ND	4.39	36.45	290.25	1120.50	ECS-30-32-2
3.859	20pF	150	175	X010-ND	1.24	10.26	81.70	315.40	ECS-38.59-20-2
HC-6/U									
2.560	32pF	125	195	X003-ND	1.24	10.26	81.70	315.40	ECS-25.6-32-2P
3.640	32pF	52	90	X008-ND	1.24	10.26	81.70	315.40	ECS-36.4-32-2P
3.700	32pF	52	90	X012-ND	1.24	10.26	81.70	315.40	ECS-37-32-2P
4.438	32pF	45	75	X034-ND	1.24	10.26	81.70	315.40	ECS-44-32-2P

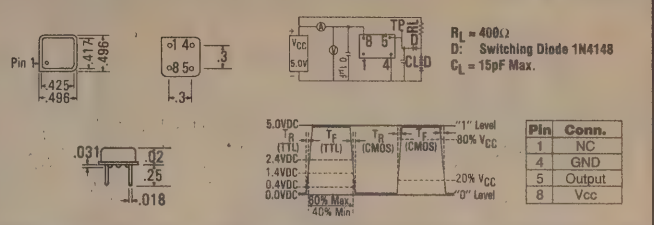
ECS INC. INTERNATIONAL Full Range Quartz Clock Oscillators

Fig. 1: Full Size TTL Clock Oscillator



Pin	Conn.
1	NC
7	Gnd/Case Gnd
8	Output
14	+V dc

Fig. 2: Half Size TTL/CMOS Clock Oscillator



R_L = 400Ω
D: Switching Diode 1N4148
C_L = 15pF Max.

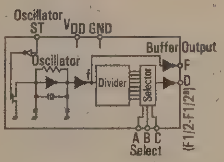
Pin	Conn.
1	NC
4	GND
5	Output
8	Vcc

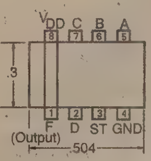
Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	500	ECS Part No.
			Fig. 1 — Full Size Clock Oscillator			
1.000	X101-ND	4.88	43.88	351.00	1560.00	OECS-10-1-A101A
1.2288	X102-ND	4.88	43.88	351.00	1560.00	OECS-12.2-1-A101A
1.8432	X103-ND	4.00	36.00	288.00	1280.00	OECS-18-1-A101A
2.000	X104-ND	4.00	36.00	288.00	1280.00	OECS-20-1-A101A
2.4576	X105-ND	4.00	36.00	288.00	1280.00	OECS-24-1-A101A
3.579545	XC227-ND	4.32	36.00	288.00	1160.00	OECS-35-1-A101A
3.6864	X106-ND	3.38	30.38	243.00	1080.00	OECS-36-1-A101A
4.000	X107-ND	3.38	30.38	243.00	1080.00	OECS-40-1-A101A
4.9152	X108-ND	3.38	30.38	243.00	1080.00	OECS-49-1-A101A
5.000	X109-ND	3.38	30.38	243.00	1080.00	OECS-50-1-A101A
5.0688	X110-ND	3.38	30.38	243.00	1080.00	OECS-51-1-A101A
6.000	X111-ND	3.38	30.38	243.00	1080.00	OECS-60-1-A101A
6.144	X122-ND	3.38	30.38	243.00	1080.00	OECS-61-1-A101A
7.3728	X123-ND	3.38	30.38	243.00	1080.00	OECS-73-1-A101A
8.000	X112-ND	3.38	30.38	243.00	1080.00	OECS-80-1-A101A
9.216	X113-ND	3.38	30.38	243.00	1080.00	OECS-92.1-1-A101A
9.8304	X124-ND	3.38	30.38	243.00	1080.00	OECS-98.3-1-A101A
10.000	X114-ND	3.38	30.38	243.00	1080.00	OECS-100-1-A101A
11.0592	X125-ND	3.38	30.38	243.00	1080.00	OECS-110.5-1-A101A
12.000	X126-ND	3.38	30.38	243.00	1080.00	OECS-120-1-A101A
14.31818	X115-ND	3.38	30.38	243.00	1080.00	OECS-143-1-A101A
14.7456	X127-ND	3.38	30.38	243.00	1080.00	OECS-147.4-1-A101A
16.000	X116-ND	3.38	30.38	243.00	1080.00	OECS-160-1-A101A
16.257	X128-ND	3.38	30.38	243.00	1080.00	OECS-162.5-1-A101A
18.000	X117-ND	3.38	30.38	243.00	1080.00	OECS-180-1-A101A
18.432	X118-ND	3.38	30.38	243.00	1080.00	OECS-184-1-A101A
19.6608	XC314-ND	4.02	33.53	268.20	1080.25	OECS-196.6-1-A101A
20.000	X119-ND	3.38	30.38	243.00	1080.00	OECS-200-1-A101A
24.000	X129-ND	3.38	30.38	243.00	1080.00	OECS-240-1-A101A
25.000	XC315-ND	4.02	33.53	268.20	1080.25	OECS-250-1-A101A
25.175	X130-ND	3.38	30.38	243.00	1080.00	OECS-251.7-1-A101A
28.322	X131-ND	3.38	30.38	243.00	1080.00	OECS-283.2-1-A101A
30.000	XC316-ND	4.02	33.53	268.20	1080.25	OECS-300-1-A101A
32.000	X132-ND	3.38	30.38	243.00	1080.00	OECS-320-1-A101A
32.514	X133-ND	3.38	30.38	243.00	1080.00	OECS-325.1-1-A101A
35.000	X134-ND	3.38	30.38	243.00	1080.00	OECS-350-1-A101A
40.000	X120-ND	3.88	34.88	279.00	1240.00	OECS-400-1-A101A
48.000	X135-ND	3.88	34.88	279.00	1240.00	OECS-480-1-A101A
50.000	X121-ND	3.88	34.88	279.00	1240.00	OECS-500-1-A101A
64.000	X136-ND	3.88	34.88	279.00	1240.00	OECS-640-1-A101A
66.666	XC228-ND	4.46	37.13	297.00	1196.25	OECS-666-1-A101A

Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	120	ECS Part No.
			Fig. 2 — Half Size Clock Oscillator			
1.000	XC229-ND	5.81	48.38	—	464.40	OECS-10-2-A401A
1.2288	XC230-ND	5.81	48.38	—	464.40	OECS-12.2-2-A401A
1.8432	XC231-ND	5.81	48.38	—	464.40	OECS-18-2-A401A
2.000	XC232-ND	5.81	48.38	—	464.40	OECS-20-2-A401A
2.4576	XC233-ND	5.81	48.38	—	464.40	OECS-24-2-A401A
3.6864	XC234-ND	5.81	48.38	—	464.40	OECS-36-2-A401A
3.579545	XC235-ND	5.81	48.38	—	464.40	OECS-35-2-A401A
4.000	X202-ND	5.38	48.38	387.00	—	OECS-40-2-A401A
4.9152	XC236-ND	5.81	48.38	—	464.40	OECS-49-2-A401A
5.000	XC237-ND	5.81	48.38	—	464.40	OECS-50-2-A401A
5.0688	XC238-ND	5.81	48.38	—	464.40	OECS-51-2-A401A
6.000	XC239-ND	5.81	48.38	—	464.40	OECS-60-2-A401A
6.144	XC240-ND	5.81	48.38	—	464.40	OECS-61-2-A401A
7.3728	X208-ND	5.38	48.38	387.00	—	OECS-73-2-A401A
8.000	X209-ND	5.38	48.38	387.00	—	OECS-80-2-A401A
9.216	XC241-ND	5.81	48.38	—	464.40	OECS-92.1-2-A401A
9.8304	XC242-ND	5.81	48.38	—	464.40	OECS-98.3-2-A401A
10.000	XC243-ND	5.81	48.38	—	464.40	OECS-100-2-A401A
11.0592	XC244-ND	5.81	48.38	—	464.40	OECS-110.5-2-A401A
12.000	XC245-ND	5.81	48.38	—	464.40	OECS-120-2-A401A
14.31818	XC246-ND	5.81	48.38	—	464.40	OECS-143-2-A401A
14.7456	XC247-ND	5.81	48.38	—	464.40	OECS-147.4-2-A401A
16.000	X216-ND	5.38	48.38	387.00	—	OECS-160-2-A401A
16.257	XC248-ND	5.81	48.38	—	464.40	OECS-162.5-2-A401A
18.000	XC249-ND	5.81	48.38	—	464.40	OECS-180-2-A401A
18.432	XC250-ND	5.81	48.38	—	464.40	OECS-184-2-A401A
19.6608	XC251-ND	5.81	48.38	—	464.40	OECS-196.6-2-A-401A
20.000	X220-ND	5.38	48.38	387.00	—	OECS-200-2-A401A
24.000	X221-ND	5.38	48.38	387.00	—	OECS-240-2-A401A
25.000	XC252-ND	5.81	48.38	—	464.40	OECS-250-2-A401A
25.175	X222-ND	5.38	48.38	387.00	—	OECS-251.7-2-A401A
28.322	X223-ND	5.38	48.38	387.00	—	OECS-283.2-2-A401A
30.000	XC253-ND	5.81	48.38	—	464.40	OECS-300-2-A401A
32.000	XC254-ND	5.81	48.38	—	464.40	OECS-320-2-A401A
32.514	X224-ND	5.38	48.38	387.00	—	OECS-325.1-2-A401A
35.000	XC255-ND	5.81	48.38	—	464.40	OECS-350-2-A401A
40.000	X225-ND	5.38	48.38	387.00	—	OECS-400-2-A401A
48.000	XC256-ND	5.81	48.38	—	464.40	OECS-480-2-A401A
50.000	X226-ND	5.38	48.38	387.00	—	OECS-500-2-A401A
64.000	XC257-ND	5.81	48.38	—	464.40	OECS-640-2-A401A
66.666	XC258-ND	5.81	48.38	—	464.40	OECS-666-2-A401A

ECS INC. INTERNATIONAL Dual Output Oscillator

1. F Outputs the original frequency (f_0) of the internal quartz crystal.
2. D Outputs the frequency of programmed dividing ratio ($f_0/2^n$).
3. ST Possible to be oscillated when set to HIGH level and stopped in oscillation when set to LOW level. When this function is not needed, be sure to set the STANDBY pin to the HIGH level
4. GND
5. A
6. B } Used to program the dividing ratio for the original frequency.
7. C
8. V_{DD} Supply voltage





Setting of Dividing Output

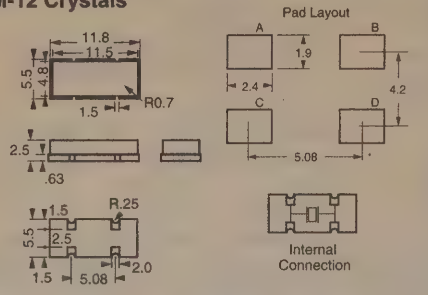
Input				Output	
Select			ST	F (Original Frequency)	D (Divided Waveform)
C	B	A			
X	X	X	L	L	L
L	L	L	H	fo clock	fo 2 clock
L	L	H	H	fo clock	fo 1 2^2 clock
L	H	L	H	fo clock	fo 1 2^3 clock
L	H	H	H	fo clock	fo 1 2^4 clock
H	L	L	H	fo clock	fo 1 2^5 clock
H	L	H	H	fo clock	fo 1 2^6 clock
H	H	L	H	fo clock	fo 1 2^7 clock
H	H	H	H	fo clock	fo 1 2^8 clock

Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	500	ECS Part No.
12.000	XC301-ND	5.54	46.13	369.00	1486.25	OECS-120-3-C3X1A
12.288	XC302-ND	5.54	46.13	369.00	1486.25	OECS-122.8-3-C3X1A
12.800	XC303-ND	5.54	46.13	369.00	1486.25	OECS-128-3-C3X1A
14.31818	XC304-ND	5.54	46.13	369.00	1486.25	OECS-143-3-C3X1A
14.7456	XC305-ND	5.54	46.13	369.00	1486.25	OECS-147.4-3-C3X1A
15.9744	XC306-ND	5.54	46.13	369.00	1486.25	OECS-159.7-3-C3X1A
16.000	XC307-ND	5.54	46.13	369.00	1486.25	OECS-160-3-C3X1A

Frequency (MHz)	Digi-Key Part No.	Pricing 1	10	100	500	ECS Part No.
16.3840	XC308-ND	5.54	46.13	369 00	1486.25	OECS-163.8-3-C3X1A
17.734476	XC309-ND	5.54	46.13	369.00	1486.25	OECS-177.3-3-C3X1A
18.432	XC310-ND	5.54	46.13	369.00	1486.25	OECS-184-3-C3X1A
19.6608	XC311-ND	5.54	46.13	369.00	1486.25	OECS-196.6-3-C3X1A
20.000	XC312-ND	5.54	46.13	369.00	1486.25	OECS-200-3-C3X1A
24.000	XC313-ND	5.54	46.13	369.00	1486.25	OECS-240-3-C3X1A

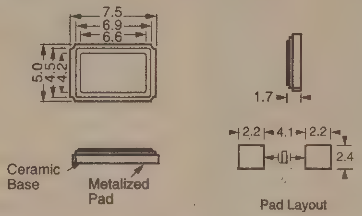
Surface Mount Crystals and Oscillators

CSM-12 Crystals



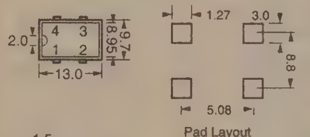
Electrical Specifications: • **Mode:** Fundamental • **Drive Level:** 500μW max. • **Frequency Tolerance:** ±100 ppm max. • **Resistance at Series Resonance:** 100 ~ 200 OHMs Frequency Dependant • **Frequency Stability:** ±100 ppm • **Operating Temperature Range:** -10° ~ +70°C • **Storage Temp. Range:** -30° ~ +80°C

CSM-8 Crystals

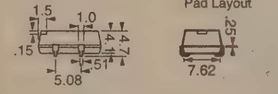


Electrical Specifications: • **Mode:** Fundamental, 3rd • **Drive Level:** 500μW • **Frequency Tolerance:** ±50ppm • **Resistance at Series Resonance:** 40 ~ 60Ω Max. • **Frequency Stability:** ±50ppm • **Operating Temperature Range:** -10° ~ +60°C, -10 ~ +60°C • **Storage Temperature Range:** -30° ~ +80°C

ECS-8FM Oscillator



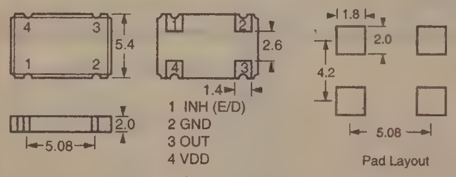
PIN	CONNECTION
1	Enable/Disable
2	GND
3	OUT
4	Vcc



Pin1 (Input)	Pin 3 (Output)
H or Open (2.0V min.)	OSC (RF signal)
L (0.8V max.)	High Impedance

Electrical Specifications: • **Frequency Tolerance:** ±100ppm • **Operating Temperature Range:** -0°C ~ +70°C • **Storage Temperature:** -50 ~ ±125°C • **Power Supply Voltage:** 5.0 ± 0.5V • **Current Consumption:** 1.0 - 30MHz 15mA, 30 - 50MHz 30mA, 50 - 70MHz 38mA • **Output Signal:** 0.4V Max. • **Output Load:** 1.0 - 50MHz = 50pF, 50 - 70MHz = 30pF • **Rise and Fall Time:** 1.0 - 40MHz 8nsec max., 40 - 70MHz 6nsec max. • **Duty Cycle:** 40:60

ECS-3951A Oscillator



1 INH (E/D)
2 GND
3 OUT
4 VDD

A high frequency capacitor (0.1μF) should be used with ECS-3951 Series because it does not possess a by-pass capacitor in VDD-GND

ELECTRICAL SPECIFICATIONS: • **Supply Voltage:** -0.5V to 7.0V • **Input Voltage:** -0.5V to Vdd +0.5V • **Output Terminal (Vout):** -0.5V to Vdd +0.5V • **Output Terminal (Iout):** 25mA • **Storage Temp.:** -55°C to +125°C • **Frequency Deviation:** ±100ppm • **Supply Voltage:** 5V ±0.5V • **Operating Temperature Range:** -10°C to +70°C • **Current Consumption (1):** 30mA max (fo≤50M), 45mA max (fo>50M) • **Current Consumption (2):** 20mA max (fo≤70m), 5mA max (fo>70M), (high impedance; osc stop only 70M above) • **Output Disable Time:** 100nsec max • **Output Enable Time:** 100nsec max (fo≤70M), 10msec max (fo>70M) • **Symmetry:** 50±5% (fo≤10M), 50±10% (fo>10M) • **Rise/Fall Time:** 10nsec max (fo≤50M), 8nsec (50<fo≤70M), 5nsec max (fo>70M), (0.5 Vdd to 4.5Vdd) • **"0" Level Voltage:** 0.5V max. • **"1" Level Voltage:** Vdd x 0.9 min • **Output Load, TTL:** 10LS-TTL max. • **Output Load, C-MOS:** 50pF max (fo≤50M), 15pF max (fo>50M) • **"0" Level Input Voltage:** 0.8V • **"1" Level Input Voltage:** 2.2V min.

Frequency (MHz)	Load Cap.	Digi-Key Part No.	Pricing 1	10	100	500	Digi-Key Part No.	Tape & Reel Pricing 1000	ECS Part No.*
CSM-12 Series Crystals									
3.579545	17pf	XC584CT-ND	2.88	25.92	216.00	864.00	XC584TR-ND	1440.00	ECS-35-17-18
3.6864	Series	XC585CT-ND	2.88	25.92	216.00	864.00	XC585TR-ND	1440.00	ECS-36-S-18
3.6864	20pf	XC586CT-ND	2.88	25.92	216.00	864.00	XC586TR-ND	1440.00	ECS-36-20-18
4.000	20pf	XC587CT-ND	2.88	25.92	216.00	864.00	XC587TR-ND	1440.00	ECS-40-20-18
4.000	Series	XC588CT-ND	2.88	25.92	216.00	864.00	XC588TR-ND	1440.00	ECS-40-S-18
4.9152	20pf	XC589CT-ND	2.88	25.92	216.00	864.00	XC589TR-ND	1440.00	ECS-49-20-18
4.9152	Series	XC590CT-ND	2.88	25.92	216.00	864.00	XC590TR-ND	1440.00	ECS-49-S-18
6.144	32pf	XC591CT-ND	2.88	25.92	216.00	864.00	XC591TR-ND	1440.00	ECS-61-32-18
7.3728	Series	XC592CT-ND	2.88	25.92	216.00	864.00	XC592TR-ND	1440.00	ECS-73-S-18
8.000	Series	XC593CT-ND	2.88	25.92	216.00	864.00	XC593TR-ND	1440.00	ECS-80-S-18
9.8304	Series	XC594CT-ND	2.88	25.92	216.00	864.00	XC594TR-ND	1440.00	ECS-98.3-S-18
9.8304	20pf	XC595CT-ND	2.88	25.92	216.00	864.00	XC595TR-ND	1440.00	ECS-98.3-20-18
10.000	Series	XC596CT-ND	2.88	25.92	216.00	864.00	XC596TR-ND	1440.00	ECS-100-S-18
11.0592	Series	XC597CT-ND	2.88	25.92	216.00	864.00	XC597TR-ND	1440.00	ECS-110.5-S-18
11.0592	20pf	XC598CT-ND	2.88	25.92	216.00	864.00	XC598TR-ND	1440.00	ECS-110.5-20-18
12.000	Series	XC599CT-ND	2.88	25.92	216.00	864.00	XC599TR-ND	1440.00	ECS-120-S-18
14.31818	Series	XC600CT-ND	2.88	25.92	216.00	864.00	XC600TR-ND	1440.00	ECS-143-S-18
16.000	Series	XC601CT-ND	2.88	25.92	216.00	864.00	XC601TR-ND	1440.00	ECS-160-S-18
18.432	Series	XC602CT-ND	2.88	25.92	216.00	864.00	XC602TR-ND	1440.00	ECS-184-S-18
19.6608	Series	XC603CT-ND	2.88	25.92	216.00	864.00	XC603TR-ND	1440.00	ECS-196.6-S-18
20.000	Series	XC604CT-ND	2.88	25.92	216.00	864.00	XC604TR-ND	1440.00	ECS-200-S-18
20.000	20pf	XC605CT-ND	2.88	25.92	216.00	864.00	XC605TR-ND	1440.00	ECS-200-20-18
24.000	20pf	XC606CT-ND	2.88	25.92	216.00	864.00	XC606TR-ND	1440.00	ECS-240-20-18
24.000	16pf	XC607CT-ND	2.88	25.92	216.00	864.00	XC607TR-ND	1440.00	ECS-240-16-18
CSM-8 Series Crystals									
9.8304	Series	XC608CT-ND	5.70	51.30	427.50	1710.00	XC608TR-ND	2850.00	ECS-98.3-S-20A
9.8304	20pf	XC609CT-ND	5.70	51.30	427.50	1710.00	XC609TR-ND	2850.00	ECS-98.3-20-20A
10.000	Series	XC610CT-ND	5.70	51.30	427.50	1710.00	XC610TR-ND	2850.00	ECS-100-S-20A
11.0592	Series	XC611CT-ND	5.70	51.30	427.50	1710.00	XC611TR-ND	2850.00	ECS-110.5-S-20A
11.0592	20pf	XC612CT-ND	5.70	51.30	427.50	1710.00	XC612TR-ND	2850.00	ECS-110.5-20-20A
12.000	Series	XC613CT-ND	5.70	51.30	427.50	1710.00	XC613TR-ND	2850.00	ECS-120-S-20A
14.31818	Series	XC614CT-ND	5.70	51.30	427.50	1710.00	XC614TR-ND	2850.00	ECS-143-S-20A
14.7456	Series	XC615CT-ND	5.70	51.30	427.50	1710.00	XC615TR-ND	2850.00	ECS-147.4-S-20A
16.000	Series	XC616CT-ND	5.70	51.30	427.50	1710.00	XC616TR-ND	2850.00	ECS-160-S-20A
18.432	Series	XC617CT-ND	5.70	51.30	427.50	1710.00	XC617TR-ND	2850.00	ECS-184-S-20A
19.6608	Series	XC618CT-ND	5.70	51.30	427.50	1710.00	XC618TR-ND	2850.00	ECS-196.6-S-20A
20.000	Series	XC619CT-ND	5.70	51.30	427.50	1710.00	XC619TR-ND	2850.00	ECS-200-S-20A
20.000	20pf	XC620CT-ND	5.70	51.30	427.50	1710.00	XC620TR-ND	2850.00	ECS-200-20-20A
24.000	Series	XC621CT-ND	5.70	51.30	427.50	1710.00	XC621TR-ND	2850.00	ECS-240-S-20A
24.000	20pf	XC622CT-ND	5.70	51.30	427.50	1710.00	XC622TR-ND	2850.00	ECS-240-20-20A
24.00014	Series	XC623CT-ND	6.06	54.54	454.50	1818.00	XC623TR-ND	3030.00	ECS-240.0014-S-20A
30.000	Series	XC624CT-ND•	6.06	54.54	454.50	1818.00	XC624TR-ND•	3030.00	ECS-300-S-20A
32.000	Series	XC625CT-ND•	6.06	54.54	454.50	1818.00	XC625TR-ND•	3030.00	ECS-320-S-20A
33.000	Series	XC626CT-ND•	6.06	54.54	454.50	1818.00	XC626TR-ND•	3030.00	ECS-330-S-20A
36.000	Series	XC627CT-ND•	6.06	54.54	454.50	1818.00	XC627TR-ND•	3030.00	ECS-360-S-20A
40.000	Series	XC628CT-ND•	6.06	54.54	454.50	1818.00	XC628TR-ND•	3030.00	ECS-400-S-20A
40.320	Series	XC629CT-ND•	6.06	54.54	454.50	1818.00	XC629TR-ND•	3030.00	ECS-403.2-S-20A
30.000	Series	XC630CT-ND	5.91	53.19	443.25	1773.00	XC630TR-ND	2955.00	ECS-300-S-20A-F
32.000	Series	XC631CT-ND	5.91	53.19	443.25	1773.00	XC631TR-ND	2955.00	ECS-320-S-20A-F
35.2512	Series	XC632CT-ND	5.91	53.19	443.25	1773.00	XC632TR-ND	2955.00	ECS-352.512-S-20A-F
36.000	Series	XC633CT-ND	5.91	53.19	443.25	1773.00	XC633TR-ND	2955.00	ECS-360-S-20A-F
40.000	Series	XC634CT-ND	5.91	53.19	443.25	1773.00	XC634TR-ND	2955.00	ECS-400-S-20A-F
ECS-8FM Series Oscillators									
1.000	—	XC703CT-ND	7.70	64:13	513.00	2066.25	XC703TR-ND	4275.00	ECS-8FM-1.000
1.8432	—	XC704CT-ND	7.70	64.13	513.00	2066.25	XC704TR-ND	4275.00	ECS-8FM-1.8432
2.000	—	XC705CT-ND	7.70	64.13	513.00	2066.25	XC705TR-ND	4275.00	ECS-8FM-2.000
2.4576	—	XC706CT-ND	7.70	64.13	513.00	2066.25	XC706TR-ND	4275.00	ECS-8FM-2.4576
3.579545	—	XC707CT-ND	7.70	64.13	513.00	2066.25	XC707TR-ND	4275.00	ECS-8FM-3.579545
3.6864	—	XC708CT-ND	7.70	64.13	513.00	2066.25	XC708TR-ND	4275.00	ECS-8FM-3.6864
4.000	—	XC635CT-ND	8.55	76.95	641.25	2565.00	XC635TR-ND	4275.00	ECS-8FM-4.000
4.9152	—	XC636CT-ND	8.55	76.95	641.25	2565.00	XC636TR-ND	4275.00	ECS-8FM-4.9152
6.000	—	XC637CT-ND	8.55	76.95	641.25	2565.00	XC637TR-ND	4275.00	ECS-8FM-6.000
7.3728	—	XC709CT-ND	7.70	64.13	513.00	2066.25	XC709TR-ND	4275.00	ECS-8FM-7.3728
8.000	—	XC638CT-ND	8.55	76.95	641.25	2565.00	XC638TR-ND	4275.00	ECS-8FM-8.000
9.8304	—	XC710CT-ND	7.70	64.13	513.00	2066.25	XC710TR-ND	4275.00	ECS-8FM-9.8304
10.000	—	XC639CT-ND	8.55	76.95	641.25	2565.00	XC639TR-ND	4275.00	ECS-8FM-10.000
11.0592	—	XC711CT-ND	7.70	64.13	513.00	2066.25	XC711TR-ND	4275.00	ECS-8FM-11.0592
12.000	—	XC640CT-ND	8.55	76.95	641.25	2565.00	XC640TR-ND	4275.00	ECS-8FM-12.000
12.288	—	XC712CT-ND	7.70	64.13	513.00	2066.25	XC712TR-ND	4275.00	ECS-8FM-12.288
14.31818	—	XC641CT-ND	8.55	76.95	641.25	2565.00	XC641TR-ND	4275.00	ECS-8FM-14.31818
16.000	—	XC642CT-ND	8.55	76.95	641.25	2565.00	XC642TR-ND	4275.00	ECS-8FM-16.000
18.432	—	XC643CT-ND	8.55	76.95	641.25	2565.00	XC643TR-ND	4275.00	ECS-8FM-18.432
19.6608	—	XC713CT-ND	7.70	64.13	513.00	2066.25	XC713TR-ND	4275.00	ECS-8FM-19.6608
20.000	—	XC644CT-ND	8.55	76.95	641.25	2565.00	XC644TR-ND	4275.00	ECS-8FM-20.000
24.000	—	XC645CT-ND	8.55	76.95	641.25	2565.00	XC645TR-ND	4275.00	ECS-8FM-24.000
25.000	—	XC714CT-ND	7.70	64.13	513.00	2066.25	XC714TR-ND	4275.00	ECS-8FM-25.000
25.175	—	XC646CT-ND	8.55	76.95	641.25	2565.00	XC646TR-ND	4275.00	ECS-8FM-25.175
28.322	—	XC647CT-ND	8.55	76.95	641.25	2565.00	XC647TR-ND	4275.00	ECS-8FM-28.322
32.000	—	XC648CT-ND	8.55	76.95	641.25	2565.00	XC648TR-ND	4275.00	ECS-8FM-32.000
32.514	—	XC649CT-ND	8.55	76.95	641.25	2565.00	XC649TR-ND	4275.00	ECS-8FM-32.514
40.000	—	XC650CT-ND	8.55	76.95	641.25	2565.00	XC650TR-ND	4275.00	ECS-8FM-40.000
48.000	—	XC651CT-ND	8.55	76.95	641.25	2565.00	XC651TR-ND	4275.00	ECS-8FM-48.000
50.000	—	XC652CT-ND	8.55	76.95	641.25	2565.00	XC652TR-ND	4275.00	ECS-8FM-50.000
66.666	—	XC715CT-ND	8.10	67.50	540.00	2175.00	XC715TR-ND	4500.00	ECS-8FM-66.666
ECS-3951A Series Oscillators									
1.8432	—	XC653CT-ND	11.70	105.30	877.50	3510.00	XC653TR-ND	5850.00	ECS-3951A-1.8432
3.6864	—	XC654CT-ND	11.70	105.30	877.50	3510.00	XC654TR-ND	5850.00	ECS-3951A-3.6864
12.000	—	XC655CT-ND	10.89	98.01	816.75	3267.00	XC655TR-ND	5445.00	ECS-3951A-12.000
16.000	—	XC656CT-ND	10.89	98.01	816.75	3267.00	XC656TR-ND	5445.00	ECS-3951A-16.000
20.000	—	XC657CT-ND	10.89	98.01	816.75	3267.00	XC657TR-ND	5445.00	ECS-3951A-20.000
33.000	—	XC658CT-ND	12.93	116.37	969.75	3879.00	XC658TR-ND	6465.00	ECS-3951A-33.000
40.000	—	XC659CT-ND	11.43	102.87	857.25	3429.00	XC659TR-ND	5715.00	ECS-3951A-40.000
50.000	—	XC660CT-ND	11.43	102.87	857.25	3429.00	XC660TR-ND	5715.00	ECS-3951A-50.000
65.000	—	XC661CT-ND	14.73	132.57	1104.75	4419.00	XC661TR-ND	7365.00	ECS-3951A-65.000
66.666	—	XC662CT-ND	13.05	117.45	978.75	3915.00	XC662TR-ND	6525.00	ECS-3951A-66.666

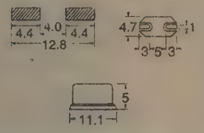
* For ECS part number with Tape and Reel Pricing add "-TR" to existing ECS part number. • 3rd Overtone

ECS INC. INTERNATIONAL

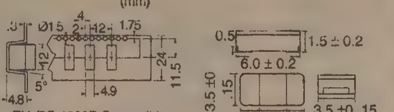
SMT Low Profile Quartz Crystals

CSM-7 & ECX-6
Electrical Specifications: Operating Temperature Range: -10 to 70°C. **Frequency Tolerance:** ±50 ppm. **Drive Level:** 10 µW.

CSM-7



ECX-6



EIA RC-1009B Compatible
with EIAJ RC-1009B

Frequency (MHz)	Load Cap.	Equi-valent Series Res. (Ohms)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	T&R Pricing 1000	ECS Part No.
CSM-7 Case									
3.579545	17pF	—	XC560CT-ND	2.19	18.23	145.80	XC560TR-ND	1093.50	ECS-35-17-5P
3.579545	Series	150	XC663CT-ND	2.19	18.23	145.80	XC663TR-ND	1215.00	ECS-35-S-5P
3.6864	Series	150	XC561CT-ND	2.19	18.23	145.80	XC561TR-ND	1093.50	ECS-36-S-5P
3.6864	20pF	—	XC562CT-ND	2.19	18.23	145.80	XC562TR-ND	1093.50	ECS-36-20-5P
4.000	Series	100	XC563CT-ND	2.19	18.23	145.80	XC563TR-ND	1093.50	ECS-40-S-5P
4.000	20pF	—	XC564CT-ND	2.19	18.23	145.80	XC564TR-ND	1093.50	ECS-40-20-5P
4.032	20pF	—	XC664CT-ND	2.19	18.23	145.80	XC664TR-ND	1215.00	ECS-40.3-20-5P
4.032	Series	100	XC665CT-ND	2.19	18.23	145.80	XC665TR-ND	1215.00	ECS-40.3-S-5P
4.096	20pF	—	XC666CT-ND	2.19	18.23	145.80	XC666TR-ND	1215.00	ECS-41-20-5P
4.194304	12pF	—	XC667CT-ND	2.19	18.23	145.80	XC667TR-ND	1215.00	ECS-42-12-5P
4.194304	16pF	—	XC668CT-ND	2.19	18.23	145.80	XC668TR-ND	1215.00	ECS-42-16-5P
4.433618	20pF	—	XC669CT-ND	2.19	18.23	145.80	XC669TR-ND	1215.00	ECS-44-20-5P
4.9152	Series	80	XC565CT-ND	2.19	18.23	145.80	XC565TR-ND	1093.50	ECS-49-S-5P
4.9152	20pF	—	XC566CT-ND	2.19	18.23	145.80	XC566TR-ND	1093.50	ECS-49-20-5P
5.000	Series	80	XC670CT-ND	2.19	18.23	145.80	XC670TR-ND	1215.00	ECS-50-S-5P
5.000	20pF	—	XC671CT-ND	2.19	18.23	145.80	XC671TR-ND	1215.00	ECS-50-20-5P
5.0688	Series	60	XC672CT-ND	2.19	18.23	145.80	XC672TR-ND	1215.00	ECS-51-S-5P
5.0688	20pF	—	XC673CT-ND	2.19	18.23	145.80	XC673TR-ND	1215.00	ECS-51-20-5P
5.185	Series	60	XC674CT-ND	2.19	18.23	145.80	XC674TR-ND	1215.00	ECS-52-S-5P
5.185	32pF	—	XC675CT-ND	2.19	18.23	145.80	XC675TR-ND	1215.00	ECS-52-32-5P
5.9904	Series	60	XC676CT-ND	2.19	18.23	145.80	XC676TR-ND	1215.00	ECS-59-S-5P
5.9904	20pF	—	XC677CT-ND	2.19	18.23	145.80	XC677TR-ND	1215.00	ECS-59-20-5P
6.000	Series	60	XC678CT-ND	2.19	18.23	145.80	XC678TR-ND	1215.00	ECS-60-S-5P
6.000	32pF	—	XC679CT-ND	2.19	18.23	145.80	XC679TR-ND	1215.00	ECS-60-32-5P
6.144	32pF	—	XC567CT-ND	2.19	18.23	145.80	XC567TR-ND	1093.50	ECS-61-32-5P
7.3728	Series	60	XC568CT-ND	2.19	18.23	145.80	XC568TR-ND	1093.50	ECS-73-S-5P
7.3728	20pF	—	XC680CT-ND	2.19	18.23	145.80	XC680TR-ND	1215.00	ECS-73-20-5P
8.000	Series	60	XC569CT-ND	2.16	18.00	144.00	XC569TR-ND	1093.50	ECS-80-S-5P
8.000	18pF	—	XC681CT-ND	2.19	18.23	145.80	XC681TR-ND	1215.00	ECS-80-18-5P
8.000	32pF	—	XC682CT-ND	2.19	18.23	145.80	XC682TR-ND	1215.00	ECS-80-32-5P
9.216	Series	50	XC683CT-ND	2.19	18.23	145.80	XC683TR-ND	1215.00	ECS-92.1-S-5P
9.216	20pF	—	XC684CT-ND	2.19	18.23	145.80	XC684TR-ND	1215.00	ECS-92.1-20-5P
9.8304	Series	50	XC570CT-ND	2.19	18.23	145.80	XC570TR-ND	1093.50	ECS-98.3-S-5P
9.8304	20pF	—	XC571CT-ND	2.19	18.23	145.80	XC571TR-ND	1093.50	ECS-98.3-20-5P
10.000	Series	40	XC572CT-ND	2.19	18.23	145.80	XC572TR-ND	1093.50	ECS-100-S-5P
11.000	Series	40	XC685CT-ND	2.19	18.23	145.80	XC685TR-ND	1215.00	ECS-110-S-5P
11.0592	Series	40	XC573CT-ND	2.19	18.23	145.80	XC573TR-ND	1093.50	ECS-110.5-S-5P
11.0592	20pF	—	XC574CT-ND	2.19	18.23	145.80	XC574TR-ND	1093.50	ECS-110.5-20-5P
11.0592	32pF	—	XC686CT-ND	2.19	18.23	145.80	XC686TR-ND	1215.00	ECS-110.5-32-5P
12.000	Series	40	XC575CT-ND	2.19	18.23	145.80	XC575TR-ND	1093.50	ECS-120-S-5P
12.000	32pF	—	XC687CT-ND	2.19	18.23	145.80	XC687TR-ND	1215.00	ECS-120-32-5P
12.000393	18pF	—	XC688CT-ND	2.35	19.58	156.60	XC688TR-ND	1305.00	ECS-120.003-18-5P
12.288	Series	30	XC689CT-ND	2.19	18.23	145.80	XC689TR-ND	1215.00	ECS-122.8-S-5P
12.288	20pF	—	XC690CT-ND	2.19	18.23	145.80	XC690TR-ND	1215.00	ECS-122.8-20-5P
14.31818	Series	30	XC576CT-ND	2.19	18.23	145.80	XC576TR-ND	1093.50	ECS-143-S-5P
14.7456	Series	—	XC691CT-ND	2.19	18.23	145.80	XC691TR-ND	1215.00	ECS-147.4-S-5P
14.7456	20pF	30	XC692CT-ND	2.19	18.23	145.80	XC692TR-ND	1215.00	ECS-147.4-20-5P
15.000	Series	—	XC693CT-ND	2.19	18.23	145.80	XC693TR-ND	1215.00	ECS-150-S-5P
16.000	Series	30	XC577CT-ND	2.19	18.23	145.80	XC577TR-ND	1093.50	ECS-160-S-5P
16.000	20pF	—	XC694CT-ND	2.19	18.23	145.80	XC694TR-ND	1215.00	ECS-160-20-5P
16.000312	18pF	—	XC695CT-ND	2.35	19.58	156.60	XC695TR-ND	1305.00	ECS-160.003-18-5P
16.257	20pF	—	XC696CT-ND	2.19	18.23	145.80	XC696TR-ND	1215.00	ECS-162.5-20-5P
16.257	Series	30	XC697CT-ND	2.19	18.23	145.80	XC697TR-ND	1215.00	ECS-162.5-S-5P
18.000	Series	30	XC698CT-ND	2.19	18.23	145.80	XC698TR-ND	1215.00	ECS-180-S-5P
18.432	Series	30	XC578CT-ND	2.19	18.23	145.80	XC578TR-ND	1093.50	ECS-184-S-5P
18.432	18pF	—	XC699CT-ND	2.19	18.23	145.80	XC699TR-ND	1215.00	ECS-184-18-5P
18.432	20pF	—	XC700CT-ND	2.19	18.23	145.80	XC700TR-ND	1215.00	ECS-184-20-5P
19.6608	Series	30	XC579CT-ND	2.21	18.45	147.60	XC579TR-ND	1107.00	ECS-196.6-S-5P
19.6608	20pF	—	XC701CT-ND	2.35	19.58	156.60	XC701TR-ND	1305.00	ECS-196.6-20-5P
20.000	Series	30	XC580CT-ND	2.21	18.45	147.60	XC580TR-ND	1107.00	ECS-200-S-5P
20.000	20pF	—	XC581CT-ND	2.21	18.45	147.60	XC581TR-ND	1107.00	ECS-200-20-5P
24.000	20pF	—	XC582CT-ND	2.21	18.45	147.60	XC582TR-ND	1107.00	ECS-240-20-5P
24.000	16pF	—	XC583CT-ND	2.21	18.45	147.60	XC583TR-ND	1107.00	ECS-240-16-5P
24.00014	18pF	—	XC702CT-ND	2.35	19.58	156.60	XC702TR-ND	1305.00	ECS-240.001-18-5P

Frequency (MHz)	Load Cap.	Equi-valent Series Res. (Ohms)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	T&R Pricing 1000	ECS Part No.
ECX-6 Ultra Low									
14.31818	Series	60	XC800CT-ND	6.40	53.33	426.60	XC800TR-ND	9598.50	ECS-143-S-15
15.000	Series	60	XC801CT-ND	6.40	53.33	426.60	XC801TR-ND	9598.50	ECS-150-S-15
16.000	Series	60	XC802CT-ND	6.40	53.33	426.60	XC802TR-ND	9598.50	ECS-160-S-15
17.734475	Series	60	XC803CT-ND	6.40	53.33	426.60	XC803TR-ND	9598.50	ECS-177.3-S-15
18.000	Series	60	XC804CT-ND	6.40	53.33	426.60	XC804TR-ND	9598.50	ECS-180-S-15
18.432	Series	60	XC805CT-ND	6.40	53.33	426.60	XC805TR-ND	9598.50	ECS-184-S-15
19.6608	Series	60	XC806CT-ND	6.40	53.33	426.60	XC806TR-ND	9598.50	ECS-196.6-S-15
20.000	Series	50	XC807CT-ND	6.40	53.33	426.60	XC807TR-ND	9598.50	ECS-200-S-15
24.000	Series	50	XC808CT-ND	6.40	53.33	426.60	XC808TR-ND	9598.50	ECS-240-S-1

ECS INC. INTERNATIONAL

SMT Low Profile Quartz Crystals

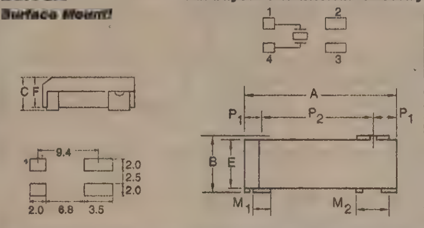
It has a special high temperature seal which is able to withstand SMD soldering techniques. Housing for this crystal is made from the same rugged thermoplastic that is standard for integrated circuits.

Features:
Economical Cost, Space Saving Design, Surface Mount.

Specifications:
Storage Temperature: –30°C ~ +90°C. **Operating Temperature:** –10°C ~ +70°C. **Frequency Tolerance:** ±50 ppm @ 25°C, ±100 ppm from –10°C to +70°C. **Capacitance, Shunt:** Less than 7pF. **Insulation Resistance:** More than 500MΩ (DC 100V ± 15V). **Shock:** Height: 75 cm. Dropped time: 3 times. **Vibration:** Frequency: 10-55Hz. Amplitude: 1.5 mm. Period: 1-2 minutes. Test time: X Y Z each direction two hours. **Leakage:** Temperature of hot water: 90-95°C. Test time: 3 minutes.

ECX-3A
Surface Mount!

Pin Layout and Internal Circuitry



Ref.	Min. (In.)	Nom. (In.)	Max. (In.)
A	—	.512	.516
B	—	.197	.200
C	—	.169	.197
E	.169	.173	.177
F	177	.181	.185
M1	.059	.063	.067
M2	.114	.118	122
P1	.051	.055	.059
P2	.366	.370	.374
P3	.079	.083	.087

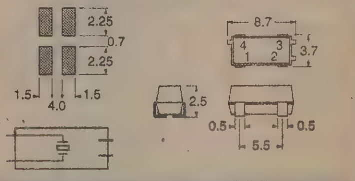
Frequency (MHz)	Max. Series Load Cap.	Max. Res. w. Load Resist. (Ohms)	Cap. (Ohms)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 1000	ECS Part No.
3.579545	17pF	150	175	XC501CT-ND*	3.35	27.90	223.20	XC501TR-ND	1674.00	ECS-35-17-7
3.579545	Series	—	—	XC529CT-ND	3.35	27.90	223.20	XC529TR-ND	1674.00	ECS-35-S-7
3.6864	Series	150	—	XC502CT-ND*	3.35	27.90	223.20	XC502TR-ND	1674.00	ECS-36-S-7
3.6864	20pF	150	175	XC503CT-ND*	3.35	27.90	223.20	XC503TR-ND	1674.00	ECS-36-20-7
4.000	Series	100	—	XC504CT-ND*	3.35	27.90	223.20	XC504TR-ND	1674.00	ECS-40-S-7
4.000	20pF	100	120	XC505CT-ND*	3.35	27.90	223.20	XC505TR-ND	1674.00	ECS-40-20-7
4.096	16pF	—	—	XC500CT-ND	3.35	27.90	223.20	XC500TR-ND	1860.00	ECS-41-16-7
4.194304	12pF	—	—	XC530CT-ND	3.35	27.90	223.20	XC530TR-ND	1674.00	ECS-42-12-7
4.433616	20pF	100	120	XC506CT-ND*	3.35	27.90	223.20	XC506TR-ND	1674.00	ECS-44-20-7
4.9152	Series	80	—	XC507CT-ND*	3.35	27.90	223.20	XC507TR-ND	1674.00	ECS-49-S-7
4.9152	20pF	80	90	XC508CT-ND*	3.35	27.90	223.20	XC508TR-ND	1674.00	ECS-49-20-7
5.000	20pF	—	—	XC499CT-ND	3.35	27.90	223.20	XC499TR-ND	1860.00	ECS-50-20-7
6.000	32pF	—	—	XC498CT-ND	3.35	27.90	223.20	XC498TR-ND	1860.00	ECS-60-32-7
6.000	Series	—	—	XC497CT-ND	3.35	27.90	223.20	XC497TR-ND	1860.00	ECS-60-S-7
6.144	32pF	70	80	XC509CT-ND*	3.35	27.90	223.20	XC509TR-ND	1674.00	ECS-61-32-7
6.5536	12pF	—	—	XC496CT-ND	3.35	27.90	223.20	XC496TR-ND	1860.00	ECS-65-12-7
7.3728	20pF	—	—	XC536CT-ND	3.35	27.90	223.20	XC536TR-ND	1674.00	ECS-73-20-7
7.3728	Series	60	—	XC510CT-ND*	3.35	27.90	223.20	XC510TR-ND	1674.00	ECS-73-S-7
8.000	Series	60	—	XC511CT-ND*	3.35	27.90	223.20	XC511TR-ND	1674.00	ECS-80-S-7
8.000	16pF	—	—	XC495CT-ND	3.35	27.90	223.20	XC495TR-ND	1860.00	ECS-80-16-7
9.8304	Series	50	—	XC512CT-ND*	3.35	27.90	223.20	XC512TR-ND	1674.00	ECS-98.3-S-7
9.8304	20pF	50	70	XC513CT-ND*	3.35	27.90	223.20	XC513TR-ND	1674.00	ECS-98.3-20-7
10.000	Series	40	—	XC514CT-ND*	3.35	27.90	223.20	XC514TR-ND	1674.00	ECS-100-S-7
11.0592	Series	40	—	XC515CT-ND*	3.35	27.90	223.20	XC515TR-ND	1674.00	ECS-110.5-S-7
11.0592	20pF	40	50	XC516CT-ND*	3.35	27.90	223.20	XC516TR-ND	1674.00	ECS-110.5-20-7
12.000	18pF	—	—	XC548CT-ND	3.67	30.60	244.80	XC548TR-ND	1836.00	ECS-120-18-7
12.000	Series	40	—	XC517CT-ND*	3.35	27.90	223.20	XC517TR-ND	1674.00	ECS-120-S-7
12.000	32pF	—	—	XC494CT-ND	3.35	27.90	223.20	XC494TR-ND	1860.00	ECS-120-32-7
12.288	Series	40	—	XC518CT-ND*	3.35	27.90	223.20	XC518TR-ND	1674.00	ECS-122.8-S-7
12.288	20pF	—	—	XC493CT-ND	3.35	27.90	223.20	XC493TR-ND	1860.00	ECS-122.8-20-7
14.31818	Series	30	—	XC519CT-ND*	3.35	27.90	223.20	XC519TR-ND	1674.00	ECS-143-S-7
14.31818	20pF	—	—	XC492CT-ND	3.35	27.90	223.20	XC492TR-ND	1860.00	ECS-143-20-7
14.7456	Series	30	—	XC520CT-ND*	3.35	27.90	223.20	XC520TR-ND	1674.00	ECS-147.4-S-7
14.7456	20pF	—	—	XC491CT-ND	3.35	27.90	223.20	XC491TR-ND	1860.00	ECS-147.4-20-7
16.000	20pF	—	—	XC550CT-ND	4.94	41.18	329.40	XC550TR-ND	2470.50	ECS-160-20-7
16.000	Series	30	—	XC521CT-ND*	3.35	27.90	223.20	XC521TR-ND	1674.00	ECS-160-S-7
18.432	Series	30	—	XC522CT-ND*	3.59	29.93	239.40	XC522TR-ND	1795.50	ECS-184-S-7
19.6608	Series	30	—	XC523CT-ND*	3.59	29.93	239.40	XC523TR-ND	1795.50	ECS-196.6-S-7
19.6608	20pF	—	—	XC490CT-ND	3.59	29.93	239.40	XC490TR-ND	1995.00	ECS-196.6-20-7
20.000	Series	30	—	XC524CT-ND*	3.59	29.93	239.40	XC524TR-ND	1795.50	ECS-200-S-7
20.000	16pF	—	—	XC489CT-ND	3.59	29.93	239.40	XC489TR-ND	1995.00	ECS-200-16-7
20.000	20pF	30	40	XC525CT-ND*	3.59	29.93	239.40	XC525TR-ND	1795.50	ECS-200-20-7
23.592	Series	—	—	XC559CT-ND	3.59	29.93	239.40	XC559TR-ND	1795.50	ECS-235.92-S-7
24.000	Series	30	—	XC526CT-ND*	3.59	29.93	239.40	XC526TR-ND	1795.50	ECS-240-S-7
24.000	20pF	30	40	XC527CT-ND*	3.59	29.93	239.40	XC527TR-ND	1795.50	ECS-240-20-7
24.000	16pF	30	40	XC528CT-ND	3.59	29.93	239.40	XC528TR-ND	1795.50	ECS-240-16-7

* **XC-KIT-ND** 3 each of values denoted (81 total pieces).
Notebook style storage case and bin storage guide included. $169.00

ECS INC. INTERNATIONAL

SMT Quartz Crystal 32,768KHz

Specifications:
- **Temperature Range:** -30°C ~ +80°C
- **Frequency Tolerance:** ±3.0ppm max. at 25°C ± 2°C
- **Level of Drive:** 1.0µW max.
- **Insulation Resistance:** 500 MΩ min.
- **Load Capacitance:** 12.5pF



Digi-Key Part No.	Pricing 1	10	Digi-Key Part No	T&R Price 3000
XC488CT-ND	2.21	18.45	XC488TR-ND	1230.00/M

Panasonic® Surface Mount Inductors

These are wire wound type chip inductors that can accommodate automatic and high-density mounting in electronic circuits.

Features:

• Very thin wires are wound on a high magnetic effect drum core, resulting in high Q and excellent frequency characteristics. • High reliability because the coil is molded by heat-resistant epoxy resin. • Flow and reflow soldering is possible due to adoption of metal terminals.

NA Type: • Coreless Type. • L is stable with respect to temperature and humidity suitable for high-frequency circuits.

FA Type: • Chip inductor for general use, compact size, with a wide inductance range.

NC Type: • Low inductance, tight tolerance and small size. Suitable for high-frequency circuits. Coreless type. L is stable with respect to temperature and humidity.

FC/SC Type: • Smallest of the coil type inductors; Suitable for a variety of small processing circuits. SC type is equipped with a magnetic shield function.

PC Type: • High rated DC current. • Low DC resistance. • Suitable for power circuits

SA Type: • Use of ferrite resin giving it an additional function of magnetic shield. • Compact size, with high inductance.

RE Type: • Small size • High self-resonant frequency • Tight tolerance.

ND Type: • High Q • High self-resonant frequency.

FD Type: • High Q • Standard version of ND Type.

Fig. 1 - 1210 (3225)

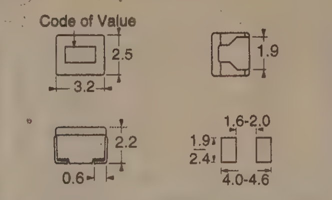


Fig. 2 - 1008 (2520)

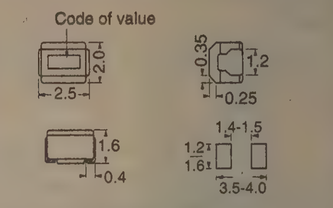


Fig. 3 - 0603 (1608)

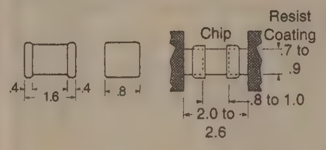
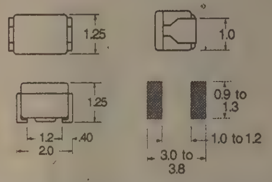


Fig. 4 - 0805 (2012)



µH	Q Min.	Freq. MHz	Rated DC Current DCR† Ω max.	mA max.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 2000	Panasonic Part No.
Fig 1, Type NA											
0.047 ±20%	10	100	0.20	450	PCD1115CT-ND	.59	4.86	38.19	PCD1115TR-ND	208.00/M	ELJ-NA47NMF
0.056 ±20%	10	100	0.22	420	PCD1116CT-ND	.59	4.86	38.19	PCD1116TR-ND	208.00/M	ELJ-NA56NMF
0.068 ±20%	10	100	0.25	400	PCD1117CT-ND	.59	4.86	38.19	PCD1117TR-ND	208.00/M	ELJ-NA68NMF
0.082 ±20%	10	100	0.27	380	PCD1118CT-ND	.59	4.86	38.19	PCD1118TR-ND	208.00/M	ELJ-NA82NMF
0.10 ±20%	10	100	0.30	360	PCD1119CT-ND	.58	4.86	38.19	PCD1119TR-ND	208.00/M	ELJ-NAR10MF
0.12 ±20%	10	25.2	0.67	240	PCD1120CT-ND	.59	4.86	38.19	PCD1120TR-ND	208.00/M	ELJ-NAR12MF
0.15 ±20%	10	25.2	0.72	230	PCD1121CT-ND	.59	4.86	38.19	PCD1121TR-ND	208.00/M	ELJ-NAR15MF
0.18 ±20%	10	25.2	0.81	220	PCD1122CT-ND	.59	4.86	38.19	PCD1122TR-ND	208.00/M	ELJ-NAR18MF
0.22 ±10%	10	25.2	0.90	210	PCD1123CT-ND	.59	4.86	38.19	PCD1123TR-ND	208.00/M	ELJ-NAR22KF
0.27 ±10%	10	25.2	1.0	200	PCD1124CT-ND	.59	4.86	38.19	PCD1124TR-ND	208.00/M	ELJ-NAR27KF
0.33 ±10%	10	25.2	1.1	190	PCD1125CT-ND	.59	4.86	38.19	PCD1125TR-ND	208.00/M	ELJ-NAR33KF
0.39 ±10%	10	25.2	1.2	180	PCD1126CT-ND	.59	4.86	38.19	PCD1126TR-ND	208.00/M	ELJ-NAR39KF
0.47 ±10%	10	25.2	1.4	175	PCD1127CT-ND	.59	4.86	38.19	PCD1127TR-ND	208.00/M	ELJ-NAR47KF
0.56 ±10%	10	25.2	1.5	170	PCD1128CT-ND	.59	4.86	38.19	PCD1128TR-ND	208.00/M	ELJ-NAR56KF
0.68 ±10%	10	25.2	1.7	155	PCD1129CT-ND	59	4.86	38 19	PCD1129TR-ND	208.00/M	ELJ-NAR68KF
0.82 ±10%	10	25.2	1.9	145	PCD1130CT-ND	.59	4.86	38.19	PCD1130TR-ND	208.00/M	ELJ-NAR82KF
1 0 ±5%	.13	7.96	2.1	125	PCD1131CT-ND	.59	4.86	38.19	PCD1131TR-ND	208.00/M	ELJ-NA1R0JF
1 2 ±5%	.13	7.96	2.3	120	PCD1132CT-ND	.59	4.86	38.19	PCD1132TR-ND	208.00/M	ELJ-NA1R2JF
1.5 ±5%	.13	7.96	2.7	115	PCD1133CT-ND	.59	4.86	38.19	PCD1133TR-ND	208.00/M	ELJ-NA1R5JF
1.8 ±5%	.13	7.96	3.0	110	PCD1134CT-ND	.59	4.86	38.19	PCD1134TR-ND	208.00/M	ELJ-NA1R8JF
2.2 ±5%	.13	7.96	3.2	110	PCD1135CT-ND	.59	4.86	38.19	PCD1135TR-ND	208.00/M	ELJ-NA2R2JF
2.7 ±5%	.13	7.96	3.6	105	PCD1136CT-ND	.59	4.86	38.19	PCD1136TR-ND	208 00/M	ELJ-NA2R7JF
3.3 ±5%	.13	7.96	4.2	100	PCD1137CT-ND	.59	4.86	38.19	PCD1137TR-ND	208.00/M	ELJ-NA3R3JF
3.9 ±5%	.13	7.96	4.4	95	PCD1138CT-ND	.59	4.86	38.19	PCD1138TR-ND	208.00/M	ELJ-NA3R9JF
4.7 ±5%	.13	7.96	7.7	70	PCD1139CT-ND	.59	4.86	38.19	PCD1139TR-ND	208.00/M	ELJ-NA4R7JF
5.6 ±5%	.13	7.96	8.7	65	PCD1140CT-ND	.59	4.86	38.19	PCD1140TR-ND	208.00/M	ELJ-NA5R6JF
6.8 ±5%	.13	7.96	10	60	PCD1141CT-ND	.59	4.86	38.19	PCD1141TR-ND	208.00/M	ELJ-NA6R8JF
8.2 ±5%	.13	7.96	11	60	PCD1142CT-ND	.59	4.86	38.19	PCD1142TR-ND	208.00/M	ELJ-NA8R2JF
Fig. 1, Type FA, Inductance Measured at 1.0 MHz											
0 22 ±20%	25	25.2	0.29	360	PCD1000CT-ND	.58	4.76	37.40	PCD1000TR-ND	204.00/M	ELJ-FAR22MF2
0.27 ±20%	25	25.2	0.32	345	PCD1001CT-ND	.58	4.76	37.40	PCD1001TR-ND	204.00/M	ELJ-FAR27MF2
0.33 ±20%	25	25.2	0.35	330	PCD1002CT-ND	.58	4.76	37.40	PCD1002TR-ND	204.00/M	ELJ-FAR33MF2
0.39 ±20%	25	25.2	0.39	305	PCD1003CT-ND	.58	4.76	37.40	PCD1003TR-ND	204.00/M	ELJ-FAR39MF2
0.47 ±20%	25	25.2	0.44	290	PCD1004CT-ND	.58	4.76	37.40	PCD1004TR-ND	204 00/M	ELJ-FAR47MF2
0.56 ±20%	25	25.2	0.49	275	PCD1005CT-ND	58	4.76	37.40	PCD1005TR-ND	204.00/M	ELJ-FAR56MF2
0.68 ±20%	25	25.2	0.55	260	PCD1006CT-ND	.58	4.76	37.40	PCD1006TR-ND	204.00/M	ELJ-FAR68MF2
.82 ±20%	25	25.2	0.61	245	PCD1007CT-ND	.58	4.76	37.40	PCD1007TR-ND	204.00/M	ELJ-FAR82MF2
1.0 ±10%	25	25.2	0.69	230	PCD1008CT-ND	.66	5.43	42.63	PCD1008TR-ND	233.00/M	ELJ-FA1R0KF2
1.2 ±10%	25	25.2	0,75	215	PCD1009CT-ND	.66	5.43	42.63	PCD1009TR-ND	233.00/M	ELJ-FA1R2KF2
1.5 ±10%	35	7.96	0.75	210	PCD1010CT-ND	.66	5.43	42.63	PCD1010TR-ND	233.00/M	ELJ-FA1R5KF2
1.8 ±10%	35	7.96	0.82	200	PCD1011CT-ND	66	5.43	42.63	PCD1011TR-ND	233.00/M	ELJ-FA1R8KF2
2.2 ±10%	35	7.96	0.95	190	PCD1012CT-ND	.66	5.43	42.63	PCD1012TR-ND	233.00/M	ELJ-FA2R2KF2
2.7 ±10%	35	7.96	1.1	180	PCD1013CT-ND	.66	5.43	42.63	PCD1013TR-ND	233.00/M	ELJ-FA2R7KF2
3.3 ±10%	35	7.96	1.2	180	PCD1014CT-ND	.66	5.43	42.63	PCD1014TR-ND	233.00/M	ELJ-FA3R3KF2
3.9 ±10%	35	7.96	1.3	175	PCD1015CT-ND	.66	5.43	42.63	PCD1015TR-ND	233.00/M	ELJ-FA3R9KF2
4.7 ±10%	35	7.96	1.5	165	PCD1016CT-ND	.66	5.43	42.63	PCD1016TR-ND	233.00/M	ELJ-FA4R7KF2
5.6 ±20%	35	7.96	1.6	160	PCD1017CT-ND	.58	4.76	37.40	PCD1017TR-ND	204.00/M	ELJ-FA5R6MF2
6.8 ±20%	35	7.96	1.8	150	PCD1018CT-ND	.58	4.76	37.40	PCD1018TR-ND	204.00/M	ELJ-FA6R8MF2
8.2 ±20%	35	7.96	2.0	140	PCD1019CT-ND	.58	4.76	37.40	PCD1019TR-ND	204.00/M	ELJ-FA8R2MF2
10 ±10%	30	7.96	2.1	140	PCD1020CT-ND	.58	4.76	37.40	PCD1020TR-ND	204.00/M	ELJ-FA100KF2
12 ±10%	30	5.0	2.5	125	PCD1021CT-ND	.58	4.76	37.40	PCD1021TR-ND	204.00/M	ELJ-FA120KF2
15 ±10%	30	5.0	2.8	120	PCD1022CT-ND	.58	4.76	37.40	PCD1022TR-ND	204.00/M	ELJ-FA150KF2
18 ±10%	30	5.0	3.3	110	PCD1023CT-ND	.58	4.76	37.40	PCD1023TR-ND	204.00/M	ELJ-FA180KF2
22 ±10%	30	5.0	3.7	105	PCD1024CT-ND	.58	4.76	37.40	PCD1024TR-ND	204.00/M	ELJ-FA220KF2
27 ±10%	30	5.0	5.0	90	PCD1025CT-ND	.58	4.76	37.40	PCD1025TR-ND	204.00/M	ELJ-FA270KF2
33 ±10%	30	5.0	5.6	85	PCD1026CT-ND	.58	4.76	37.40	PCD1026TR-ND	204.00/M	ELJ-FA330KF2
39 ±10%	30	5.0	6.4	80	PCD1027CT-ND	.58	4.76	37.40	PCD1027TR-ND	204.00/M	ELJ-FA390KF2
47 ±10%	30	5.0	7.0	75	PCD1028CT-ND	.58	4.76	37.40	PCD1028TR-ND	204.00/M	ELJ-FA470KF2
56 ±10%	30	5.0	8.0	70	PCD1029CT-ND	.58	4.76	37.40	PCD1029TR-ND	204.00/M	ELJ-FA560KF2
68 ±10%	30	5.0	9.0	65	PCD1030CT-ND	.58	4.76	37.40	PCD1030TR-ND	204.00/M	ELJ-FA680KF2
82 ±10%	25	2.52	10	60	PCD1031CT-ND	58	4.76	37.40	PCD1031TR-ND	204.00/M	ELJ-FA820KF2
100 ±10%	25	2.52	10	60	PCD1032CT-ND	.58	4.76	37.40	PCD1032TR-ND	204.00/M	ELJ-FA101KF2
120 ±10%	25	2.52	11	55	PCD1033CT-ND	58	4.76	37.40	PCD1033TR-ND	204.00/M	ELJ-FA121KF2
Fig. 1, Type FA, Inductance Measured at .796 MHz											
150 ±10%	20	.796	15	50	PCD1034CT-ND	.58	4.76	37.40	PCD1034TR-ND	204.00/M	ELJ-FA151KF2
180 ±10%	20	.796	17	50	PCD1035CT-ND	.58	4.76	37.40	PCD1035TR-ND	204.00/M	ELJ-FA181KF2
220 ±10%	20	.796	21	45	PCD1036CT-ND	.58	4.76	37.40	PCD1036TR-ND	204.00/M	ELJ-FA221KF2
Fig. 2, Type NC											
.01 ±10%	10	100	0.32	280	PCD1037CT-ND	1.15	9.45	74.25	PCD1037TR-ND	405.00/M	ELJ-NC10NKF
.012 ±10%	10	100	0.34	270	PCD1038CT-ND	1.15	9.45	74.25	PCD1038TR-ND	405.00/M	ELJ-NC12NKF
.015 ±10%	10	100	0.38	255	PCD1039CT-ND	1.19	9.80	77.00	PCD1039TR-ND	420.00/M	ELJ-NC15NKF
.018 ±10%	10	100	0.40	250	PCD1040CT-ND	1.15	9.45	74.25	PCD1040TR-ND	405.00/M	ELJ-NC18NKF
.022 ±10%	15	100	0.43	240	PCD1041CT-ND	1.15	9.45	74.25	PCD1041TR-ND	405.00/M	ELJ-NC22NKF
.027 ±10%	15	100	0.47	230	PCD1042CT-ND	1.15	9.45	74.25	PCD1042TR-ND	405.00/M	ELJ-NC27NKF
.033 ±10%	15	100	0.51	220	PCD1043CT-ND	1.15	9.45	74.25	PCD1043TR-ND	405.00/M	ELJ-NC33NKF
.039 ±10%	15	100	0.55	215	PCD1044CT-ND	1.15	9.45	74.25	PCD1044TR-ND	405.00/M	ELJ-NC39NKF
.047 ±10%	15	100	0.59	205	PCD1045CT-ND	1.15	9.45	74.25	PCD1045TR-ND	405.00/M	ELJ-NC47NKF
.056 ±10%	15	100	0.63	200	PCD1046CT-ND	1.15	9 45	74.25	PCD1046TR-ND	405.00/M	ELJ-NC56NKF
.068 ±10%	15	100	0.68	190	PCD1047CT-ND	1.15	9.45	74.25	PCD1047TR-ND	405.00/M	ELJ-NC68NKF
.082 ±10%	15	100	0.73	185	PCD1048CT-ND	1.15	9.45	74.25	PCD1048TR-ND	405.00/M	ELJ-NC82NKF
.1 ±10%	10	25.2	0.80	175	PCD1049CT-ND	1.15	9.45	74.25	PCD1049TR-ND	405.00/M	ELJ-NCR10KF
.12 ±10%	10	25.2	0.87	170	PCD1050CT-ND	1.15	9.45	74.25	PCD1050TR-ND	405.00/M	ELJ-NCR12KF
.15 ±10%	10	25.2	0.98	160	PCD1051CT-ND	1.15	9.45	74.25	PCD1051TR-ND	405.00/M	ELJ-NCR15KF
.18 ±10%	10	25.2	1.05	155	PCD1052CT-ND	1.15	9.45	74.25	PCD1052TR-ND	405.00/M	ELJ-NCR18KF

† DC Resistance

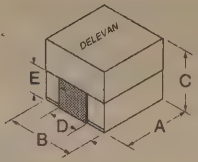
µH	Q Min.	Freq. MHz	Rated DC Current DCR† Ω max.	mA max.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 2000	Panasonic Part No.
Fig. 2, Type FC											
.22 ±20%	25	25.2	0.7	190	PCD1053CT-ND	.77	6.30	49.50	PCD1053TR-ND	270.00/M	ELJ-FCR22MF
.27 ±20%	25	25.2	0.75	180	PCD1054CT-ND	.77	6.30	49.50	PCD1054TR-ND	270.00/M	ELJ-FCR27MF
0.33 ±20%	25	25.2	0.85	170	PCD1055CT-ND	.77	6.30	49.50	PCD1055TR-ND	270.00/M	ELJ-FCR33MF
0.39 ±20%	25	25.2	0.95	160	PCD1056CT-ND	.77	6.30	49.50	PCD1056TR-ND	270.00/M	ELJ-FCR39MF
.47 ±20%	25	25.2	1.0	155	PCD1057CT-ND	.77	6.30	49.50	PCD1057TR-ND	270.00/M	ELJ-FCR47MF
.56 ±20%	25	25.2	1.1	150	PCD1058CT-ND	.77	6.30	49.50	PCD1058TR-ND	270.00/M	ELJ-FCR56MF
.68 ±20%	25	25.2	1.25	140	PCD1059CT-ND	.77	6.30	49.50	PCD1059TR-ND	270.00/M	ELJ-FCR68MF
82 ±20%	25	25.2	1.4	130	PCD1060CT-ND	.77	6.30	49.50	PCD1060TR-ND	270.00/M	ELJ-FCR82MF
1.0 ±10%	25	7.96	0.65	195	PCD1061CT-ND	.77	6.37	50.05	PCD1061TR-ND	273.00/M	ELJ-FC1R0KF
1.2 ±10%	25	7.96	0.75	180	PCD1062CT-ND	.77	6.37	50.05	PCD1062TR-ND	273.00/M	ELJ-FC1R2KF
1.5 ±10%	25	7.96	0.85	170	PCD1063CT-ND	.77	6.37	50.05	PCD1063TR-ND	273.00/M	ELJ-FC1R5KF
1.8 ±10%	25	7.96	0.95	160	PCD1064CT-ND	.77	6.37	50.05	PCD1064TR-ND	273.00/M	ELJ-FC1R8KF
2.2 ±10%	25	7.96	1.05	155	PCD1065CT-ND	.77	6.37	50.05	PCD1065TR-ND	273.00/M	ELJ-FC2R2KF
2.7 ±10%	25	7.96	1.2	145	PCD1066CT-ND	.77	6.37	50.05	PCD1066TR-ND	273.00/M	ELJ-FC2R7KF
3.3 ±10%	25	7.96	1.3	135	PCD1067CT-ND	.77	6.37	50.05	PCD1067TR-ND	273.00/M	ELJ-FC3R3KF
3.9 ±10%	25	7.96	1.4	130	PCD1068CT-ND	.77	6.37	50.05	PCD1068TR-ND	273.00/M	ELJ-FC3R9KF
4.7 ±10%	25	7.96	1.55	125	PCD1069CT-ND	.77	6.37	50.05	PCD1069TR-ND	273.00/M	ELJ-FC4R7KF
5.6 ±10%	25	7.96	1.75	120	PCD1070CT-ND	.77	6.37	50.05	PCD1070TR-ND	273.00/M	ELJ-FC5R6KF
6.8 ±10%	25	7.96	1.95	115	PCD1071CT-ND	.77	6.37	50.05	PCD1071TR-ND	273.00/M	ELJ-FC6R8KF
8.2 ±10%	25	7.96	2.2	105	PCD1072CT-ND	.77	6.37	50.05	PCD1072TR-ND	273.00/M	ELJ-FC8R2KF
10 ±10%	25	2.52	3.7	80	PCD1073CT-ND	.77	6.30	49.50	PCD1073TR-ND	270.00/M	ELJ-FC100KF
12 ±10%	25	2.52	4.1	75	PCD1074CT-ND	.77	6.30	49.50	PCD1074TR-ND	270.00/M	ELJ-FC120KF
15 ±10%	25	2.52	5.0	70	PCD1075CT-ND	.77	6.30	49.50	PCD1075TR-ND	270.00/M	ELJ-FC150KF
18 ±10%	25	2.52	5.4	65	PCD1076CT-ND	.77	6.30	49.50	PCD1076TR-ND	270.00/M	ELJ-FC180KF
22 ±10%	25	2.52	6.0	60	PCD1077CT-ND	.77	6.30	49.50	PCD1077TR-ND	270.00/M	ELJ-FC220KF
Fig. 2, Type SC											
27 ±10%	40	2.52	4.5	18	PCD1078CT-ND	.77	6.30	49.50	PCD1078TR-ND	270.00/M	ELJ-SC270KF
33 ±10%	40	2.52	5.2	14	PCD1079CT-ND	.77	6.30	49.50	PCD1079TR-ND	270.00/M	ELJ-SC330KF
39 ±10%	40	2.52	5.7	13	PCD1080CT-ND	.79	6.51	51.13	PCD1080TR-ND	279.00/M	ELJ-SC390KF
47 ±10%	40	2.52	6.6	12	PCD1081CT-ND	.77	6.30	49.50	PCD1081TR-ND	270.00/M	ELJ-SC470KF
56 ±10%	40	2.52	7.1	10	PCD1082CT-ND	.77	6.30	49.50	PCD1082TR-ND	270.00/M	ELJ-SC560KF
68 ±10%	25	2.52	6.5	17	PCD1083CT-ND	.77	6.30	49.50	PCD1083TR-ND	270.00/M	ELJ-SC680KF
82 ±10%	25	2.52	7.4	14	PCD1084CT-ND	.77	6.30	49.50	PCD1084TR-ND	270.00/M	ELJ-SC820KF
100 ±10%	25	0.796	8.4	10	PCD1085CT-ND	.72	5.92	46.51	PCD1085TR-ND	254.00/M	ELJ-SC101KF
Fig. 2, Type PC											
1.0 ±20%	10	7.96	0.45	475	PCD1086CT-ND	.87	7.17	56.36	PCD1086TR-ND	308.00/M	ELJ-PC1R0MF
1.5 ±20%	10	7.96	0.55	435	PCD1087CT-ND	.87	7.17	56.36	PCD1087TR-ND	308.00/M	ELJ-PC1R5MF
2.2 ±20%	10	7.96	0.65	390	PCD1088CT-ND	.87	7.17	56.36	PCD1088TR-ND	308.00/M	ELJ-PC2R2MF
3.3 ±20%	8	7.96	0.85	340	PCD1089CT-ND	.87	7.17	56.36	PCD1089TR-ND	308.00/M	ELJ-PC3R3MF
4.7 ±20%	8	7.96	1.20	285	PCD1090CT-ND	.87	7.17	56.36	PCD1090TR-ND	308.00/M	ELJ-PC4R7MF
6.8 ±10%	8	7.96	1.30	275	PCD1091CT-ND	.87	7.17	56.36	PCD1091TR-ND	308.00/M	ELJ-PC6R8KF
10.0 ±10%	20	2.52	2.20	210	PCD1092CT-ND	.87	7.17	56.36	PCD1092TR-ND	308.00/M	ELJ-PC100KF
12.0 ±10%	20	2.52	2.70	195	PCD1093CT-ND	.87	7.17	56.36	PCD1093TR-ND	308.00/M	ELJ-PC120KF
15.0 ±10%	20	2.52	3.20	175	PCD1094CT-ND	.87	7.17	56.36	PCD1094TR-ND	308.00/M	ELJ-PC150KF
22.0 ±10%	20	2.52	4.00	160	PCD1095CT-ND	87	7.17	56.36	PCD1095TR-ND	308.00/M	ELJ-PC220KF
33.0 ±10%	20	2.52	6.50	120	PCD1096CT-ND	.87	7.17	56.36	PCD1096TR-ND	308.00/M	ELJ-PC330KF
Fig. 1, Type SA, Inductance Measured at 1.0 MHz											
10 ±10%	40	5.0	1.8	18	PCD1097CT-ND	.73	6.00	47.12	PCD1097TR-ND	258.00/M	ELJ-SA100KF
12 ±10%	40	5.0	2.0	17	PCD1098CT-ND	.73	6.00	47.12	PCD1098TR-ND	258.00/M	ELJ-SA120KF
15 ±10%	40	5.0	2.2	15	PCD1099CT-ND	.73	6.00	47.12	PCD1099TR-ND	258.00/M	ELJ-SA150KF
18 ±10%	40	5.0	2.5	13	PCD1100CT-ND	.73	6.00	47.12	PCD1100TR-ND	258.00/M	ELJ-SA180KF
22 ±10%	40	5.0	2.8	12	PCD1101CT-ND	.73	6.00	47.12	PCD1101TR-ND	258.00/M	ELJ-SA220KF
27 ±10%	40	5.0	3.2	10	PCD1102CT-ND	.73	6.00	47.12	PCD1102TR-ND	258.00/M	ELJ-SA270KF
33 ±10%	40	5.0	3.5	10	PCD1103CT-ND	.73	6.00	47.12	PCD1103TR-ND	258.00/M	ELJ-SA330KF
39 ±10%	40	5.0	3.8	9	PCD1104CT-ND	.73	6.00	47.12	PCD1104TR-ND	258.00/M	ELJ-SA390KF
47 ±10%	40	5.0	4.0	8	PCD1105CT-ND	.73	6.00	47.12	PCD1105TR-ND	258.00/M	ELJ-SA470KF
56 ±10%	40	5.0	4.5	7	PCD1106CT-ND	.73	6.00	47.12	PCD1106TR-ND	258.00/M	ELJ-SA560KF
68 ±10%	40	1.5	5.0	6	PCD1107CT-ND	.73	6.00	47.12	PCD1107TR-ND	258.00/M	ELJ-SA680KF
82 ±10%	40	1.5	6.0	6	PCD1108CT-ND	.73	6.00	47.12	PCD1108TR-ND	258.00/M	ELJ-SA820KF
100 ±10%	40	1.5	7.0	5	PCD1109CT-ND	.73	6.00	47.12	PCD1109TR-ND	258.00/M	ELJ-SA101KF
120 ±10%	40	1.5	8.0	5	PCD1110CT-ND	.73	6.00	47.12	PCD1110TR-ND	258.00/M	ELJ-SA121KF
Fig. 1, Type SA, Inductance Measured at 0.1 MHz											
150 ±10%	40	1.5	9.0	5	PCD1111CT-ND	.73	6.00	47.12	PCD1111TR-ND	258.00/M	ELJ-SA151KF
180 ±10%	40	1.5	11.0	5	PCD1112CT-ND	.73	6.00	47.12	PCD1112TR-ND	258.00/M	ELJ-SA181KF
220 ±10%	40	1.5	12.0	5	PCD1113CT-ND	.73	6.00	47.12	PCD1113TR-ND	258.00/M	ELJ-SA221KF
270 ±10%	40	1.5	14.0	5	PCD1114CT-ND	.73	6.00	47.12	PCD1114TR-ND	258.00/M	ELJ-SA271KF

µH	Q Min.	Freq. MHz	Rated DC Current DCR† Ω max.	mA max.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 3000	Panasonic Part No.
Fig. 3, Type RE											
2.2nH ±0.3nH	8	100	0.09	500	PCD1143CT-ND	.60	4.90	38.50	PCD1143TR-ND	210.00/M	ELJ-RE2N2DF2
2.7 nH±0.3nH	8	100	0.10	500	PCD1144CT-ND	.60	4.90	38.50	PCD1144TR-ND	210.00/M	ELJ-RE2N7DF2
3.3nH ±0.3nH	9	100	0.12	500	PCD1145CT-ND	.60	4.90	38.50	PCD1145TR-ND	210.00/M	ELJ-RE3N3DF2
3.9nH ±5%	9	100	0.15	450	PCD1146CT-ND	.60	4.90	38.50	PCD1146TR-ND	210.00/M	ELJ-RE3N9JF2
4.7nH ±5%	9	100	0.17	450	PCD1147CT-ND	.60	4.90	38.50	PCD1147TR-ND	210.00/M	ELJ-RE4N7JF2
5.6nH ±5%	[illegible]	100	0.18	130	PCD1148CT-ND	.60	4.90	38.50	PCD1148TR-ND	210.00/M	ELJ-RE5N6JF2
6.8nH ±5%	[illegible]	100	0.20	430	PCD1149CT-ND	.60	4.90	38.50	PCD1149TR-ND	210.00/M	ELJ-RE6N8JF2
8.2nH ±5%	[illegible]	100	0.26	400	PCD1150CT-ND	.60	4.90	38.50	PCD1150TR-ND	210.00/M	ELJ-RE8N2JF2
10.0nH ±5%	10	100	0.32	400	PCD1151CT-ND	.60	4.90	38.50	PCD1151TR-ND	210.00/M	ELJ-RE10NJF2
12.0nH ±5%	10	100	0.35	400	PCD1152CT-ND	.60	4.90	38.50	PCD1152TR-ND	210.00/M	ELJ-RE12NJF2
15.0nH ±5%	10	100	0.41	350	PCD1153CT-ND	.60	4.90	38.50	PCD1153TR-ND	210.00/M	ELJ-RE15NJF2
18.0nH ±5%	10	100	0.45	350	PCD1154CT-ND	.60	4.90	38.50	PCD1154TR-ND	210.00/M	ELJ-RE18NJF2
22.0nH ±5%	10	100	0.50	300	PCD1155CT-ND	.60	4.90	38.50	PCD1155TR-ND	210.00/M	ELJ-RE22NJF2
27.0 nH±5%	10	100	0.55	300	PCD1156CT-ND	.60	4.90	38.50	PCD1156TR-ND	210.00/M	ELJ-RE27NJF2
33.0nH ±5%	10	100	0.60	300	PCD1157CT-ND	.60	4.90	38.50	PCD1157TR-ND	210.00/M	ELJ-RE33NJF2
39.0nH ±5%	10	100	0.80	300	PCD1158CT-ND	.60	4.90	38.50	PCD1158TR-ND	210.00/M	ELJ-RE39NJF2
47.0nH ±5%	10	100	0.95	250	PCD1159CT-ND	.60	4.90	38.50	PCD1159TR-ND	210.00/M	ELJ-RE47NJF2
Fig. 4, Type ND											
.010 ±10%	[illegible]	100	0.14	[illegible]	PCD1160CT-ND	1.11	9.13	71.76	PCD1160TR-ND	391.00/M	ELJ-ND10NKF
.012 ±5%	10	100	0.18	535	PCD1185CT-ND	1.18	9.68	76.08	PCD1185TR-ND	415.00/M	ELJ-ND12NJF
.012 ±10%	10	100	0.18	535	PCD1161CT-ND	1.11	9.13	71.76	PCD1161TR-ND	391.00/M	ELJ-ND12NKF
.015 ±10%	12	100	0.18	520	PCD1162CT-ND	1.11	9.13	71.76	PCD1162TR-ND	391.00/M	ELJ-ND15NKF
.018 ±10%	12	100	0.22	480	PCD1163CT-ND	1.11	9.13	71.76	PCD1163TR-ND	391.00/M	ELJ-ND18NKF
.022 ±10%	[illegible]	100	0.22	460	PCD1164CT-ND	[illegible]	9.13	71.76	PCD1164TR-ND	391.00/M	ELJ-ND22NKF
.027 ±10%	15	100	0.26	455	PCD1165CT-ND	1.11	9.13	71.76	PCD1165TR-ND	391.00/M	ELJ-ND27NKF
.033 ±10%	15	100	0.30	390	PCD1166CT-ND	1.11	9.13	71.76	PCD1166TR-ND	391.00/M	ELJ-ND33NKF
.039 ±5%	15	100	0.31	390	PCD1167CT-ND	1.18	9.68	76.08	PCD1167TR-ND	415.00/M	ELJ-ND39NJF
.047 ±5%	15	100	0.33	385	PCD1168CT-ND	1.18	9.68	76.08	PCD1168TR-ND	415.00/M	ELJ-ND47NJF
.056 ±5%	15	100	0.39	360	PCD1169CT-ND	1.18	9.68	76.08	PCD1169TR-ND	416.00/M	ELJ-ND56NJF
.068 ±5%	15	100	.44	340	PCD1170CT-ND	1.18	9.68	76.08	PCD1170TR-ND	415.00/M	ELJ-ND68NJF
.082 ±5%	15	100	0.48	330	PCD1171CT-ND	1.18	9.68	76.08	PCD1171TR-ND	415.00/M	ELJ-ND82NJF
.10 ±5%	8	25.2	0.66	285	PCD1172CT-ND	1.18	9.68	76.08	PCD1172TR-ND	415.00/M	ELJ-NDR10JF
.12 ±5%	8	25.2	0.76	275	PCD1173CT-ND	1.18	9.68	76.08	PCD1173TR-ND	415.00/M	ELJ-NDR12JF
.15 ±5%	10	25.2	[illegible]	230	PCD1174CT-ND	1.18	9.68	76.08	PCD1174TR-ND	415.00/M	ELJ-NDR15JF
.18 ±5%	10	25.2	1.24	195	PCD1175CT-ND	1.18	9.68	76.08	PCD1175TR-ND	415.00/M	ELJ-NDR18JF
.22 ±5%	10	25.2	1.41	170	PCD1176CT-ND	1.18	9.68	76.08	PCD1176TR-ND	415.00/M	ELJ-NDR22JF
.27 ±5%	10	25.2	1.50	165	PCD1177CT-ND	1.18	9.68	76.08	PCD1177TR-ND	415.00/M	ELJ-NDR27JF
.33 ±5%	10	25.2	1.60	160	PCD1178CT-ND	1.18	9.68	76.08	PCD1178TR-ND	415.00/M	ELJ-NDR33JF
.39 ±5%	10	25.2	1.82	150	PCD1179CT-ND	1.18	9.68	76.08	PCD1179TR-ND	415.00/M	ELJ-NDR39JF
.47 ±5%	10	25.2	1.97	145	PCD1180CT-ND	1.18	9.68	76.08	PCD1180TR-ND	415.00/M	ELJ-NDR47JF
.56 ±5%	10	25.2	2.07	140	PCD1181CT-ND	1.18	9.68	76.08	PCD1181TR-ND	415.00/M	ELJ-NDR56JF
.68 ±5%	10	25.2	2.32	130	PCD1182CT-ND	1.18	9.68	76.08	PCD1182TR-ND	415.00/M	ELJ-NDR68JF
.82 ±5%	10	25.2	2.60	125	PCD1183CT-ND	1.18	9.68	76.08	PCD1183TR-ND	415.00/M	ELJ-NDR82JF
1.0 ±5%	8	7.96	2.98	120	PCD1184CT-ND	1.18	9.68	76.08	PCD1184TR-ND	415.00/M	ELJ-ND1R0JF
Fig. 4, Type FD											
.82 ±10%	8	25.2	.36	190	PCD1186CT-ND	1.49	12.23	96.10	PCD1186TR-ND	524.00/M	ELJ-FDR82KF
1.0 ±10%	15	7.96	.56	180	PCD1187CT-ND	1.49	12.23	96.10	PCD1187TR-ND	524.00/M	ELJ-FD1R0KF
1.2 ±10%	15	7.96	1.60	155	PCD1188CT-ND	1.49	12.23	96.10	PCD1188TR-ND	524.00/M	ELJ-FD1R2KF
1.5 ±10%	15	7.96	1.85	155	PCD1189CT-ND	1.49	12.23	96.10	PCD1189TR-ND	524.00/M	ELJ-FD1R5KF
1.8 ±10%	15	7.96	1.95	145	PCD1190CT-ND	1.49	12.23	96.10	PCD1190TR-ND	524.00/M	ELJ-FD1R8KF
2.2 ±10%	15	7.96	2.27	145	PCD1191CT-ND	1.49	12.23	96.10	PCD1191TR-ND	524.00/M	ELJ-FD2R2KF
2.7 ±10%	15	7.96	2.53	140	PCD1192CT-ND	1.49	12.23	96.10	PCD1192TR-ND	524.00/M	ELJ-FD2R7KF
3.3 ±10%	15	7.96	[illegible]	140	PCD1193CT-ND	1.49	12.23	96.10	PCD1193TR-ND	524.00/M	ELJ-FD3R3KF
3.9 ±10%	15	7.96	2.92	130	PCD1194CT-ND	1.49	12.23	96.10	PCD1194TR-ND	524.00/M	ELJ-FD3R9KF
4.7 ±10%	15	7.96	3.38	120	PCD1195CT-ND	1.49	12.23	96.10	PCD1195TR-ND	524.00/M	ELJ-FD4R7KF

† DC Resistance

DELEVAN

Inductors – Series 1210, 1008, 1812, 4922, 8532 and 103



Series 1210 Shielded Surface Mount Inductors

Min to Max Dimensions (In.)					Operating Temperature Range
A	B	C*	D	E	
.118 – .138	.085 – .105	.081 – .101	.041 – .061	.054	-55°C to +125°C

* Dimension C is over terminals.

Induct. (µH)	Test Freq. (MHz)	Q Min.	Current Rating Max.(mA)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	Delevan Part No.
Series 1210 Phenolic Core										
.010	50.0	30	966	DN10100CT-ND	.84	7.20	48.00	DN10100TR-ND	192.00	1210-100K
.012	50.0	30	931	DN10120CT-ND	.84	7.20	48.00	DN10120TR-ND	192.00	1210-120K
.015	50.0	30	871	DN10150CT-ND	.84	7.20	48.00	DN10150TR-ND	192.00	1210-150K
.018	50.0	30	821	DN10180CT-ND	.84	7.20	48.00	DN10180TR-ND	192.00	1210-180K
.022	50.0	30	779	DN10220CT-ND	.84	7.20	48.00	DN10220TR-ND	192.00	1210-220K
.027	50.0	30	743	DN10270CT-ND	.84	7.20	48.00	DN10270TR-ND	192.00	1210-270K
.033	50.0	30	711	DN10330CT-ND	.84	7.20	48.00	DN10330TR-ND	192.00	1210-330K
.039	50.0	30	670	DN10390CT-ND	.84	7.20	48.00	DN10390TR-ND	192.00	1210-390K
.047	50.0	30	636	DN10470CT-ND	.84	7.20	48.00	DN10470TR-ND	192.00	1210-470K
.056	50.0	30	606	DN10560CT-ND	.84	7.20	48.00	DN10560TR-ND	192.00	1210-560K
.068	50.0	30	580	DN10680CT-ND	.84	7.20	48.00	DN10680TR-ND	192.00	1210-680K
.082	50.0	30	551	DN10820CT-ND	.84	7.20	48.00	DN10820TR-ND	192.00	1210-820K
Series 1210 Iron Core										
.10	25.0	30	1018	DN10101CT-ND	.95	8.10	54.00	DN10101TR-ND	216.00	1210-101K
.12	25.0	30	971	DN10121CT-ND	.95	8.10	54.00	DN10121TR-ND	216.00	1210-121K
15	25.0	30	910	DN10151CT-ND	95	8.10	54.00	DN10151TR-ND	216.00	1210-151K
.18	25.0	30	860	DN10181CT-ND	.95	8.10	54.00	DN10181TR-ND	216.00	1210-181K
.22	25.0	30	805	DN10221CT-ND	.95	8.10	54.00	DN10221TR-ND	216.00	1210-221K
.27	25.0	30	759	DN10271CT-ND	.95	8.10	54.00	DN10271TR-ND	216.00	1210-271K
.33	25.0	30	720	DN10331CT-ND	.95	8.10	54.00	DN10331TR-ND	216.00	1210-331K
.39	25.0	30	679	DN10391CT-ND	.95	8.10	54.00	DN10391TR-ND	216.00	1210-391K
.47	25.0	30	644	DN10471CT-ND	.95	8.10	54.00	DN10471TR-ND	216.00	1210-471K
.56	25.0	30	614	DN10561CT-ND	.95	8.10	54.00	DN10561TR-ND	216.00	1210-561K
.68	25.0	30	588	DN10681CT-ND	.95	8.10	54.00	DN10681TR-ND	216.00	1210-681K
.82	25.0	30	556	DN10821CT-ND	.95	8.10	54.00	DN10821TR-ND	216 00	1210-821K
Series 1210 Ferrite Core										
1.0	25.0	30	515	DN10102CT-ND	.98	8 40	56.00	DN10102TR-ND	224.00	1210-102K
1.2	7.9	30	497	DN10122CT-ND	.98	8.40	56.00	DN10122TR-ND	224.00	1210-122K
1.5	7.9	30	467	DN10152CT-ND	.98	8.40	56.00	DN10152TR-ND	224.00	1210-152K
1.8	7.9	30	454	DN10182CT-ND	.98	8.40	56.00	DN10182TR-ND	224.00	1210-182K
2.2	7.9	30	431	DN10222CT-ND	.98	8.40	56.00	DN10222TR-ND	224.00	1210-222K
2 7	7.9	30	411	DN10272CT-ND	.98	8.40	56.00	DN10272TR-ND	224.00	1210-272K
3.3	7.9	30	393	DN10332CT-ND	.98	8.40	56.00	DN10332TR-ND	224.00	1210-332K
3.9	7.9	30	378	DN10392CT-ND	.98	8.40	56.00	DN10392TR-ND	224.00	1210-392K
4.7	7.9	30	352	DN10472CT-ND	.98	8.40	56.00	DN10472TR-ND	224.00	1210-472K
5 6	7.9	30	341	DN10562CT-ND	.98	8.40	56.00	DN10562TR-ND	224.00	1210-562K
6.8	7.9	30	321	DN10682CT-ND	.98	8.40	56.00	DN10682TR-ND	224.00	1210-682K
8.2	7.9	30	305	DN10822CT-ND	.98	8.40	56.00	DN10822TR-ND	224.00	1210-822K
10.0	7.9	30	297	DN10103CT-ND	.98	8.40	56.00	DN10103TR-ND	224.00	1210-103K
12.0	2.5	30	272	DN10123CT-ND	.98	8.40	56.00	DN10123TR-ND	224.00	1210-123K
15.0	2.5	30	257	DN10153CT-ND	.98	8.40	56.00	DN10153TR-ND	224.00	1210-153K
18.0	2.5	30	237	DN10183CT-ND	.98	8.40	56.00	DN10183TR-ND	224.00	1210-183K
22.0	2.5	30	224	DN10223CT-ND	.98	8.40	56.00	DN10223TR-ND	224.00	1210-223K
27.0	2.5	30	193	DN10273CT-ND	.98	8.40	56.00	DN10273TR-ND	224.00	1210-273K
33.0	2.5	30	182	DN10333CT-ND	.98	8.40	56.00	DN10333TR-ND	224.00	1210-333K
39.0	2.5	30	170	DN10393CT-ND	.98	8.40	56.00	DN10393TR-ND	224.00	1210-393K
47.0	2.5	30	163	DN10473CT-ND	.98	8.40	56.00	DN10473TR-ND	224.00	1210-473K
56.0	2.5	30	152	DN10563CT-ND	.98	8.40	56.00	DN10563TR-ND	224.00	1210-563K
68.0	2.5	30	144	DN10683CT-ND	.98	8.40	56.00	DN10683TR-ND	224.00	1210-683K
82.0	2.5	30	136	DN10823CT-ND	.98	8.40	56.00	DN10823TR-ND	224.00	1210-823K
100.0	2.5	30	120	DN10104CT-ND	.98	8.40	56.00	DN10104TR-ND	224.00	1210-104K

Series 1008 Unshielded Surface Mount Inductors

Dimensions (In.)					Operating Temperature Range
A	B	C	D	E	
.100 ± .010	.080 ± .008	.080 ± .008	.055 ± .008	.046	-55°C to +125°C

Induct. (µH)	Test Freq. (MHz)	Q Min.	Current Rating Max.(mA)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	Delevan Part No.
Series 1008 Phenolic Core										
.010	50.0	40	1562	DN08100CT-ND	2.10	18.00	120.00	DN08100TR-ND	480.00	1008-100K
.012	50.0	40	1450	DN08120CT-ND	2.10	18.00	120.00	DN08120TR-ND	480.00	1008-120K
.015	50.0	40	1381	DN08150CT-ND	2.10	18.00	120.00	DN08150TR-ND	480.00	1008-150K
.018	50.0	40	1320	DN08180CT-ND	2.10	18.00	120.00	DN08180TR-ND	480.00	1008-180K
.022	50.0	35	1235	DN08220CT-ND	2.10	18.00	120.00	DN08220TR-ND	480.00	1008-220K
.027	50.0	35	1164	DN08270CT-ND	2.10	18.00	120.00	DN08270TR-ND	480.00	1008-270K
.033	50.0	30	1105	DN08330CT-ND	2.10	18.00	120.00	DN08330TR-ND	480.00	1008-330K
.039	50.0	30	1053	DN08390CT-ND	2.10	18.00	120.00	DN08390TR-ND	480.00	1008-390K
.047	50.0	30	1108	DN08470CT-ND	2.10	18.00	120.00	DN08470TR-ND	480.00	1008-470K
.056	50.0	25	847	DN08560CT-ND	2.10	18.00	120.00	DN08560TR-ND	480.00	1008-560K
.068	50.0	25	823	DN08680CT-ND	2.10	18.00	120.00	DN08680TR-ND	480.00	1008-680K
.082	50.0	25	801	DN08820CT-ND	2.10	18.00	120.00	DN08820TR-ND	480.00	1008-820K
.100	25.0	15	728	DN08101CT-ND	2.10	18.00	120.00	DN08101TR-ND	480.00	1008-101K

Induct. (µH)	Test Freq. (MHz)	Q Min.	Current Rating Max.(mA)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	Delevan Part No.
Series 1008 Ferrite Core										
.12	25.0	40	1225	DN08121CT-ND	2.10	18.00	120.00	DN08121TR-ND	480.00	1008-121K
.15	25.0	40	1168	DN08151CT-ND	2.10	18.00	120.00	DN08151TR-ND	480.00	1008-151K
.18	25.0	40	1119	DN08181CT-ND	2.10	18.00	120.00	DN08181TR-ND	480.00	1008-181K
.22	25.0	40	1055	DN08221CT-ND	2.10	18.00	120.00	DN08221TR-ND	480.00	1008-221K
.27	25.0	40	1000	DN08271CT-ND	2.10	18.00	120.00	DN08271TR-ND	480.00	1008-271K
.33	25.0	40	954	DN08331CT-ND	2.10	18.00	120.00	DN08331TR-ND	480.00	1008-331K
.39	25.0	40	913	DN08391CT-ND	2.10	18.00	120.00	DN08391TR-ND	480.00	1008-391K
.47	25.0	40	846	DN08471CT-ND	2.10	18.00	120.00	DN08471TR-ND	480.00	1008-471K
.56	25.0	40	808	DN08561CT-ND	2.10	18.00	120.00	DN08681TR-ND	480.00	1008-561K
.68	25.0	40	760	DN08681CT-ND	2.10	18.00	120.00	DN08681TR-ND	480.00	1008-681K
.82	25.0	40	708	DN08821CT-ND	2.10	18.00	120.00	DN08821TR-ND	480.00	1008-821K
1.0	25.0	35	685	DN08102CT-ND	2.10	18.00	120.00	DN08102TR-ND	480.00	1008-102K
1.2	7.9	30	591	DN08122CT-ND	2.42	20.70	138.00	DN08122TR-ND	552.00	1008-122K
1.5	7.9	30	548	DN08152CT-ND	2.42	20.70	138.00	DN08152TR-ND	552.00	1008-152K
1.8	7.9	30	457	DN08182CT-ND	2.42	20.70	138.00	DN08182TR-ND	552.00	1008-182K
2.2	7.9	30	433	DN08222CT-ND	2.42	20.70	138.00	DN08222TR-ND	552.00	1008-222K
2.7	7.9	30	413	DN08272CT-ND	2.42	20.70	138.00	DN08272TR-ND	552.00	1008-272K
3.3	7.9	30	398	DN08332CT-ND	2.42	20.70	138.00	DN08332TR-ND	552.00	1008-332K
3.9	7.9	30	354	DN08392CT-ND	2.42	20.70	138.00	DN08392TR-ND	552.00	1008-392K
4.7	7.9	30	334	DN08472CT-ND	2.42	20.70	138.00	DN08472TR-ND	552.00	1008-472K
5.6	7.9	30	312	DN08562CT-ND	2.42	20.70	138.00	DN08562TR-ND	552.00	1008-562K
6.8	7.9	30	274	DN08682CT-ND	2.42	20.70	138.00	DN08682TR-ND	552.00	1008-682K
8.2	7.9	30	264	DN08822CT-ND	2.42	20.70	138.00	DN08822TR-ND	552.00	1008-822K
10.0	7.9	30	245	DN08103CT-ND	2.42	20.70	138.00	DN08103TR-ND	552.00	1008-103K
12.0	2.5	30	207	DN08123CT-ND	2.42	20.70	138.00	DN08123TR-ND	552.00	1008-123K
15.0	2.5	30	194	DN08153CT-ND	2.42	20.70	138.00	DN08153TR-ND	552.00	1008-153K
18.0	2.5	30	173	DN08183CT-ND	2.42	20.70	138.00	DN08183TR-ND	552.00	1008-183K
22.0	2.5	30	158	DN08223CT-ND	2.42	20.70	138.00	DN08223TR-ND	552.00	1008-223K
27.0	2.5	30	146	DN08273CT-ND	2.42	20.70	138.00	DN08273TR-ND	552.00	1008-273K

Series 1812 Unshielded Surface Mount Inductors

Min to Max Dimensions (In.)					Operating Temperature Range
A	B	C*	D	E	
.166 – .190	.118 - .134	.118 – .134	.054 – .078	.066	-55°C to +125°C

* Dimensions C is over terminals.

Induct. (µH)	Test Freq. (MHz)	Q Min.	Current Rating Max.(mA)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	Delevan Part No.
Series 1812 Iron Core										
10	25.0	30	818	DN12101CT-ND	.70	6.00	40.00	DN12101TR-ND	160.00	1812-101K
.12	25.0	30	818	DN12121CT-ND	.70	6.00	40.00	DN12121TR-ND	160.00	1812-121K
.15	25.0	30	818	DN12151CT-ND	.70	6.00	40.00	DN12151TR-ND	160.00	1812-151K
.18	25.0	30	757	DN12181CT-ND	.70	6.00	40.00	DN12181TR-ND	160.00	1812-181K
.22	25.0	30	708	DN12221CT-ND	.70	6.00	40.00	DN12221TR-ND	160.00	1812-221K
.27	25.0	30	668	DN12271CT-ND	.70	6.00	40.00	DN12271TR-ND	160.00	1812-271K
.33	25.0	30	604	DN12331CT-ND	.70	6.00	40.00	DN12331TR-ND	160.00	1812-331K
.39	25.0	30	535	DN12391CT-ND	.70	6.00	40.00	DN12391TR-ND	160.00	1812-391K
.47	25.0	30	501	DN12471CT-ND	.70	6.00	40.00	DN12471TR-ND	160.00	1812-471K
.56	25.0	30	409	DN12561CT-ND	.70	6.00	40.00	DN12561TR-ND	160.00	1812-561K
.68	25.0	30	379	DN12681CT-ND	.70	6.00	40.00	DN12681TR-ND	160.00	1812-681K
.82	25.0	30	354	DN12821CT-ND	.70	6.00	40.00	DN12821TR-ND	160.00	1812-821K
Series 1812 Ferrite Core										
1.0	25.0	50	634	DN12102CT-ND	.81	6.90	46.00	DN12102TR-ND	184.00	1812-102K
1.2	7.9	50	604	DN12122CT-ND	.81	6.90	46.00	DN12122TR-ND	184.00	1812-122K
1.5	7.9	50	578	DN12152CT-ND	.81	6.90	46.00	DN12152TR-ND	184.00	1812-152K
1.8	7.9	50	556	DN12182CT-ND	.81	6.90	46.00	DN12182TR-ND	184.00	1812-182K
2.2	7.9	50	535	DN12222CT-ND	.81	6.90	46.00	DN12222TR-ND	184.00	1812-222K
2.7	7.9	50	517	DN12272CT-ND	.81	6.90	46.00	DN12272TR-ND	184.00	1812-272K
3.3	7.9	50	501	DN12332CT-ND	.81	6.90	46.00	DN12332TR-ND	184.00	1812-332K
3.9	7.9	50	472	DN12392CT-ND	.81	6.90	46.00	DN12392TR-ND	184.00	1812-392K
4.7	7.9	50	448	DN12472CT-ND	.81	6.90	46.00	DN12472TR-ND	184.00	1812-472K
5.6	7.9	50	427	DN12562CT-ND	.81	6.90	46.00	DN12562TR-ND	184.00	1812-562K
6.8	7.9	50	409	DN12682CT-ND	.81	6.90	46.00	DN12682TR-ND	184.00	1812-682K
8.2	7.9	50	375	DN12822CT-ND	.81	6.90	46.00	DN12822TR-ND	184.00	1812-822K
10.0	7.9	50	354	DN12103CT-ND	.81	6.90	46.00	DN12103TR-ND	184.00	1812-103K
12.0	2.5	50	317	DN12123CT-ND	.81	6.90	46.00	DN12123TR-ND	184.00	1812-123K
15.0	2.5	50	283	DN12153CT-ND	.81	6.90	46.00	DN12153TR-ND	184.00	1812-153K
18.0	2.0	50	268	DN12183CT-ND	.81	6.90	46.00	DN12183TR-ND	184.00	1812-183K
22.0	2.5	50	250	DN12223CT-ND	.81	6.90	46.00	DN12223TR-ND	184.00	1812-223K
27.0	2.5	50	236	DN12273CT-ND	.81	6.90	46.00	DN12273TR-ND	184.00	1812-273K
33.0	2.5	50	224	DN12333CT-ND	.81	6.90	46.00	DN12333TR-ND	184.00	1812-333K
39.0	2.5	50	211	DN12393CT-ND	.81	6.90	46.00	DN12393TR-ND	184.00	1812-393K
47.0	2.5	50	200	DN12473CT-ND	.81	6.90	46.00	DN12473TR-ND	184.00	1812-473K
56.0	2.5	50	191	DN12563CT-ND	.81	6.90	46.00	DN12563TR-ND	184.00	1812-563K
68.0	2.5	50	183	DN12683CT-ND	.81	6.90	46.00	DN12683TR-ND	184.00	1812-683K
82.0	2.5	30	169	DN12823CT-ND	.81	6.90	46.00	DN12823TR-ND	184.00	1812-823K
100.0	2.5	50	158	DN12104CT-ND	.81	6.90	46.00	DN12104TR-ND	184.00	1812-104K
120.0	0.79	40	158	DN12124CT-ND	.81	6.90	46.00	DN12124TR-ND	184.00	1812-124K
150.0	0.79	40	149	DN12154CT-ND	.81	6.90	46.00	DN12154TR-ND	184.00	1812-154K
180.0	0.79	40	145	DN12184CT-ND	.81	6.90	46.00	DN12184TR-ND	184.00	1812-184K
220.0	0.79	40	142	DN12224CT-ND	1.40	12.00	80.00	DN12224TR-ND	320.00	1812-224K
270.0	0.79	40	129	DN12274CT-ND	1.40	12.00	80.00	DN12274TR-ND	320.00	1812-274K
330.0	0.79	40	120	DN12334CT-ND	1.40	12.00	80.00	DN12334TR-ND	320.00	1812-334K
390.0	0.79	40	112	DN12394CT-ND	1.40	12.00	80.00	DN12394TR-ND	320.00	1812-394K
470.0	0.79	40	88	DN12474CT-ND	1.40	12.00	80.00	DN12474TR-ND	320.00	1812-474K
560.0	0.79	30	82	DN12564CT-ND	1.40	12.00	80.00	DN12564TR-ND	320.00	1812-564K

DELEVAN

Series 4922 Power Inductors
High Current Surface Mount Inductors

Mechanical Configuration: Units are encapsulated in a Surface Mount package, using an epoxy molded case. Leads are pre-tinned. A high resistivity ferrite core, allows for high inductance with low DC resistance. Standard tolerance +/-15%; closer tolerances available upon request.
Operating Temperature: -55°C to +125°C
Current Rating: 40°C rise over 85°C ambient
Power Dissipation at 85°C: .55 Watts
Inductance: Measured at 1 V with no DC current

Min to Max Dimensions (In.)				
A	B	C*	D	E
.500+/-.010	.240+/-.010	.220+/-.010	.075+/-.020	.100 Min.

Ind. @ 1 khz (µH)	Max. DC Resist. (Ohms)	Rated Current (Max. Amps)	Incremental Current (Amps)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 800	Delevan Part No.
Series 4922 Ferrite Core										
1.0	0.013	5.50	4.1	DN2201CT-ND	2.64	22.62	150.80	DN2201TR-ND	964.80	4922-01L
1.2	0.018	4.69	3.8	DN2202CT-ND	2.64	22.62	150.80	DN2202TR-ND	964.80	4922-02L
1.5	0.020	4.45	3.5	DN2203CT-ND	2.64	22.62	150.80	DN2203TR-ND	964.80	4922-03L
1.8	0.021	4.34	3.2	DN2204CT-ND	2.64	22.62	150.80	DN2204TR-ND	964.80	4922-04L
2.2	0.029	3.70	2.8	DN2205CT-ND	2.64	22.62	150.80	DN2205TR-ND	964.80	4922-05L
2.7	0.034	3.41	2.5	DN2206CT-ND	2.64	22.62	150.80	DN2206TR-ND	964.80	4922-06L
3.3	0.038	3.23	2.4	DN2207CT-ND	2.64	22.62	150.80	DN2207TR-ND	964.80	4922-07L
3.9	0.042	3.07	2.2	DN2208CT-ND	2.64	22.62	150.80	DN2208TR-ND	964.80	4922-08L
4.7	0.047	2.90	2.0	DN2209CT-ND	2.64	22.62	150.80	DN2209TR-ND	964.80	4922-09L
5.6	0.051	2.79	1.8	DN2210CT-ND	2.64	22.62	150.80	DN2210TR-ND	964.80	4922-10L
6.8	0.058	2.61	1.7	DN2211CT-ND	2.64	22.62	150.80	DN2211TR-ND	964.80	4922-11L
8.2	0.063	2.51	1.5	DN2212CT-ND	2.64	22.62	150.80	DN2212TR-ND	964.80	4922-12L
10.0	0.071	2.36	1.1	DN2213CT-ND	2.95	25.29	168.60	DN2213TR-ND	1079.20	4922-13L
12.0	0.079	2.24	1.3	DN2214CT-ND	2.95	25.29	168.60	DN2214TR-ND	1079.20	4922-14L
15.0	0.089	2.11	1.2	DN2215CT-ND	2.95	25.29	168.60	DN2215TR-ND	1079.20	4922-15L
18.0	0.119	1.82	1.1	DN2216CT-ND	2.95	25.29	168.60	DN2216TR-ND	1079.20	4922-16L
22.0	0.152	1.61	1.02	DN2217CT-ND	2.95	25.29	168.60	DN2217TR-ND	1079.20	4922-17L
27.0	0.179	1.48	0.85	DN2218CT-ND	2.95	25.29	168.60	DN2218TR-ND	1079.20	4922-18L
33.0	0.222	1.33	0.88	DN2219CT-ND	2.95	25.29	168.60	DN2219TR-ND	1079.20	4922-19L
39.0	0.315	1.12	0.80	DN2220CT-ND	2.95	25.29	168.60	DN2220TR-ND	1079.20	4922-20L
47.0	0.362	1.04	0.74	DN2221CT-ND	2.95	25.29	168.60	DN2221TR-ND	1079.20	4922-21L
56.0	0.397	1.00	0.68	DN2222CT-ND	2.95	25.29	168.60	DN2222TR-ND	1079.20	4922-22L
68.0	0.418	0.97	0.62	DN2223CT-ND	2.95	25.29	168.60	DN2223TR-ND	1079.20	4922-23L
82.0	0.604	0.81	0.56	DN2224CT-ND	2.95	25.29	168.60	DN2224TR-ND	1079.20	4922-24L
100.0	0.672	0.76	0.50	DN2225CT-ND	3.10	26.61	177.40	DN2225TR-ND	1135.20	4922-25L
120.0	0.735	0.73	0.45	DN2226CT-ND	3.10	26.61	177.40	DN2226TR-ND	1135.20	4922-26L
150.0	0.998	0.63	0.40	DN2227CT-ND	3.10	26.61	177.40	DN2227TR-ND	1135.20	4922-27L
180.0	1.37	0.53	0.35	DN2228CT-ND	3.10	26.61	177.40	DN2228TR-ND	1135.20	4922-28L
220.0	1.58	0.50	0.32	DN2229CT-ND	3.10	26.61	177.40	DN2229TR-ND	1135.20	4922-29L
270.0	1.77	0.47	0.30	DN2230CT-ND	3.10	26.61	177.40	DN2230TR-ND	1135.20	4922-30L
330.0	2.51	0.39	0.28	DN2231CT-ND	3.10	26.61	177.40	DN2231TR-ND	1135.20	4922-31L
390.0	2.73	0.38	0.26	DN2232CT-ND	3.10	26.61	177.40	DN2232TR-ND	1135.20	4922-32L
470.0	3.25	0.35	0.24	DN2233CT-ND	3.10	26.61	177.40	DN2233TR-ND	1135.20	4922-33L
560.0	3.75	0.33	0.23	DN2234CT-ND	3.10	26.61	177.40	DN2234TR-ND	1135.20	4922-34L
680.0	4.31	0.30	0.20	DN2235CT-ND	3.10	26.61	177.40	DN2235TR-ND	1135.20	4922-35L
820.0	6.04	0.26	0.17	DN2236CT-ND	3.10	26.61	177.40	DN2236TR-ND	1135.20	4922-36L
1000.0	6.90	0.24	0.15	DN2237CT-ND	3.10	26.61	177.40	DN2237TR-ND	1135.20	4922-37L

Series 8532 Surface Mount Power Inductors

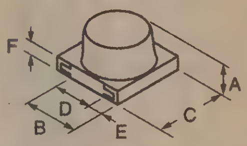
Mechanical Configuration: Units are encapsulated in a Surface Mount package, using an epoxy molded case.High resistivity ferrite core, allows for high inductance with low DC resistance.
Operating Temperature: -55°C to +125°C
Current Rating: 40°C rise over 85°C ambient
Power Dissipation at 85°C: .50 Watts
Inductance: Measured at 1 V with no DC current

Min to Max Dimensions (In.)				
A	B	C*	D	E
.840 to .860	.310 to .330	.266 to .286	.70 to .110	.20 (Ref. Only)

Induct. @ 1 kHz (µH)±15%	Max DC Resist. (Ohms)	Current Rating Max. (A)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 480	Delevan Part No.
Series 8532 Ferrite Core									
1.0	0.009	6.27	DN3201CT-ND	2.90	24.87	165.80	DN3201TR-ND	636.48	8532-01L
1.2	0.010	5.95	DN3202CT-ND	2.90	24.87	165.80	DN3202TR-ND	636.48	8532-02L
1.5	0.011	5.67	DN3203CT-ND	2.90	24.87	165.80	DN3203TR-ND	636.48	8532-03L
1.8	0.012	5.43	DN3204CT-ND	2.90	24.87	165.80	DN3204TR-ND	636.48	8532-04L
2.2	0.013	5.22	DN3205CT-ND	2.90	24.87	165.80	DN3205TR-ND	636.48	8532-05L
2.7	0.014	5.03	DN3206CT-ND	2.90	24.87	165.80	DN3206TR-ND	636.48	8532-06L
3.3	0.016	4.70	DN3207CT-ND	2.90	24.87	165.80	DN3207TR-ND	636.48	8532-07L
3.9	0.017	4.56	DN3208CT-ND	2.90	24.87	165.80	DN3208TR-ND	636.48	8532-08L
4.7	0.022	4.01	DN3209CT-ND	2.90	24.87	165.80	DN3209TR-ND	636.48	8532-09L
5.6	0.024	3.84	DN3210CT-ND	2.90	24.87	165.80	DN3210TR-ND	636.48	8532-10L
6.8	0.026	3.69	DN3211CT-ND	2.90	24.87	165.80	DN3211TR-ND	636.48	8532-11L
8.2	0.028	3.55	DN3212CT-ND	2.90	24.87	165.80	DN3212TR-ND	636.48	8532-12L
10.0	0.033	3.27	DN3213CT-ND	3.25	27.84	185.60	DN3213TR-ND	712.80	8532-13L
12.0	0.037	3.09	DN3214CT-ND	3.25	27.84	185.60	DN3214TR-ND	712.80	8532-14L
15.0	0.040	2.97	DN3215CT-ND	3.25	27.84	185.60	DN3215TR-ND	712.80	8532-15L
18.0	0.044	2.84	DN3216CT-ND	3.25	27.84	185.60	DN3216TR-ND	712.80	8532-16L
22.0	0.050	2.66	DN3217CT-ND	3.25	27.84	185.60	DN3217TR-ND	712.80	8532-17L
27.0	0.070	2.25	DN3218CT-ND	3.25	27.84	185.60	DN3218TR-ND	712.80	8532-18L
33.0	0.075	2.17	DN3219CT-ND	3.25	27.84	185.60	DN3219TR-ND	712.80	8532-19L
39.0	0.084	2.05	DN3220CT-ND	3.25	27.84	185.60	DN3220TR-ND	712.80	8532-20L
47.0	0.104	1.84	DN3221CT-ND	3.25	27.84	185.60	DN3221TR-ND	712.80	8532-21L
56.0	0.130	1.65	DN3222CT-ND	3.25	27.84	185.60	DN3222TR-ND	712.80	8532-22L
68.0	0.145	1.56	DN3223CT-ND	3.25	27.84	185.60	DN3223TR-ND	712.80	8532-23L
82.0	0.152	1.53	DN3224CT-ND	3.25	27.84	185.60	DN3224TR-ND	712.80	8532-24L
100.0	0.208	1.30	DN3225CT-ND	3.41	29.25	195.00	DN3225TR-ND	748.80	8532-25L
120.0	0.283	1.12	DN3226CT-ND	3.41	29.25	195.00	DN3226TR-ND	748.80	8532-26L
150.0	0.330	1.04	DN3227CT-ND	3.41	29.25	195.00	DN3227TR-ND	748.80	8532-27L
180.0	0.362	0.99	DN3228CT-ND	3.41	29.25	195.00	DN3228TR-ND	748.80	8532-28L
220.0	0.505	0.84	DN3229CT-ND	3.41	29.25	195.00	DN3229TR-ND	748.80	8532-29L
270.0	0.557	0.80	DN3230CT-ND	3.41	29.25	195.00	DN3230TR-ND	748.80	8532-30L
330.0	0.650	0.74	DN3231CT-ND	3.41	29.25	195.00	DN3231TR-ND	748.80	8532-31L
390.0	0.770	0.68	DN3232CT-ND	3.41	29.25	195.00	DN3232TR-ND	748.80	8532-32L
470.0	1.03	0.59	DN3233CT-ND	3.41	29.25	195.00	DN3233TR-ND	748.80	8532-33L
560.0	1.14	0.56	DN3234CT-ND	3.41	29.25	195.00	DN3234TR-ND	748.80	8532-34L
680.0	1.50	0.49	DN3235CT-ND	3.41	29.25	195.00	DN3235TR-ND	748.80	8532-35L
820.0	1.98	0.42	DN3236CT-ND	3.41	29.25	195.00	DN3236TR-ND	748.80	8532-36L
1000.0	2.30	0.39	DN3237CT-ND	3.62	31.05	207.00	DN3237TR-ND	794.88	8532-37L
1200.0	2.55	0.37	DN3238CT-ND	3.62	31.05	207.00	DN3238TR-ND	794.88	8532-38L
1500.0	3.00	0.34	DN3239CT-ND	3.62	31.05	207.00	DN3239TR-ND	794.88	8532-39L
1800.0	4.00	0.30	DN3240CT-ND	3.62	31.05	207.00	DN3240TR-ND	794.88	8532-40L
2200.0	4.40	0.28	DN3241CT-ND	3.62	31.05	207.00	DN3241TR-ND	794.88	8532-41L
2700.0	5.80	0.25	DN3242CT-ND	3.62	31.05	207.00	DN3242TR-ND	794.88	8532-42L
3300.0	6.56	0.23	DN3243CT-ND	3.62	31.05	207.00	DN3243TR-ND	794.88	8532-43L
3900.0	8.63	0.20	DN3244CT-ND	3.62	31.05	207.00	DN3244TR-ND	794.88	8532-44L
4700.0	10.1	0.19	DN3245CT-ND	3.62	31.05	207.00	DN3245TR-ND	794.88	8532-45L
5600.0	11.2	0.18	DN3246CT-ND	3.62	31.05	207.00	DN3246TR-ND	794.88	8532-46L
6800.0	15.0	0.15	DN3247CT-ND	3.62	31.05	207.00	DN3247TR-ND	794.88	8532-47L
8200.0	20.8	0.13	DN3248CT-ND	3.62	31.05	207.00	DN3248TR-ND	794.88	8532-48L
10000.0	23.4	0.12	DN3249CT-ND	3.82	32.70	218.00	DN3249TR-ND	837.12	8532-49L
12000.0	26.0	0.12	DN3250CT-ND	3.82	32.70	218.00	DN3250TR-ND	837.12	8532-50L
15000.0	36.0	0.10	DN3251CT-ND	3.82	32.70	218.00	DN3251TR-ND	837.12	8532-51L
18000.0	40.0	0.09	DN3252CT-ND	3.82	32.70	218.00	DN3252TR-ND	837.12	8532-52L

Series 103 Micro i® Chip Inductors

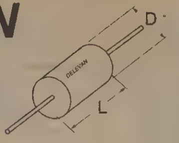
Military Specifications: Series 103 MIL-C-83446/4
Mechanical Configuration: Units are epoxy encapsulated. Contact areas for reflow soldering are gold plated per MIL-G-45204 Type 1-Grade A. Internal connections are thermal compression bonded.
Current Rating at 90°C AMB: 35°C Rise
Operating Temperature: -55°C to +125°C
Power Dissipation at 90°C: .135 Max. (mWatts)



Min to Max Dimensions (In.)					
A	B	C*	D	E	F
.075 Max.	.100±.010	.100±.010	.050 Min.	.015 Min. Typ.	.020 Max. Typ.

Induct. (µH)	Q Min.	Test Freq. (MHz)	Current Rating Max. (mA)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 250	Delevan Part No.
Series 103 Phenolic Core										
.010±10%	60	50.0	1270	DN03100CT-ND	8.82	75.60	504.00	DN03100TR-ND	1071.00	103-100KS
.012±10%	57	50.0	1190	DN03120CT-ND	8.82	75.60	504.00	DN03120TR-ND	1071.00	103-120KS
.015±10%	55	50.0	1110	DN03150CT-ND	8.82	75.60	504.00	DN03150TR-ND	1071.00	103-150KS
.018±10%	52	50.0	1030	DN03180CT-ND	8.82	75.60	504.00	DN03180TR-ND	1071.00	103-180KS
.022±10%	50	50.0	950	DN03220CT-ND	8.82	75.60	504.00	DN03220TR-ND	1071.00	103-220KS
.027±10%	49	50.0	925	DN03270CT-ND	8.82	75.60	504.00	DN03270TR-ND	1071.00	103-270KS
.033±10%	48	50.0	900	DN03330CT-ND	8.82	75.60	504.00	DN03330TR-ND	1071.00	103-330KS
.039±10%	45	50.0	860	DN03390CT-ND	8.82	75.60	504.00	DN03390TR-ND	1071.00	103-390KS
.047±10%	42	50.0	820	DN03470CT-ND	8.82	75.60	504.00	DN03470TR-ND	1071.00	103-470KS
.056±10%	39	50.0	760	DN03560CT-ND	8.82	75.60	504.00	DN03560TR-ND	1071.00	103-560KS
.068±10%	36	50.0	705	DN03680CT-ND	8.82	75.60	504.00	DN03680TR-ND	1071.00	103-680KS
.082±10%	34	50.0	675	DN03820CT-ND	8.82	75.60	504.00	DN03820TR-ND	1071.00	103-820KS
.100±10%	32	50.0	650	DN03101CT-ND	8.82	75.60	504.00	DN03101TR-ND	1071.00	103-101KS
Series 103 Ferrite Core										
.12±10%	30	25.0	880	DN03121CT-ND	8.82	75.60	504.00	DN03121TR-ND	1071.00	103-121KS
.15±10%	25	25.0	745	DN03151CT-ND	8.82	75.60	504.00	DN03151TR-ND	1071.00	103-151KS
.18±10%	25	25.0	695	DN03181CT-ND	8.82	75.60	504.00	DN03181TR-ND	1071.00	103-181KS
.22±10%	25	25.0	665	DN03221CT-ND	8.82	75.60	504.00	DN03221TR-ND	1071.00	103-221KS
.27±10%	25	25.0	650	DN03271CT-ND	8.82	75.60	504.00	DN03271TR-ND	1071.00	103-271KS
.33±10%	25	25.0	645	DN03331CT-ND	8.82	75.60	504.00	DN03331TR-ND	1071.00	103-331KS
.39±10%	22	25.0	635	DN03391CT-ND	8.82	75.60	504.00	DN03391TR-ND	1071.00	103-391KS
.47±10%	22	25.0	610	DN03471CT-ND	8.82	75.60	504.00	DN03471TR-ND	1071.00	103-471KS
.56±10%	22	25.0	590	DN03561CT-ND	8.82	75.60	504.00	DN03561TR-ND	1071.00	103-561KS
.68±10%	22	25.0	435	DN03681CT-ND	8.82	75.60	504.00	DN03681TR-ND	1071.00	103-681KS
.82±10%	22	25.0	430	DN03821CT-ND	8.82	75.60	504.00	DN03821TR-ND	1071.00	103-821KS
1.0±10%	22	25.0	425	DN03102CT-ND	8.82	75.60	504.00	DN03102TR-ND	1071.00	103-102KS
1.2±10%	22	7.9	360	DN03122CT-ND	8.82	75.60	504.00	DN03122TR-ND	1071.00	103-122KS
1.5±10%	22	7.9	340	DN03152CT-ND	8.82	75.60	504.00	DN03152TR-ND	1071.00	103-152KS
1.8±10%	22	7.9	325	DN03182CT-ND	8.82	75.60	504.00	DN03182TR-ND	1071.00	103-182KS
2.2±10%	22	7.9	310	DN03222CT-ND	8.82	75.60	504.00	DN03222TR-ND	1071.00	103-222KS
2.7±10%	24	7.9	290	DN03272CT-ND	8.82	75.60	504.00	DN03272TR-ND	1071.00	103-272KS
3.3±10%	24	7.9	260	DN03332CT-ND	8.82	75.60	504.00	DN03332TR-ND	1071.00	103-332KS
3.9±10%	24	7.9	250	DN03392CT-ND	8.82	75.60	504.00	DN03392TR-ND	1071.00	103-392KS
4.7±10%	24	7.9	230	DN03472CT-ND	8.82	75.60	504.00	DN03472TR-ND	1071.00	103-472KS
5.6±10%	22	7.9	220	DN03562CT-ND	8.82	75.60	504.00	DN03562TR-ND	1071.00	103-562KS
6.8±10%	22	7.9	210	DN03682CT-ND	8.82	75.60	504.00	DN03682TR-ND	1071.00	103-682KS
8.2±10%	22	7.9	195	DN03822CT-ND	8.82	75.60	504.00	DN03822TR-ND	1071.00	103-822KS
10.0±10%	24	7.9	165	DN03103CT-ND	8.82	75.60	504.00	DN03103TR-ND	1071.00	103-103KS
12.0±10%	25	2.5	160	DN03123CT-ND	8.82	75.60	504.00	DN03123TR-ND	1071.00	103-123KS
15.0±10%	25	2.5	135	DN03153CT-ND	8.82	75.60	504.00	DN03153TR-ND	1071.00	103-153KS
18.0±10%	25	2.5	130	DN03183CT-ND	8.82	75.60	504.00	DN03183TR-ND	1071.00	103-183KS
22.0±10%	25	2.5	125	DN03223CT-ND	8.82	75.60	504.00	DN03223TR-ND	1071.00	103-223KS
27.0±10%	25	2.5	120	DN03273CT-ND	8.82	75.60	504.00	DN03273TR-ND	1071.00	103-273KS

DELEVAN



Coils – Series 1641, 1025, 2474 and 2502

Series 1641 Molded Shielded RF Coils

Dimensions		Lead Size	Lead
L	D	AWG #22 (TWC)	Length (In.)
.410 ± .020	.162 ± .010	.025 ± .002	1.44 ± 0.12

Induct. (µH)	Q Min.	Test Freq. (MHz)	Current Rating Max. (mA)	Digi-Key Part No.	Pricing			Delevan Part No.
					1	10	100	
Series 1641 Phenolic Core Iron Sleeve (LT10K)								
.10	50	25.0	1830	DN41101-ND	1.40	12.00	80.00	1641-101K
.12	51	25.0	1570	DN41121-ND	1.40	12.00	80.00	1641-121K
.15	51	25.0	1500	DN41151-ND	1.40	12.00	80.00	1641-151K
.18	50	25.0	1330	DN41181-ND	1.40	12.00	80.00	1641-181K
.22	49	25.0	1120	DN41221-ND	1.40	12.00	80.00	1641-221K
.27	47	25.0	870	DN41271-ND	1.40	12.00	80.00	1641-271K
.33	46	25.0	800	DN41331-ND	1.40	12.00	80.00	1641-331K
.39	44	25.0	680	DN41391-ND	1.40	12.00	80.00	1641-391K
.47	44	25.0	580	DN41471-ND	1.40	12.00	80.00	1641-471K
.56	43	25.0	505	DN41561-ND	1.40	12.00	80.00	1641-561K
.68	42	25.0	430	DN41681-ND	1.40	12.00	80.00	1641-681K
.82	40	25.0	375	DN41821-ND	1.40	12.00	80.00	1641-821K
Series 1641 Iron Core Iron Sleeve (LT10K)								
1.0	44	25.0	1090	DN41102-ND	1.40	12.00	80.00	1641-102K
1.2	44	7.9	900	DN41122-ND	1.40	12.00	80.00	1641-122K
1.5	44	7.9	835	DN41152-ND	1.40	12.00	80.00	1641-152K
1.8	44	7.9	775	DN41182-ND	1.40	12.00	80.00	1641-182K
2.2	44	7.9	665	DN41222-ND	1.40	12.00	80.00	1641-222K
2.7	44	7.9	545	DN41272-ND	1.40	12.00	80.00	1641-272K
3.3	44	7.9	490	DN41332-ND	1.40	12.00	80.00	1641-332K
3.9	44	7.9	455	DN41392-ND	1.40	12.00	80.00	1641-392K
4.7	44	7.9	390	DN41472-ND	1.40	12.00	80.00	1641-472K
5.6	44	7.9	340	DN41562-ND	1.40	12.00	80.00	1641-562K
6.8	50	7.9	285	DN41682-ND	1.40	12.00	80.00	1641-682K
8.2	50	7.9	250	DN41822-ND	1.40	12.00	80.00	1641-822K
10.0	50	7.9	228	DN41103-ND	1.40	12.00	80.00	1641-103K
12.0	55	2.5	205	DN41123-ND	1.40	12.00	80.00	1641-123K
Series 1641 Ferrite Core Ferrite Sleeve (lt10k)								
15.0	45	2.5	325	DN41153-ND	1.54	13.20	88.00	1641-153K
18.0	45	2.5	305	DN41183-ND	1.54	13.20	88.00	1641-183K
22.0	45	2.5	295	DN41223-ND	1.54	13.20	88.00	1641-223K
27.0	45	2.5	265	DN41273-ND	1.54	13.20	88.00	1641-273K
33.0	45	2.5	248	DN41333-ND	1.54	13.20	88.00	1641-333K
39.0	50	2.5	209	DN41393-ND	1.54	13.20	88.00	1641-393K
47.0	50	2.5	200	DN41473-ND	1.54	13.20	88.00	1641-473K
56.0	50	2.5	194	DN41563-ND	1.54	13.20	88.00	1641-563K
68.0	50	2.5	176	DN41683-ND	1.54	13.20	88.00	1641-683K
82.0	50	2.5	186	DN41823-ND	1.54	13.20	88.00	1641-823K
100.0	50	2.5	164	DN41104-ND	1.54	13.20	88.00	1641-104K
120.0	55	.79	153	DN41124-ND	1.54	13.20	88.00	1641-124K
150.0	55	.79	143	DN41154-ND	1.65	14.10	94.00	1641-154K
180.0	55	.79	138	DN41184-ND	1.65	14.10	94.00	1641-184K
220.0	55	.79	130	DN41224-ND	1.65	14.10	94.00	1641-224K
270.0	55	.79	120	DN41274-ND	1.65	14.10	94.00	1641-274K
330.0	55	.79	115	DN41334-ND	1.65	14.10	94.00	1641-334K
390.0	60	.79	107	DN41394-ND	1.65	14.10	94.00	1641-394K
470.0	60	.79	94	DN41474-ND	1.65	14.10	94.00	1641-474K
560.0	60	.79	90	DN41564-ND	1.65	14.10	94.00	1641-564K
680.0	60	.79	84	DN41684-ND	1.65	14.10	94.00	1641-684K
820.0	60	.79	80	DN41824-ND	1.65	14.10	94.00	1641-824K
1000.0	60	.79	70	DN41105-ND	1.65	14.10	94.00	1641-105K

Series 1025 Molded Unshielded RF Coils

Dimensions		Lead Size	Lead
L	D	AWG #24 (TWC)	Length (In.)
250 ± .010	.095 ± 0.10	.020 ± .0015	1.5 ± .12

Induct. (µH)	Q Min.	Test Freq. (MHz)	Current Rating Max. (mA)	Digi-Key Part No.	Pricing			Delevan Part No.
					1	10	100	
Series 1025 Phenolic Core (LT4K)								
.10	40	25.0	1380	DN2594-ND	.52	4.44	29.60	1025-94K
.12	40	25.0	1300	DN2596-ND	.52	4.44	29.60	1025-96K
.15	38	25.0	1230	DN2500-ND	.52	4.44	29.60	1025-00K
.18	35	25.0	1120	DN2502-ND	.52	4.44	29.60	1025-02K
.22	33	25.0	1040	DN2504-ND	.52	4.44	29.60	1025-04K
.27	33	25.0	975	DN2506-ND	.52	4.44	29.60	1025-06K
.33	30	25.0	830	DN2508-ND	.52	4.44	29.60	1025-08K
.39	30	25.0	710	DN2510-ND	.52	4.44	29.60	1025-10K
.47	30	25.0	660	DN2512-ND	.52	4.44	29.60	1025-12K
.56	30	25.0	550	DN2514-ND	.52	4.44	29.60	1025-14K
.68	28	25.0	500	DN2516-ND	.52	4.44	29.60	1025-16K
.82	28	25.0	420	DN2518-ND	.52	4.44	29.60	1025-18K
1.0	25	25.0	390	DN2520-ND	.52	4.44	29.60	1025-20K
Series 1025 Iron Core (LT10K)								
1.2	25	7.9	620	DN2522-ND	.64	5.52	36.80	1025-22K
1.5	28	7.9	560	DN2524-ND	.64	5.52	36.80	1025-24K
1.8	30	7.9	480	DN2526-ND	.64	5.52	36.80	1025-26K
2.2	30	7.9	415	DN2528-ND	.64	5.52	36.80	1025-28K
2.7	37	7.9	355	DN2530-ND	.64	5.52	36.80	1025-30K
3.3	45	7.9	285	DN2532-ND	.64	5.52	36.80	1025-32K
3.9	45	7.9	263	DN2534-ND	.64	5.52	36.80	1025-34K
4.7	45	7.9	239	DN2536-ND	.64	5.52	36.80	1025-36K
5.6	50	7.9	195	DN2538-ND	.64	5.52	36.80	1025-38K
6.8	50	7.9	185	DN2540-ND	.64	5.52	36.80	1025-40K
8.2	55	7.9	160	DN2542-ND	.64	5.52	36.80	1025-42K
10.0	55	7.9	144	DN2544-ND	.64	5.52	36.80	1025-44K
12.0	45	2.5	160	DN2546-ND	.64	5.52	36.80	1025-46K
15.0	45	2.5	157	DN2548-ND	.64	5.52	36.80	1025-48K
18.0	50	2.5	149	DN2550-ND	.64	5.52	36.80	1025-50K
22.0	50	2.5	144	DN2552-ND	.64	5.52	36.80	1025-52K
27.0	50	2.5	140	DN2554-ND	.64	5.52	36.80	1025-54K
Series 1025 Ferrite (lt10k)								
33.0	45	2.5	130	DN2556-ND	.69	5.94	39.60	1025-56K
39.0	45	2.5	125	DN2558-ND	.69	5.94	39.60	1025-58K
47.0	45	2.5	110	DN2560-ND	.69	5.94	39.60	1025-60K
56.0	45	2.5	100	DN2562-ND	.69	5.94	39.60	1025-62K
68.0	50	2.5	92	DN2564-ND	.69	5.94	39.60	1025-64K
82.0	50	2.5	88	DN2566-ND	.80	6.87	45.80	1025-66K
100.0	50	2.5	84	DN2568-ND	.80	6.87	45.80	1025-68K
120.0	30	.79	66	DN2570-ND	.80	6.87	45.80	1025-70K
150.0	30	.79	61	DN2572-ND	.80	6.87	45.80	1025-72K
180.0	30	.79	57	DN2574-ND	.80	6.87	45.80	1025-74K
220.0	30	.79	52	DN2576-ND	.80	6.87	45.80	1025-76K
270.0	30	.79	47	DN2578-ND	.86	7.38	49.20	1025-78K
330.0	30	.79	45	DN2580-ND	.86	7.38	49.20	1025-80K
390.0	30	.79	40	DN2582-ND	.86	7.38	49.20	1025-82K
470.0	30	.79	36	DN2584-ND	.86	7.38	49.20	1025-84K
560.0	30	.79	35	DN2586-ND	1.03	8.85	59.00	1025-86K
680.0	30	.79	30	DN2588-ND	1.03	8.85	59.00	1025-88K
820.0	30	.79	29	DN2590-ND	1.03	8.85	59.00	1025-90K
1000.0	30	.79	28	DN2592-ND	1.03	8.85	59.00	1025-92K

Series 2474 Molded Unshielded RF Coils

Mechanical Configuration: Units are axial leaded for printed circuit mounting, encapsulated in an epoxy molded case. High resistivity ferrite core, allows for high inductance with low DC resistance.
Operating Temperature: -55°C to +125°C
Current Rating: 40°C Rise over 85°C Ambient
Power Dissipation at 85°C: .50 Watts
Inductance: Measured at 1 V with no DC current

Dimensions		Lead Size	Lead
L	D	AWG #20 (TWC)	Length (In.)
.740 ± .010	.240 ± 0.10	.032 ± .002	1.44 ± .12

Induct. (µH)	Max. DC Resist. (Ohms)	Current Rating Max. (A)	Digi-Key Part No.	Pricing				Delevan Part No.
				1	10	100	500	
Series 2474 Ferrite Core								
1.0	0.009	6.27	DN7401-ND	2.24	19.20	128.00	512.00	2474-01L
1.2	0.010	5.95	DN7402-ND	2.24	19.20	128.00	512.00	2474-02L
1.5	0.011	5.67	DN7403-ND	2.24	19.20	128.00	512.00	2474-03L
1.8	0.012	5.43	DN7404-ND	2.24	19.20	128.00	512.00	2474-04L
2.2	0.013	5.22	DN7405-ND	2.24	19.20	128.00	512.00	2474-05L
2.7	0.014	5.03	DN7406-ND	2.24	19.20	128.00	512.00	2474-06L
3.3	0.016	4.70	DN7407-ND	2.24	19.20	128.00	512.00	2474-07L
3.9	0.017	4.56	DN7408-ND	2.24	19.20	128.00	512.00	2474-08L
4.7	0.022	4.01	DN7409-ND	2.24	19.20	128.00	512.00	2474-09L
5.6	0.024	3.84	DN7410-ND	2.24	19.20	128.00	512.00	2474-10L
6.8	0.026	3.69	DN7411-ND	2.24	19.20	128.00	512.00	2474-11L
8.2	0.028	3.55	DN7412-ND	2.24	19.20	128.00	512.00	2474-12L
10.0	0.033	3.27	DN7413-ND	2.65	22.71	151.40	605.50	2474-13L
12.0	0.037	3.09	DN7414-ND	2.65	22.71	151.40	605.50	2474-14L
15.0	0.040	2.97	DN7415-ND	2.65	22.71	151.40	605.50	2474-15L
18.0	0.044	2.84	DN7416-ND	2.65	22.71	151.40	605.50	2474-16L
22.0	0.050	2.66	DN7417-ND	2.65	22.71	151.40	605.50	2474-17L
27.0	0.070	2.25	DN7418-ND	2.65	22.71	151.40	605.50	2474-18L
33.0	0.075	2.17	DN7419-ND	2.65	22.71	151.40	605.50	2474-19L
39.0	0.084	2.05	DN7420-ND	2.65	22.71	151.40	605.50	2474-20L
47.0	0.104	1.84	DN7421-ND	2.65	22.71	151.40	605.50	2474-21L
56.0	0.130	1.65	DN7422-ND	2.65	22.71	151.40	605.50	2474-22L
68.0	0.145	1.56	DN7423-ND	2.65	22.71	151.40	605.50	2474-23L
82.0	0.152	1.53	DN7424-ND	2.65	22.71	151.40	605.50	2474-24L
100.0	0.208	1.30	DN7425-ND	2.82	24.15	161.00	644.00	2474-25L
120.0	0.283	1.12	DN7426-ND	2.82	24.15	161.00	644.00	2474-26L
150.0	0.330	1.04	DN7427-ND	2.82	24.15	161.00	644.00	2474-27L
180.0	0.362	0.99	DN7428-ND	2.82	24.15	161.00	644.00	2474-28L
220.0	0.505	0.84	DN7429-ND	2.82	24.15	161.00	644.00	2474-29L
270.0	0.557	0.80	DN7430-ND	2.82	24.15	161.00	644.00	2474-30L
330.0	0.650	0.74	DN7431-ND	2.82	24.15	161.00	644.00	2474-31L
390.0	0.770	0.68	DN7432-ND	2.82	24.15	161.00	644.00	2474-32L
470.0	1.03	0.59	DN7433-ND	2.82	24.15	161.00	644.00	2474-33L
560.0	1.14	0.56	DN7434-ND	2.82	24.15	161.00	644.00	2474-34L
680.0	1.50	0.49	DN7435-ND	2.82	24.15	161.00	644.00	2474-35L
820.0	1.98	0.42	DN7436-ND	2.82	24.15	161.00	644.00	2474-36L
1000.0	2.30	0.39	DN7437-ND	3.00	25.68	171.20	685.00	2474-37L
1200.0	2.55	0.37	DN7438-ND	3.00	25.68	171.20	685.00	2474-38L
1500.0	3.00	0.34	DN7439-ND	3.00	25.68	171.20	685.00	2474-39L
1800.0	4.00	0.30	DN7440-ND	3.00	25.68	171.20	685.00	2474-40L
2200.0	4.40	0.28	DN7441-ND	3.00	25.68	171.20	685.00	2474-41L
2700.0	5.80	0.25	DN7442-ND	3.00	25.68	171.20	685.00	2474-42L
3300.0	6.56	0.23	DN7443-ND	3.00	25.68	171.20	685.00	2474-43L
3900.0	8.63	0.20	DN7444-ND	3.00	25.68	171.20	685.00	2474-44L
4700.0	10.1	0.19	DN7445-ND	3.00	25.68	171.20	685.00	2474-45L
5600.0	11.2	0.18	DN7446-ND	3.00	25.68	171.20	685.00	2474-46L
6800.0	15.0	0.15	DN7447-ND	3.00	25.68	171.20	685.00	2474-47L
8200.0	20.8	0.13	DN7448-ND	3.00	25.68	171.20	685.00	2474-48L
10000.0	23.4	0.12	DN7449-ND	3.21	27.51	183.40	733.50	2474-49L
12000.0	26.0	0.12	DN7450-ND	3.21	27.51	183.40	733.50	2474-50L
15000.0	36.0	0.10	DN7451-ND	3.21	27.51	183.40	733.50	2474-51L
18000.0	40.0	0.09	DN7452-ND	3.21	27.51	183.40	733.50	2474-52L

Series 2502 Molded Unshielded RF Coils

Mechanical Configuration: Units are axial leaded encapsulated in an epoxy molded case. High resistivity ferrite core, allows for high inductance with low DC resistance.
Operating Temperature: -55°C to +105°C
Current Rating: 15°C Rise over 90°C Ambient
Power Dissipation at 90°C: .215 Watts
Test Frequency: 0.100 MHz

Mold Size	Dimensions		Lead Size	Lead
	L	D	(TWC)	Length (In.)
A	.440 ±.010	.190 ±.010	.025 (#22)	1.44
B	.560 ± .010	.215 ± .010	.028 (#21)	1.44
C	.740 ± .010	.240 ± .010	.032 (#20)	1.44

Induct. (µH)	Current Rating Max. (mA)	Mold Size	Digi-Key Part No.	Pricing				Delevan Part No.
				1	10	100	500	
Series 2502 Ferrite Core								
270	126	A	DN0200-ND	.76	6.51	43.40	173.50	2502-00J
300	122	A	DN0202-ND	.76	6.51	43.40	173.50	2502-02J
330	120	A	DN0204-ND	.76	6.51	43.40	173.50	2502-04J
360	115	A	DN0206-ND	.76	6.51	43.40	173.50	2502-06J
390	114	A	DN0208-ND	.76	6.51	43.40	173.50	2502-08J
430	111	A	DN0210-ND	.76	6.51	43.40	173.50	2502-10J
470	108	A	DN0212-ND	.76	6.51	43.40	173.50	2502-12J
500	106	A	DN0214-ND	.76	6.51	43.40	173.50	2502-14J
510	105	A	DN0215-ND	.76	6.51	43.40	173.50	2502-15J
560	104	A	DN0216-ND	.76	6.51	43.40	173.50	2502-16J
620	101	A	DN0218-ND	.76	6.51	43.40	173.50	2502-18J
680	97	A	DN0220-ND	.76	6.51	43.40	173.50	2502-20J
750	95	A	DN0222-ND	.76	6.51	43.40	173.50	2502-22J
820	92	A	DN0224-ND	.76	6.51	43.40	173.50	2502-24J
910	91	A	DN0226-ND	.76	6.51	43.40	173.50	2502-26J
1000	88	B	DN0228-ND	.76	6.51	43.40	173.50	2502-28J
1100	81	B	DN0230-ND	1.59	13.59	90.60	362.50	2502-30J
1200	79	B	DN0232-ND	1.59	13.59	90.60	362.50	2502-32J
1300	78	B	DN0234-ND	1.59	13.59	90.60	362.50	2502-34J
1500	75	B	DN0236-ND	1.59	13.59	90.60	362.50	2502-36J
1600	74	B	DN0238-ND	1.59	13.59	90.60	362.50	2502-38J
1800	71	B	DN0240-ND	1.59	13.59	90.60	362.50	2502-40J
2000	69	B	DN0242-ND	1.59	13.59	90.60	362.50	2502-42J
2200	68	B	DN0244-ND	1.59	13.59	90.60	362.50	2502-44J
2400	67	B	DN0246-ND	1.59	13.59	90.60	362.50	2502-46J
2700	65	B	DN0248-ND	1.59	13.59	90.60	362.50	2502-48J
3000	63	B	DN0250-ND	1.59	13.59	90.60	362.50	2502-50J
3300	61	B	DN0252-ND	1.59	13.59	90.60	362.50	2502-52J
3600	59	B	DN0254-ND	1.59	13.59	90.60	362.50	2502-54J
3900	62	C	DN0256-ND	1.59	13.59	90.60	362.50	2502-56J
4300	60	C	DN0258-ND	1.59	13.59	90.60	362.50	2502-58J
4700	59	C	DN0260-ND	1.59	13.59	90.60	362.50	2502-60J
5000	58	C	DN0262-ND	1.59	13.59	90.60	362.50	2502-62J
5100	58	C	DN0263-ND	1.59	13.59	90.60	362.50	2502-63J
5600	56	C	DN0264-ND	1.59	13.59	90.60	362.50	2502-64J
6200	55	C	DN0266-ND	3.42	29.31	195.40	781.50	2502-66J
6800	54	C	DN0268-ND	3.42	29.31	195.40	781.50	2502-68J
7500	52	C	DN0270-ND	3.42	29.31	195.40	781.50	2502-70J
8200	51	C	DN0272-ND	3.42	29.31	195.40	781.50	2502-72J
9100	49	C	DN0274-ND	3.42	29.31	195.40	781.50	2502-74J
10000	48	C	DN0276-ND	3.42	29.31	195.40	781.50	2502-76J

NEW! **MagneTek** TRIAD™

Switchmode / High Frequency Inductors

Common Mode Inductors

DESCRIPTION:

TRIAD common mode EMI suppression inductors are used to eliminate noise common to all lines. Meeting VDE, IEC, UL and CSA requirements. Constructed with UL rated 130°C materials.
Hi-Pot Tested: 2,500 VRMS

Fig. A

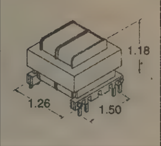


Fig. B

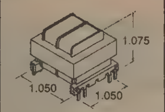


Fig. C

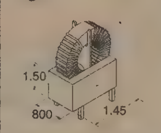


Fig. D

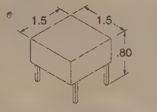


Fig.	Induct. mH min.	Amps. R.M.S	Max DC Resist. (Ohms)	Min. Leakage	Pin-Out Winding I	Pin-Out Winding II	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
E-Core Inductors											
A	4.40	5.500	.049	45.0µH	1 & 6	7 & 12	10523-ND	6.78	4.43	3.76	CME375-1
	6.90	4.400	.077	70.0µH			10524-ND	6.78	4.43	3.76	CME375-2
	10.9	3.500	.122	125.0µH			10525-ND	6.78	4.43	3.76	CME375-3
	17.8	2.700	.196	180.0µH			10526-ND	6.78	4.43	3.76	CME375-4
	28.6	2.200	.316	300.0µH			10527-ND	6.78	4.43	3.76	CME375-5
	43.6	1.750	.489	440.0µH			10528-ND	6.78	4.43	3.76	CME375-6
	70.3	1.380	.785	720.0µH			10529-ND	6.78	4.43	3.76	CME375-7
	111.6	1.100	1.240	1.1mH			10530-ND	6.78	4.43	3.76	CME375-8
	176.1	0.870	1.980	1.8mH			10531-ND	6.78	4.43	3.76	CME375-9
B	1.05	2.50	.050	9.0µH	1 & 5	6 & 10	10533-ND	6.33	4.14	3.51	CME2425-1
	2.37	2.00	.080	14.0µH			10534-ND	6.33	4.14	3.51	CME2425-2
	3.8	1.60	.127	25.0µH			10535-ND	6.33	4.14	3.51	CME2425-3
	6.0	1.28	.202	36.0µH			10536-ND	6.33	4.14	3.51	CME2425-4
	9.8	1.00	.319	60.0µH			10537-ND	6.33	4.14	3.51	CME2425-5
	16.0	0.80	.500	90.0µH			10538-ND	6.33	4.14	3.51	CME2425-6
	27.7	0.63	.820	144.0µH			10539-ND	6.33	4.14	3.51	CME2425-7
	40.5	0.50	1.260	240.0µH			10540-ND	6.33	4.14	3.51	CME2425-8
	67.5	0.40	2.020	360.0µH			10541-ND	6.33	4.14	3.51	CME2425-9
Encapsulated Toroidal Inductors											
C	2.00	7.50	.020	25.0µH	1 & 2	3 & 4	10543-ND	4.78	3.12	2.65	CMT908-V1
	4.00	5.20	.040	45.0µH			10544-ND	4.78	3.12	2.65	CMT908-V2
	8.00	3.20	.120	90.0µH			10545-ND	4.78	3.12	2.65	CMT908-V3
	16.00	2.60	.160	180.0µH			10546-ND	4.78	3.12	2.65	CMT908-V4
D	2.00	7.50	.020	25.0µH	1 & 2	3 & 4	10547-ND	4.78	3.12	2.65	CMT908-H1
	4.00	5.20	.040	45.0µH			10548-ND	4.78	3.12	2.65	CMT908-H2
	8.00	3.20	.120	90.0µH			10549-ND	4.78	3.12	2.65	CMT908-H3
	16.00	2.60	.160	180.0µH			10550-ND	4.78	3.12	2.65	CMT908-H4

10532-ND (CME375-KIT) - 9 piece kit - one of each E-Core Inductor Series CME375 .... **$55.56**
10542-ND (CME2425-KIT) - 9 piece kit - one of each E-Core Inductor Series CME2425 .... **$51.11**
10551-ND (CMT908-KIT) - 8 piece kit - one of each Encapsulated Toroidal Ind. Series CMT908 .... **$33.33**

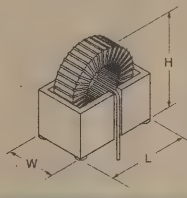
Toroidal Inductors

DESCRIPTION:

TRIAD toroidal inductors condition the output signal by leveling out the current waveform providing a more stable current supply.

TECHNICAL NOTES:

Nominal inductance values are typically 10% higher than minimum rating.
Biased inductance measured at rated DC amps.



Min. Induct. (µH) No Bias	Min. Induct. (µH) At Bias	Rated DC Amps	Max. DCR (mOhm)	Dimensions L	Dimensions W	Dimensions H	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
18.85	12.72	2.8	44.8	0.625	0.350	0.700	10559-ND	1.96	1.28	1.09	FIT44-1
14.75	9.82	3.4	30.7				10560-ND	1.96	1.28	1.09	FIT44-2
12.30	7.75	4.0	23.4				10561-ND	1.96	1.28	1.09	FIT44-3
8.06	5.22	4.8	15.9				10562-ND	1.96	1.28	1.09	FIT44-4
47.40	29.00	2.8	78.9	0.700	0.475	0.750	10563-ND	2.31	1.51	1.28	FIT50-1
35.48	23.77	3.4	57.8				10564-ND	2.31	1.51	1.28	FIT50-2
27.16	16.13	4.0	40.1				10565-ND	2.31	1.51	1.28	FIT50-3
21.65	12.27	4.8	29.2				10566-ND	2.31	1.51	1.28	FIT50-4
16.76	9.50	5.7	20.0				10567-ND	2.31	1.51	1.28	FIT50-5
12.50	6.75	6.8	14.0				10568-ND	2.31	1.51	1.28	FIT50-6
8.86	4.80	8.1	11.0				10569-ND	2.31	1.51	1.28	FIT50-7
89.50	57.99	2.8	108.0	0.875	0.475	0.950	10570-ND	2.80	1.83	1.55	FIT68-1
71.10	41.59	3.4	86.1				10571-ND	2.80	1.83	1.55	FIT68-2
54.81	33.05	4.0	59.9				10572-ND	2.80	1.83	1.55	FIT68-3
43.30	26.63	4.8	42.4				10573-ND	2.80	1.83	1.55	FIT68-4
33.15	18.79	5.7	28.8				10574-ND	2.80	1.83	1.55	FIT68-5
24.31	13.56	6.8	20.2				10575-ND	2.80	1.83	1.55	FIT68-6
18.64	10.23	8.1	14.8				10576-ND	2.80	1.83	1.55	FIT68-7
128.00	74.04	4.0	95.2	0.975	0.625	1.100	10577-ND	3.47	2.27	1.92	FIT80-1
107.50	58.05	4.8	67.9				10578-ND	3.47	2.27	1.92	FIT80-2
80.75	42.00	5.7	44.8				10579-ND	3.47	2.27	1.92	FIT80-3
65.04	31.60	6.8	32.8				10580-ND	3.47	2.27	1.92	FIT80-4
47.70	22.79	8.1	22.5				10581-ND	3.47	2.27	1.92	FIT80-5
38.07	18.11	9.7	17.0				10582-ND	3.47	2.27	1.92	FIT80-6
253.00	153.00	4.0	139.0	1.300	0.725	1.400	10583-ND	4.31	2.82	2.39	FIT106-1
197.00	113.00	4.8	106.0				10584-ND	4.31	2.82	2.39	FIT106-2
154.00	84.00	5.7	74.0				10585-ND	4.31	2.82	2.39	FIT106-3
116.00	61.90	6.8	48.5				10586-ND	4.31	2.82	2.39	FIT106-4
93.00	48.00	8.1	39.1				10587-ND	4.31	2.82	2.39	FIT106-5
70.05	35.30	9.7	24.0				10588-ND	4.31	2.82	2.39	FIT106-6

10589-ND (FIT-KIT) - 30 piece kit - one of each Toroidal Inductor **$83.33**

Rod Core Inductors

Fig. A

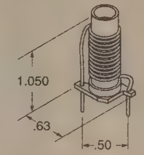
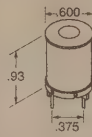


Fig. B



DESCRIPTION:

TRIAD high current rod core inductors from MagneTek provide cost effective energy storage. By conditioning the output signal, the inductor smoothes out the current waveform to provide a more stable current. These low cost inductors are designed to be compatible with automated P.C.B. installation.

Fig.	± 15% Induct. µH	DC Rated Current	Max. DC Resist. (mOhms)	Lead Dia.	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
High Current Rod Core Inductors									
A	2.54	11.60A	5.50	.050"	10590-ND	2.44	1.60	1.36	FIRCH-1
	3.05	9.70A	7.30	.045"	10591-ND	2.44	1.60	1.36	FIRCH-2
	3.60	8.10A	9.95	.040"	10592-ND	2.44	1.60	1.36	FIRCH-3
	5.00	6.80A	14.10	.036"	10593-ND	2.44	1.60	1.36	FIRCH-4
	5.90	5.70A	18.50	.032"	10594-ND	2.44	1.60	1.36	FIRCH-5
	7.22	4.80A	26.10	.028"	10595-ND	2.44	1.60	1.36	FIRCH-6

10596-ND (FIRCH-KIT) - 6 piece kit - one of each High Current Rod Core Inductors **$11.11**

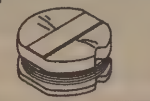
Fig.	10% Induct.	DC Rated Current	± 15% DC Resist. (Ohms)	Lead Dia.	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
Rod Core Inductors									
B	5.6mH	.250A	6.100	.032"	10597-ND	2.71	1.77	1.51	RC-1
	3.9mH	.320A	3.900		10598-ND	2.71	1.77	1.51	RC-2
	2.5mH	.400A	2.450		10599-ND	2.71	1.77	1.51	RC-3
	1.5mH	.500A	1.530		10600-ND	2.71	1.77	1.51	RC-4
	915.0µH	.625A	1.000		10601-ND	2.71	1.77	1.51	RC-5
	560.0µH	.800A	.600		10602-ND	2.71	1.77	1.51	RC-6
	450.0µH	1.000A	.420		10603-ND	2.71	1.77	1.51	RC-7
	250.0µH	1.250A	.210		10604-ND	2.71	1.77	1.51	RC-8
	200.0µH	1.600A	.180		10605-ND	2.71	1.77	1.51	RC-9
	100.0µH	2.000A	.098		10606-ND	2.71	1.77	1.51	RC-10
	75.0µH	2.500A	.070		10607-ND	2.71	1.77	1.51	RC-11

10608-ND (RC-KIT) - 11 piece kit - one of each Rod Core Inductor **$27.78**

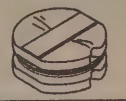
J.W.Miller
MAGNETICS

Surface Mount Power Inductors

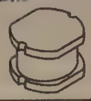
PM43



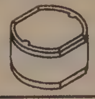
PM54



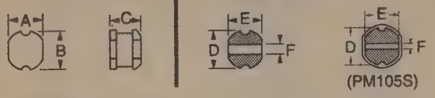
PM105 *NEW!*



PM105S *NEW!*



Terminal Dimensions



Dimensions (mm)						
Series	A	B	C	D Typ.	E Typ.	F Typ.
PM43	4.0 ± 0.3	4.5 ± 0.3	3.2 ± 0.3	4.5	4.0	1.2
PM54	5.2 ± 0.3	5.8 ± 0.3	4.5 ± 0.3	5.8	5.2	1.3
PM105	9.0 ± 0.4	10.0 ± 0.4	5.4 ± 0.4	10.0	9.0	2.1
PM105S	9.2 ± 0.4	10.0 ± 0.4	5.0 ± 0.5	7.8	7.0	1.6

L (µH)	Tol. %	Test Freq	Max. DCR Ohms	Rated I Amps	Digi-Key Part No.	Pricing 1	100	250	Digi-Key Part No.	Tape & Reel Pricing 1500	3000	Miller Part No.
PM43 Series												
10	20	2.5MHz	0.182	1.04	M3100CT-ND	3.38	249.75	421.88	M3100TR-ND	844.00/M	745.00/M	PM43-100M
12	20	2.5MHz	0.210	0.97	M3120CT-ND	3.38	249.75	421.88	M3120TR-ND	844.00/M	745.00/M	PM43-120M
15	20	2.5MHz	0.235	0.85	M3150CT-ND	3.38	249.75	421.88	M3150TR-ND	844.00/M	745.00/M	PM43-150M
18	20	2.5MHz	0.338	0.74	M3180CT-ND	3.38	249.75	421.88	M3180TR-ND	844.00/M	745.00/M	PM43-180M
22	20	2.5MHz	0.378	0.68	M3220CT-ND	3.38	249.75	421.88	M3220TR-ND	844.00/M	745.00/M	PM43-220M
27	20	2.5MHz	0.522	0.62	M3327CT-ND	3.38	249.75	421.88	M3327TR-ND	844.00/M	745.00/M	PM43-270M
33	10	2.5MHz	0.540	0.56	M3330CT-ND	3.38	249.75	421.88	M3330TR-ND	844.00/M	745.00/M	PM43-330K
39	10	2.5MHz	0.587	0.52	M3390CT-ND	3.38	249.75	421.88	M3390TR-ND	844.00/M	745.00/M	PM43-390K
47	10	2.5MHz	0.844	0.44	M3470CT-ND	3.38	249.75	421.88	M3470TR-ND	844.00/M	745.00/M	PM43-470K
56	10	2.5MHz	0.937	0.42	M3560CT-ND	3.38	249.75	421.88	M3560TR-ND	844.00/M	745.00/M	PM43-560K
68	10	2.5MHz	1.117	0.37	M3680CT-ND	3.38	249.75	421.88	M3680TR-ND	844.00/M	745.00/M	PM43-680K
PM54 Series												
10	20	2.5MHz	0.10	1.44	M4100CT-ND	3.38	249.75	421.88	M4100TR-ND	844.00/M	745.00/M	PM54-100M
12	20	2.5MHz	0.12	1.40	M4120CT-ND	3.38	249.75	421.88	M4120TR-ND	844.00/M	745.00/M	PM54-120M
15	20	2.5MHz	0.14	1.30	M4150CT-ND	3.38	249.75	421.88	M4150TR-ND	844.00/M	745.00/M	PM54-150M
18	20	2.5MHz	0.15	1.23	M4180CT-ND	3.38	249.75	421.88	M4180TR-ND	844.00/M	745.00/M	PM54-180M
22	20	2.5MHz	0.18	1.11	M4220CT-ND	3.38	249.75	421.88	M4220TR-ND	844.00/M	745.00/M	PM54-220M
27	20	2.5MHz	0.20	0.97	M4270CT-ND	3.38	249.75	421.88	M4270TR-ND	844.00/M	745.00/M	PM54-270M
33	15	2.5MHz	0.23	0.88	M4330CT-ND	3.38	249.75	421.88	M4330TR-ND	844.00/M	745.00/M	PM54-330L
39	15	2.5MHz	0.32	0.80	M4390CT-ND	3.38	249.75	421.88	M4390TR-ND	844.00/M	745.00/M	PM54-390L
47	15	2.5MHz	0.37	0.72	M4470CT-ND	3.38	249.75	421.88	M4470TR-ND	844.00/M	745.00/M	PM54-470L
56	10	2.5MHz	0.42	0.68	M4560CT-ND	3.38	249.75	421.88	M4560TR-ND	844.00/M	745.00/M	PM54-560K
68	10	2.5MHz	0.46	0.61	M4680CT-ND	3.38	249.75	421.88	M4680TR-ND	844.00/M	745.00/M	PM54-680K
82	10	2.5MHz	0.60	0.58	M4820CT-ND	3.38	249.75	421.88	M4820TR-ND	844.00/M	745.00/M	PM54-820K
100	10	1KHz	0.70	0.52	M4101CT-ND	3.38	249.75	421.88	M4101TR-ND	844.00/M	745.00/M	PM54-101K
120	10	1KHz	0.93	0.48	M4121CT-ND	3.38	249.75	421.88	M4121TR-ND	844.00/M	745.00/M	PM54-121K
150	10	1KHz	1.10	0.40	M4151CT-ND	3.38	249.75	421.88	M4151TR-ND	844.00/M	745.00/M	PM54-151K
180	10	1KHz	1.38	0.38	M4181CT-ND	3.38	249.75	421.88	M4181TR-ND	844.00/M	745.00/M	PM54-181K
220	10	1KHz	1.57	0.35	M4221CT-ND	3.38	249.75	421.88	M4221TR-ND	844.00/M	745.00/M	PM54-221K

L (µH)	Tol. %	Test Freq	Max. DCR Ohms	Rated I Amps	Digi-Key Part No.	Pricing 1	100	250	Digi-Key Part No.	Tape & Reel Pricing 500	1000	Miller Part No.
NEW! PM105 Series NEW!												
10	20	2.5MHz	0.06	2.60	M1001CT-ND	4.19	309.69	523.13	M1001TR-ND	523.28	923.80	PM105-100M
12	20	2.5MHz	0.07	2.45	M1002CT-ND	4.19	309.69	523.13	M1002TR-ND	523.28	923.80	PM105-120M
15	20	2.5MHz	0.08	2.27	M1003CT-ND	4.19	309.69	523.13	M1003TR-ND	523.28	923.80	PM105-150M
18	20	2.5MHz	0.09	2.15	M1004CT-ND	4.19	309.69	523.13	M1004TR-ND	523.28	923.80	PM105-180M
22	20	2.5MHz	0.10	1.95	M1005CT-ND	4.19	309.69	523.13	M1005TR-ND	523.28	923.80	PM105-220M
27	20	2.5MHz	0.11	1.76	M1006CT-ND	4.19	309.69	523.13	M1006TR-ND	523.28	923.80	PM105-270M
33	20	2.5MHz	0.12	1.50	M1007CT-ND	4.19	309.69	523.13	M1007TR-ND	523.28	923.80	PM105-330M
39	20	2.5MHz	0.14	1.37	M1008CT-ND	4.19	309.69	523.13	M1008TR-ND	523.28	923.80	PM105-390M
47	10	2.5MHz	0.17	1.28	M1009CT-ND	4.19	309.69	523.13	M1009TR-ND	523.28	923.80	PM105-470K
56	10	2.5MHz	0.19	1.17	M1010CT-ND	4.19	309.69	523.13	M1010TR-ND	523.28	923.80	PM105-560K
68	10	2.5MHz	0.22	1.11	M1011CT-ND	4.19	309.69	523.13	M1011TR-ND	523.28	923.80	PM105-680K
82	10	2.5MHz	0.25	1.00	M1012CT-ND	4.19	309.69	523.13	M1012TR-ND	523.28	923.80	PM105-820K
100	10	1kHz	0.35	0.97	M1013CT-ND	4.19	309.69	523.13	M1013TR-ND	523.28	923.80	PM105-101K
120	10	1kHz	0.40	0.89	M1014CT-ND	4.19	309.69	523.13	M1014TR-ND	523.28	923.80	PM105-121K
150	10	1kHz	0.47	0.78	M1015CT-ND	4.19	309.69	523.13	M1015TR-ND	523.28	923.80	PM105-151K
180	10	1kHz	0.63	0.72	M1016CT-ND	4.19	309.69	523.13	M1016TR-ND	523.28	923.80	PM105-181K
220	10	1kHz	0.73	0.66	M1017CT-ND	4.19	309.69	523.13	M1017TR-ND	523.28	923.80	PM105-221K
270	10	1kHz	0.97	0.57	M1018CT-ND	4.19	309.69	523.13	M1018TR-ND	523.28	923.80	PM105-271K
330	10	1kHz	1.15	0.52	M1019CT-ND	4.19	309.69	523.13	M1019TR-ND	523.28	923.80	PM105-331K
390	10	1kHz	1.30	0.48	M1020CT-ND	4.19	309.69	523.13	M1020TR-ND	523.28	923.80	PM105-391K
470	10	1kHz	1.48	0.42	M1021CT-ND	4.19	309.69	523.13	M1021TR-ND	523.28	923.80	PM105-471K
560	10	1kHz	1.90	0.33	M1022CT-ND	4.19	309.69	523.13	M1022TR-ND	523.28	923.80	PM105-561K
680	10	1kHz	2.25	0.28	M1023CT-ND	4.19	309.69	523.13	M1023TR-ND	523.28	923.80	PM105-681K
820	10	1kHz	2.55	0.24	M1024CT-ND	4.19	309.69	523.13	M1024TR-ND	523.28	923.80	PM105-821K
NEW! PM105S (Shielded) Series NEW!												
10	20	2.5MHz	0.06	2.53	M1025CT-ND	6.10	451.40	762.50	M1025TR-ND	762.73	1346.51	PM105S-100M
12	20	2.5MHz	0.06	2.31	M1026CT-ND	6.10	451.40	762.50	M1026TR-ND	762.73	1346.51	PM105S-120M
15	20	2.5MHz	0.07	2.06	M1027CT-ND	6.10	451.40	762.50	M1027TR-ND	762.73	1346.51	PM105S-150M
18	20	2.5MHz	0.08	1.89	M1028CT-ND	6.10	451.40	762.50	M1028TR-ND	762.73	1346.51	PM105S-180M
22	20	2.5MHz	0.09	1.71	M1029CT-ND	6.10	451.40	762.50	M1029TR-ND	762.73	1346.51	PM105S-220M
27	20	2.5MHz	0.11	1.54	M1030CT-ND	6.10	451.40	762.50	M1030TR-ND	762.73	1346.51	PM105S-270M
33	20	2.5MHz	0.12	1.39	M1031CT-ND	6.10	451.40	762.50	M1031TR-ND	762.73	1346.51	PM105S-330M
39	20	2.5MHz	0.16	1.28	M1032CT-ND	6.10	451.40	762.50	M1032TR-ND	762.73	1346.51	PM105S-390M
47	20	2.5MHz	0.18	1.17	M1033CT-ND	6.10	451.40	762.50	M1033TR-ND	762.73	1346.51	PM105S-470M
56	20	2.5MHz	0.19	1.07	M1034CT-ND	6.10	451.40	762.50	M1034TR-ND	762.73	1346.51	PM105S-560M
68	20	2.5MHz	0.22	0.97	M1035CT-ND	6.10	451.40	762.50	M1035TR-ND	762.73	1346.51	PM105S-680M
82	20	2.5MHz	0.28	0.88	M1036CT-ND	6.10	451.40	762.50	M1036TR-ND	762.73	1346.51	PM105S-820M
100	20	1kHz	0.35	0.80	M1037CT-ND	6.10	451.40	762.50	M1037TR-ND	762.73	1346.51	PM105S-101M
120	20	1kHz	0.38	0.73	M1038CT-ND	6.10	451.40	762.50	M1038TR-ND	762.73	1346.51	PM105S-121M
150	20	1kHz	0.45	0.65	M1039CT-ND	6.10	451.40	762.50	M1039TR-ND	762.73	1346.51	PM105S-151M
180	20	1kHz	0.62	0.60	M1040CT-ND	6.10	451.40	762.50	M1040TR-ND	762.73	1346.51	PM105S-181M
220	20	1kHz	0.69	0.54	M1041CT-ND	6.10	451.40	762.50	M1041TR-ND	762.73	1346.51	PM105S-221M
270	20	1kHz	.78	0.49	M1042CT-ND	6.10	451.40	762.50	M1042TR-ND	762.73	1346.51	PM105S-271M
330	20	1kHz	1.03	0.44	M1043CT-ND	6.10	451.40	762.50	M1043TR-ND	762.73	1346.51	PM105S-331M
390	20	1kHz	1.18	0.41	M1044CT-ND	6.10	451.40	762.50	M1044TR-ND	762.73	1346.51	PM105S-391M
470	20	1kHz	1.60	0.37	M1045CT-ND	6.10	451.40	762.50	M1045TR-ND	762.73	1346.51	PM105S-471M

Epoxy Conformal Coated Inductors

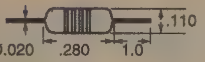
Form Length: .300
Lead Length: 2.62

Form Diameter: .120
Leads: .0215ф

L± 10% µH	Q Min.	Test Freq. MHz	I, dc Max. mA	Digi-Key Part No.	Pricing 1	100	250	Miller Part No.
Core								
.10	40	25.0	1100	M8001-ND	.89	65.00	122.50	8230-94
.12	40	25.0	1100	M8002-ND	.89	65.00	122.50	8230-96
.15	38	25.0	1100	M8003-ND	.89	65.00	122.50	8230-00
.18	35	25.0	1010	M8004-ND	.89	65.00	122.50	8230-02
.22	33	25.0	935	M8005-ND	.89	65.00	122.50	8230-04
.27	33	25.0	875	M8006-ND	.89	65.00	122.50	8230-06
.33	30	25.0	780	M8007-ND	.89	65.00	122.50	8230-08
.39	30	25.0	640	M8008-ND	.89	65.00	122.50	8230-10
.47	30	25.0	590	M8009-ND	.89	65.00	122.50	8230-12
.56	30	25.0	495	M8010-ND	.89	65.00	122.50	8230-14
.68	28	25.0	450	M8011-ND	.89	65.00	122.50	8230-16
.82	28	25.0	380	M8012-ND	.89	65.00	122.50	8230-18
1.00	25	25.0	350	M8013-ND	.89	65.00	122.50	8230-20
Iron Core								
1.20	25	7.9	825	M8014-ND	1.13	83.00	155.00	8230-22
1.50	28	7.9	745	M8015-ND	1.13	83.00	155.00	8230-24
1.80	30	7.9	640	M8016-ND	1.13	83.00	155.00	8230-26
2.20	30	7.9	550	M8017-ND	1.13	83.00	155.00	8230-28
2.70	37	7.9	495	M8018-ND	1.13	83.00	155.00	8230-30
3.30	45	7.9	380	M8019-ND	1.13	83.00	155.00	8230-32
3.90	45	7.9	350	M8020-ND	1.13	83.00	155.00	8230-34
4.70	45	7.9	320	M8021-ND	1.13	83.00	155.00	8230-36
5.60	50	7.9	260	M8022-ND	1.44	106.00	197.50	8230-38
6.80	50	7.9	245	M8023-ND	1.44	106.00	197.50	8230-40
8.20	55	7.9	210	M8024-ND	1.44	106.00	197.50	8230-42
10.00	55	7.9	180	M8025-ND	1.44	106.00	197.50	8230-44
12.00	45	2.5	210	M8026-ND	1.52	111.00	207.50	8230-46
15.00	45	2.5	205	M8027-ND	1.52	111.00	207.50	8230-48
18.00	50	2.5	195	M8028-ND	1.52	111.00	207.50	8230-50
22.00	50	2.5	190	M8029-ND	1.52	111.00	207.50	8230-52
27.00	50	2.5	185	M8030-ND	1.52	111.00	207.50	8230-54
Ferrite Core								
33.00	45	2.5	187	M8031-ND	1.59	117.00	220.00	8230-56
39.00	45	2.5	180	M8032-ND	1.59	117.00	220.00	8230-58
47.00	45	2.5	165	M8033-ND	1.59	117.00	220.00	8230-60
56.00	45	2.5	145	M8034-ND	1.59	117.00	220.00	8230-62
68.00	50	2.5	135	M8035-ND	1.59	117.00	220.00	8230-64
82.00	50	2.5	130	M8036-ND	1.59	117.00	220.00	8230-66
100.00	50	2.5	125	M8037-ND	1.59	117.00	220.00	8230-68
120.00	30	.79	97	M8038-ND	1.65	121.00	227.50	8230-70
150.00	30	.79	85	M8039-ND	1.65	121.00	227.50	8230-72
180.00	30	.79	79	M8040-ND	1.65	121.00	227.50	8230-74
220.00	30	.79	73	M8041-ND	1.65	121.00	227.50	8230-76
270.00	30	.79	65	M8042-ND	1.65	121.00	227.50	8230-78
330.00	30	.79	62	M8043-ND	1.65	121.00	227.50	8230-80
390.00	30	.79	55	M8044-ND	1.65	121.00	227.50	8230-82
470.00	30	.79	50	M8045-ND	1.74	127.00	240.00	8230-84
560.00	30	.79	48	M8046-ND	1.74	127.00	240.00	8230-86
680.00	30	.79	42	M8047-ND	1.74	127.00	240.00	8230-88
820.00	30	.79	40	M8048-ND	1.74	127.00	240.00	8230-90
1,000.00	30	.79	38	M8049-ND	1.74	127.00	240.00	8230-92

J.W.Miller
MAGNETICS

High Quality Epoxy Conformal Coated Inductors



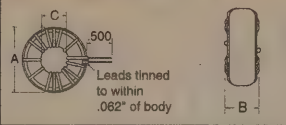
Operating Temp.: -20°C to +105C
Working Volt.: 250 VDC max
Mat'l: coating-epoxy leads-tinned copper; Core Material: Ferrite.

L± 20% µH	Q Min.	Test Freq. MHz	I, dc Max. mA	Digi-Key Part No.	Pricing 1	100	250	Miller Part No.
.10	40	25.0	500	M7801-ND	.55	40.00	75.00	78FR10M
.12	40	25.0	500	M7802-ND	.55	40.00	75.00	78FR12M
.15	40	25.0	500	M7803-ND	.55	40.00	75.00	78FR15M
.18	40	25.0	450	M7804-ND	.55	40.00	75.00	78FR18M
.22*	40	25.0	1025	M7805-ND	.55	40.00	75.00	78FR22K
.27*	40	25.0	950	M7806-ND	.55	40.00	75.00	78FR27K
.33*	40	25.0	815	M7807-ND	.55	40.00	75.00	78FR33K
.39*	40	25.0	700	M7808-ND	.55	40.00	75.00	78FR39K
.47*	40	25.0	650	M7809-ND	.55	40.00	75.00	78FR47K
.56*	40	25.0	545	M7810-ND	.55	40.00	75.00	78FR56K
.68*	40	25.0	495	M7811-ND	.55	40.00	75.00	78FR68K
.82*	40	25.0	415	M7812-ND	.55	40.00	75.00	78FR82K
1.0*	40	25.0	385	M7813-ND	.55	40.00	75.00	78F1R0K
1.2*	40	7.9	590	M7814-ND	.55	40.00	75.00	78F1R2K
1.5*	45	7.9	535	M7815-ND	.55	40.00	75.00	78F1R5K
1.8*	50	7.9	455	M7816-ND	.55	40.00	75.00	78F1R8K
2.2*	50	7.9	395	M7817-ND	.55	40.00	75.00	78F2R2K
2.7*	50	7.9	355	M7818-ND	.55	40.00	75.00	78F2R7K
3.3†	50	7.9	270	M7819-ND	.55	40.00	75.00	78F3R3J
3.9†	45	7.9	250	M7820-ND	.55	40.00	75.00	78F3R9J
4.7†	45	7.9	230	M7821-ND	.55	40.00	75.00	78F4R7J
5.6†	45	7.9	185	M7822-ND	.55	40.00	75.00	78F5R6J
6.8†	40	7.9	175	M7823-ND	.55	40.00	75.00	78F6R8J
8.2†	40	7.9	155	M7824-ND	.55	40.00	75.00	78F8R2J
10†	40	2.5	130	M7825-ND	.55	40.00	75.00	78F100J
12†	45	2.5	155	M7826-ND	.55	40.00	75.00	78F120J
15†	50	2.5	150	M7827-ND	.55	40.00	75.00	78F150J
18†	50	2.5	145	M7828-ND	.55	40.00	75.00	78F180J
22†	50	2.5	140	M7829-ND	.55	40.00	75.00	78F220J
27†	50	2.5	135	M7830-ND	.55	40.00	75.00	78F270J
33†	50	2.5	193	M7831-ND	.55	40.00	75.00	78F330J
39†	50	2.5	185	M7832-ND	.55	40.00	75.00	78F390J
47†	60	2.5	167	M7833-ND	.55	40.00	75.00	78F470J
56†	60	2.5	150	M7834-ND	.55	40.00	75.00	78F560J
68†	60	2.5	137	M7835-ND	.55	40.00	75.00	78F680J
82†	60	2.5	132	M7836-ND	.55	40.00	75.00	78F820J
100†	60	2.5	125	M7837-ND	.55	40.00	75.00	78F101J
120†	60	0.79	100	M7838-ND	.55	40.00	75.00	78F121J
150†	60	0.79	90	M7839-ND	.55	40.00	75.00	78F151J
180†	60	0.79	84	M7840-ND	.55	40.00	75.00	78F181J
220†	60	0.79	76	M7841-ND	.55	40.00	75.00	78F221J
270†	60	0.79	70	M7842-ND	.55	40.00	75.00	78F271J
330†	60	0.79	65	M7843-ND	.55	40.00	75.00	78F331J
390†	60	0.79	60	M7844-ND	.55	40.00	75.00	78F391J
470†	60	0.79	53	M7845-ND	.55	40.00	75.00	78F471J
560†	60	0.79	51	M7846-ND	.55	40.00	75.00	78F561J
680†	60	0.79	45	M7847-ND	.55	40.00	75.00	78F681J
820†	60	0.79	43	M7848-ND	.55	40.00	75.00	78F821J
1000†	60	0.79	41	M7849-ND	.55	40.00	75.00	78F102J

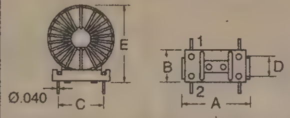
* Rated at L ± 10% µH. † Rated at L ± 5% µH.

High Current Toroid Inductors *NEW!*

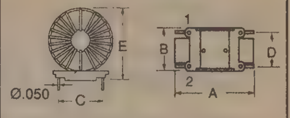
5700 Series



6701 - 6705 & 6726 - 6731 Series



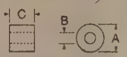
6706- 6725 Series



L (µH) ±15%	I,dc Max. Amps	R,dc Max. Ohms	Dimensions A Max.	B Max.	C Min.	Lead Dia. Nom.	Digi-Key Part No.	Price Each 1	100	250	Miller Part No.
5700 Series											
10	11.00	.008	.875	.437	.187	.064	M5701-ND	7.75	5.70	4.28	5701
25	5.50	.014	.875	.437	.187	.040	M5702-ND	7.75	5.70	4.28	5702
125	2.75	.12	.875	.437	.187	.020	M5703-ND	7.75	5.70	4.28	5703
275	2.00	.24	.875	.437	.187	.016	M5704-ND	7.75	5.70	4.28	5704
450	1.50	.49	.875	.437	.187	.012	M5705-ND	7.75	5.70	4.28	5705
25	9.00	.012	1.125	.562	.312	.064	M5706-ND	8.36	6.15	4.61	5706
75	5.00	.04	1.125	.562	.312	.036	M5707-ND	8.36	6.15	4.61	5707
400	2.25	.33	1.125	.562	.312	.018	M5708-ND	8.36	6.15	4.61	5708
800	1.75	.64	1.125	.562	.312	.015	M5709-ND	8.36	6.15	4.61	5709
1000	1.50	.98	1.125	.562	.312	.012	M5710-ND	8.36	6.15	4.61	5710
50	9.50	.012	1.250	.625	.375	.064	M5711-ND	9.54	7.02	5.26	5711
150	4.75	.046	1.250	.625	.375	.036	M5712-ND	9.54	7.02	5.26	5712
700	2.25	.42	1.250	.625	.375	.018	M5713-ND	9.54	7.02	5.26	5713
1250	1.75	.85	1.250	.625	.375	.015	M5714-ND	9.54	7.02	5.26	5714
1600	1.50	1.27	1.250	.625	.375	.012	M5715-ND	9.54	7.02	5.26	5715
125	7.75	.032	1.812	.750	.750	.064	M5716-ND	11.93	8.78	6.58	5716
500	4.00	.15	1.812	.750	.750	.032	M5717-ND	11.93	8.78	6.58	5717
1100	2.50	.33	1.812	.750	.750	.025	M5718-ND	11.93	8.78	6.58	5718
2250	1.75	.92	1.812	.750	.750	.018	M5719-ND	11.93	8.78	6.58	5719
4500	1.25	2.64	1.812	.750	.750	.012	M5720-ND	11.93	8.78	6.58	5720
250	8.00	.041	2.125	.937	.625	.062	M5721-ND	16.73	12.30	9.22	5721
900	3.75	.175	2.125	.937	.625	.032	M5722-ND	16.73	12.30	9.22	5722
1800	2.50	.55	2.125	.937	.625	.023	M5723-ND	16.73	12.30	9.22	5723
4000	1.75	1.16	2.125	.937	.625	.018	M5724-ND	17.90	13.17	9.87	5724
8000	1.00	3.34	2.125	.937	.625	.012	M5725-ND	17.90	13.17	9.87	5725
25	2.50	.040	.550	.220	.150	.020	M5726-ND	7.75	5.70	4.28	5726
35	2.50	.035	.700	.320	.150	.025	M5727-ND	7.75	5.70	4.28	5727
50	2.50	.060	.750	.320	.150	.020	M5728-ND	7 75	5.70	4.28	5728
100	2.50	.080	.850	.360	.200	.020	M5729-ND	7.75	5.70	4.28	5729
70	3.00	.050	.850	.360	.200	.025	M5730-ND	7.75	5.70	4.28	5730
40	4.00	.025	.850	.360	200	.032	M5731-ND	7.75	5.70	4.28	5731

L (µH) ±15%	I,dc Max. Amps	R,dc Max. Ohms	Dimensions A Max.	B Max.	C ± .015	D ± .015	E Max.	Digi-Key Part No.	Price Each 1	100	250	Miller Part No.
6700 Series												
10	11.00	.008	.875	.424	.600	.250	1.00	M5732-ND	10.00	7.35	5.51	6701
25	5.50	.014	.875	.425	.600	.250	1.00	M5733-ND	10.00	7.35	5.51	6702
125	2.75	.12	.875	.425	.600	.250	1.00	M5734-ND	10.00	7.35	5.51	6703
275	2.00	.24	.875	.425	.600	.250	1.00	M5735-ND	10.00	7.35	5.51	6704
450	1.50	.49	.875	.425	.600	.250	1.00	M5736-ND	10.81	7.95	5.96	6705
25	9.00	.012	1.125	.600	.800	.400	1.25	M5737-ND	10.81	7.95	5.96	6706
75	5.00	.04	1.125	.600	.800	.400	1.25	M5738-ND	10.81	7.95	5.96	6707
400	2.25	.33	1.125	.600	.800	.400	1.25	M5739-ND	10.81	7.95	5.96	6708
800	1.75	.64	1.125	.600	.800	.400	1.25	M5740-ND	10.81	7.95	5.96	6709
1000	1.50	.98	1.125	.600	.800	.400	1.25	M5741-ND	10.81	7.95	5.96	6710
50	9.50	.012	1.250	.800	.900	.600	1.375	M5742-ND	11.83	8.70	6.52	6711
150	4.75	.046	1.250	.800	.900	.600	1.375	M5743-ND	11.83	8.70	6.52	6712
700	2.25	.42	1.250	.800	.900	.600	1.375	M5744-ND	11.83	8.70	6.52	6713
1250	1.75	.85	1.250	.800	.900	.600	1.375	M5745-ND	11.83	8.70	6.52	6714
1600	1.50	1.27	1.250	.800	.900	.600	1.375	M5746-ND	11.83	8.70	6.52	6715
125	7.75	.032	1.812	.900	1.20	.700	1.95	M5747-ND	13.97	10.28	7.70	6716
500	4.00	.15	1.812	.900	1.20	.700	1.95	M5748-ND	13.97	10.28	7.70	6717
1100	2.50	.33	1.812	.900	1.20	.700	1.95	M5749-ND	13.97	10.28	7.70	6718
2250	1.75	.92	1.812	.900	1.20	.700	1.95	M5750-ND	13.97	10.28	7.70	6719
4500	1.25	2.64	1.812	.900	1.20	.700	1.95	M5751-ND	15.40	11.33	8.49	6720
250	8.00	.041	2.125	1.10	1.50	.900	2.25	M5752-ND	16.47	12.12	9.08	6721
900	3.75	.175	2.125	1.10	1.50	.900	2.25	M5753-ND	19.02	13.99	10.49	6722
1800	2.50	.55	2.125	1.10	1.50	.900	2.25	M5754-ND	19.02	13.99	10.49	6723
4000	1.75	1.16	2.125	1.10	1.50	.900	2.25	M5755-ND	19.02	13.99	10.49	6724
8000	1.00	3.34	2 125	1.10	1.50	.900	2.25	M5756-ND	19.02	13.99	10.49	6725
25	2.50	.040	.550	.425	.600	.250	1.00	M5757-ND	10.91	8.03	6.02	6726
35	2.50	.035	.700	.425	.600	.250	1.00	M5758-ND	10.91	8.03	6.02	6727
50	2.50	.060	.750	.425	.600	.250	1.00	M5759-ND	10.91	8.03	6.02	6728
100	2.50	.080	.850	.425	.600	.250	1.00	M5760-ND	10.91	8.03	6.02	6729
70	3.00	.050	.850	.425	.600	.250	1.00	M5761-ND	10.91	8.03	6.02	6730
40	4.00	.025	.850	.425	.600	.250	1.00	M5762-ND	10.91	8.03	6 02	6731

Ferrite Beads

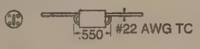


The addition of a Ferrite Bead to a piece of wire causes the impedance of the lead to increase and acts like a small RF choke at high frequencies. It is possible to dissipate high frequency parasitic signals and attenuate undesirable frequencies that travel on DC circuits by the use of beads.

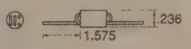
Freq. Range	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	100	250	Miller Part No.
0-40 MHz	.052	.027	.085	M2301-ND	.49	36.00	67.50	FB73-085
40-200 MHz	.13	.047	.226	M2302-ND	.25	18.00	35.00	FB43-226
0-40 MHz	.13	.047	.226	M2303-ND	.36	27.00	50.00	FB73-226
40-200 MHz	.13	.047	.118	M2304-ND	.12	9.00	17.50	FB43-110
200+ MHz	.13	.047	.118	M2305-ND	.25	18.00	35.00	FB64-110
0-40 MHz	.13	.047	.118	M2306-ND	.25	18.00	35.00	FB73-110
40-200MHz	.19	.057	.422	M2307-ND	.36	27.00	50.00	FB43-422
0-40 MHz	.19	.057	.422	M2308-ND	.36	27.00	50.00	FB73-422
40-200 MHz	.291	.089	.287	M2309-ND	.36	27.00	50.00	FB43-287
0-40 MHz	.291	.089	.287	M2310-ND	.49	36.00	67.50	FB73-287

Wide-Band Chokes

A



B



C

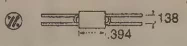


Fig. No.	No. of Turns	Min. Z (Ω)	Freq. (MHz)	Digi-Key Part No.	Pricing 1	100	250	Miller Part No.
A	1 1/2	300	120	M2093-ND	1.37	101.00	190.00	FB20009-3B
A	1 1/2	350	250	M2194-ND	1.25	92.00	172.50	FB20019-4B
B	2 1/2	600	50	M2103-ND	1.25	92.00	172.50	FB20010-3B
B	2 1/2	700	180	M2204-ND	1.25	92.00	172.50	FB20020-4B
C	2 x 1 1/2	700	50	M2113-ND	1.37	101.00	190.00	FB20011-3B
C	2 x 1 1/2	800	110	M2214-ND	1.25	92.00	172.50	FB20021-4B

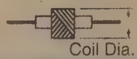
Hash Chokes

Dimensions: Form Length: 1.25; Lead Length: 1.25

L (µH)	R, dc Max. (Ω)	I, dc Max. (A)	Coil Dia. Max.	Digi-Key Part No.	Pricing 1	100	250	Miller Part No.
Ferrite Core								
4	.012	8	.38	M5230-ND	2.39	175.00	327.50	5230
40	.082	3	.31	M5240-ND	2.39	175.00	327.50	5240
68	.054	5	.56	M5248-ND	2.88	211.00	395.00	5248
100	.216	2	.38	M5250-ND	2.88	211.00	395.00	5250
125	.08	3.5	.5	M5252-ND	3.18	233.00	437.50	5252
250	.17	2.5	.44	M5254-ND	3.18	233.00	437.50	5254
500	.26	2	.56	M5256-ND	3.18	233.00	437.50	5256
1000	.55	1	.5	M5258-ND	3.27	240.00	450.00	5258

J.W.Miller
MAGNETICS

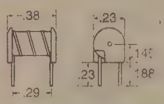
Coiled RF Chokes



L (µH) 5%	Q Min.	Test Freq. (MHz)	I, dc Max. (mA)	Coil Dia.	Digi-Key Part No.	Pricing 1	Pricing 100	Pricing 250	Miller Part No.
Iron Core									
1.0†	41	25	2041	.165	M7010-ND	1.03	75.00	140.00	70F106AI
2.2††	43	7.9	1132	.16	M72R2-ND	1.25	92.00	172.50	70F226AI
3.3††	40	7.9	912	.15	M73R3-ND	1.25	92.00	172.50	70F336AI
4.7††	43	7.9	661	.15	M74R7-ND	1.25	92.00	172.50	70F476AI
6.8††	40	7.9	566	.15	M76R8-ND	1.25	92.00	172.50	70F686AI
10††	36	7.9	277	.16	M7100-ND	1.52	111.00	207.50	70F105AI
22	51	2.5	229	.165	M7220-ND	1.52	111.00	207.50	70F225AI
33	50	2.5	208	.17	M7330-ND	1.52	111.00	207.50	70F335AI
47	44	2.5	188	.175	M7470-ND	1.52	111.00	207.50	70F475AI
68	42	2.5	169	.18	M7680-ND	1.52	111.00	207.50	70F685AI
100	25	2.5	139	.165	M7101-ND	1.65	121.00	227.50	70F104AI
220	46	.79	114	.17	M7221-ND	1.65	121.00	227.50	70F224AI
330	41	.79	103	.175	M7331-ND	1.65	121.00	227.50	70F334AI
470	35	.79	95	.185	M7471-ND	1.65	121.00	227.50	70F474AI
680	37	.79	87	2	M7681-ND	1.74	127.00	240.00	70F684AI
1000	30	.79	79	.225	M7102-ND	1.74	127.00	240.00	70F103AI
2200	40	.25	57	.24	M7222-ND	1.80	132.00	247.50	70F223AI
3300	52	.25	53	.26	M7332-ND	1.80	132.00	247.50	70F333AI
4700	49	.25	48	285	M7472-ND	1.95	143.00	267.50	70F473AI
6800	51	25	43	31	M7682-ND	1.95	143.00	267.50	70F683AI
10,000	41	.25	38	335	M7103-ND	1.85	136.00	255.00	70F102AI
22,000	50	.079	41	.33	M7223-ND	3.26	239.00	450.00	70F222AI
Ferrite Core									
33,000	61	.079	43	.353	M7333-ND	4.51	331.00	620.00	70F332AF
47,000	57	.079	38	.384	M7473-ND	4.51	331.00	620.00	70F472AF
68,000	57	.079	34	415	M7683-ND	4.51	331.00	620.00	70F682AF
100,000	48	.079	29	.446	M7104-ND	3.10	227.00	427.50	70F101AF
220,000	51	.025	39	.54	M7224-ND	3.38	248.00	465.00	70F221AF
330,000	54	.025	34	.58	M7334-ND	3.76	276.00	517.50	70F331AF
470,000	55	.025	30	.615	M7474-ND	3.76	276.00	517.50	70F471AF

† 20%; †† 10% tolerance.

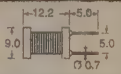
Molded Polypropylene RF Chokes



.148 for inductances .15 µH or less.
.158 for inductances .27 µH or greater.

L (µH)	Q Min.	I, dc Max. (mA)	Digi-Key Part No.	Pricing 1	Pricing 100	Pricing 250	Miller Part No.
Hollow Core							
.032	105	1000	M7501-ND	1.35	99.00	185.00	75F238MPC
.039	95	1000	M7502-ND	1.35	99.00	185.00	75F328MPC
.049	104	1000	M7503-ND	1.35	99.00	185.00	75F518MPC
.108	90	1000	M7504-ND	1.35	99.00	185.00	75F117MPC
.142	90	1000	M7505-ND	1.35	99.00	185.00	75F157MPC
.275	92	500	M7506-ND	1.35	99.00	185.00	75F277MPC
.364	93	500	M7507-ND	1.35	99.00	185.00	75F397MPC
.49	89	500	M7508-ND	1.35	99.00	185.00	75F477MPC
.57	92	500	M7509-ND	1.35	99.00	185.00	75F597MPC

NEW! Radial Lead High Current RF Chokes



L (µH)	Q Min.	Test Freq. (MHz)	I, dc Max. (A)	R,dc Max. Ohms	Digi-Key Part No.	Price Each 1	Price Each 100	Price Each 250	Miller Part No.
1.0†	20	7.96	10	.013	M6001-ND	1.93	1.42	1.07	6000-1R0M
1.5†	20	7.96	8.5	.016	M6002-ND	1.93	1.42	1.07	6000-1R5M
2.2†	20	7.96	6.5	.021	M6003-ND	1.93	1.42	1.07	6000-2R2M
3.3†	20	7.96	5.5	.025	M6004-ND	1.93	1.42	1.07	6000-3R3M
4.7†	20	7.96	4.6	.030	M6005-ND	1.93	1.42	1.07	6000-4R7M
6.8†	20	7.96	4.1	.035	M6006-ND	1.93	1.42	1.07	6000-6R8M
10††	50	2.52	3.4	.045	M6007-ND	1.93	1.42	1.07	6000-100K
12††	50	2.52	3.1	.050	M6008-ND	1.93	1.42	1.07	6000-120K
15††	50	2.52	2.9	.056	M6009-ND	1.93	1.42	1.07	6000-150K
18††	40	2.52	2.66	.061	M6010-ND	1.93	1.42	1.07	6000-180K
22††	40	2.52	2.4	.070	M6011-ND	1.93	1.42	1.07	6000-220K
27††	40	2.52	2.22	.080	M6012-ND	1.93	1.42	1.07	6000-270K
33††	30	2.52	2.05	.090	M6013-ND	1.93	1.42	1.07	6000-330K
39††	30	2.52	1.85	.10	M6014-ND	1.93	1.42	1.07	6000-390K
47††	30	2.52	1.77	16	M6015-ND	1.93	1.42	1.07	6000-470K
56††	30	2.52	1.48	.18	M6016-ND	1.93	1.42	1.07	6000-560K
68††	30	2.52	1.36	.21	M6017-ND	1.93	1.42	1.07	6000-680K
82††	30	2.52	1.3	.23	M6018-ND	1.93	1.42	1.07	6000-820K
100††	20	796	1.4	.28	M6019-ND	1.93	1.42	1.07	6000-101K
120††	20	.796	1.25	.32	M6020-ND	1.93	1.42	1.07	6000-121K
150††	20	.796	1.15	.37	M6021-ND	1.93	1.42	1.07	6000-151K
180††	20	.796	1.08	.58	M6022-ND	1.93	1.42	1.07	6000-181K
220††	20	796	1.0	.65	M6023-ND	1.93	1.42	1.07	6000-221K
270††	20	.796	.90	.75	M6024-ND	1.93	1.42	1.07	6000-271K
330††	20	.796	.78	.85	M6025-ND	1.93	1.42	1.07	6000-331K
390††	20	.796	.74	1.0	M6026-ND	1.93	1.42	1.07	6000-391K
470††	20	.796	.68	1.1	M6027-ND	1.93	1.42	1.07	6000-471K
560††	20	.796	.64	1.4	M6028-ND	1.93	1.42	1.07	6000-561K
680††	20	.796	.59	1.6	M6029-ND	1.93	1.42	1.07	6000-681K
820††	20	796	.56	1.8	M6030-ND	1.93	1.42	1.07	6000-821K
1000††	50	.252	.51	2.9	M6031-ND	1.93	1.42	1.07	6000-102K

Parts finished with VWI Rated Sleeving.
† 20%; †† 10% tolerance

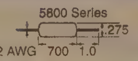
Molded RF Chokes

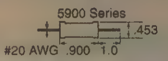
9230 Series Dimensions: Form Length: .25; Form Diameter: .095; Lead Length: 1.5; Leads: 24 AWG. Tolerance: ±10%.

9250 Series Dimensions: Form Length: .41; Form Diameter: .162; Lead Length: 1.438; Leads: 22 AWG. Tolerance: ±10%.

L (µH)	Q Min.	Test Freq. (MHz)	I, dc Max. (mA)	Coil Dia.	Digi-Key Part No.	Pricing 1	Pricing 100	Pricing 250	Miller Part No.
Phenolic Core									
0.1	40	25.0	1100	.095	M9R10-ND	1.06	77.00	145.00	9230-94
0.15	38	25.0	1100	.095	M9R15-ND	1.06	77.00	145.00	9230-00
0.22	33	25.0	935	.095	M9R22-ND	1.06	77.00	145.00	9230-04
0.33	30	25.0	780	.095	M9R33-ND	1.06	77.00	145.00	9230-08
0.39	30	25.0	640	.095	M9R39-ND	1.06	77.00	145.00	9230-10
0.47	30	25.0	590	.095	M9R47-ND	1.06	77.00	145.00	9230-12
0.68	28	25.0	450	.095	M9R68-ND	1.06	77.00	145.00	9230-16
0.82	28	25.0	380	.095	M9R82-ND	1.06	77.00	145.00	9230-18
1.0	25	25.0	350	.095	M9010-ND	1.06	77.00	145.00	9230-20
Iron Core									
2.2	30	7.9	550	.095	M92R2-ND	1.44	106.00	197.50	9230-28
3.3	45	7.9	380	.095	M93R3-ND	1.44	106.00	197.50	9230-32
4.7	45	7.9	320	.095	M94R7-ND	1.44	106.00	197.50	9230-36
6.8	50	7.9	245	095	M96R8-ND	1.62	119.00	222.50	9230-40
10.0	55	7.9	180	.095	M9100-ND	1.62	119.00	222.50	9230-44
22.0	50	2.5	190	.095	M9220-ND	1.65	121.00	227.50	9230-52
Ferrite Core									
33.0	45	2.5	187	095	M9330-ND	1.76	129.00	242.50	9230-56
47.0	45	2.5	165	.095	M9470-ND	1.76	129.00	242.50	9230-60
68.0	50	2.5	135	.095	M9680-ND	1.76	129.00	242.50	9230-64
100.0	50	2.5	125	.095	M9101-ND	1.76	129.00	242.50	9230-68
220.0	30	0.79	73	.095	M9221-ND	1.87	137.00	257.50	9230-76
330.0	30	0.79	62	.095	M9331-ND	1.87	137.00	257.50	9230-80
470.0	30	0.79	50	.095	M9471-ND	1.94	142.00	267.50	9230-84
680.0	30	0.79	42	.095	M9681-ND	1.94	142.00	267.50	9230-88
1000.0	30	0.79	38	.095	M9102-ND	1.94	142.00	267.50	9230-92
Phenolic Core (Shielded)									
0.1	50	25.0	1790	.162	M9201-ND	2.76	203.00	380.00	9250-101
0.12	51	25.0	1530	.162	M9202-ND	2.76	203.00	380.00	9250-121
0.15	51	25.0	1470	.162	M9203-ND	2.76	203.00	380.00	9250-151
0.18	50	25.0	1300	.162	M9204-ND	2.76	203.00	380.00	9250-181
0.22	49	25.0	1100	.162	M9205-ND	2.76	203.00	380.00	9250-221
0.27	47	25.0	855	.162	M9206-ND	2.76	203.00	380.00	9250-271
0.33	46	25.0	780	.162	M9207-ND	2.76	203.00	380.00	9250-331
0.39	44	25.0	670	.162	M9208-ND	2.76	203.00	380.00	9250-391
0.47	44	25.0	565	.162	M9209-ND	2.76	203.00	380.00	9250-471
0.56	43	25.0	490	.162	M9210-ND	2.76	203.00	380.00	9250-561
0.68	42	25.0	420	.162	M9211-ND	2.76	203.00	380.00	9250-681
0.82	40	25.0	370	.162	M9212-ND	2.76	203.00	380.00	9250-821
Iron Core (Shielded)									
1.0	44	25.0	1070	.162	M9213-ND	2.89	212.00	397.50	9250-102
1.2	44	7.9	895	.162	M9214-ND	2.89	212.00	397.50	9250-122
1.5	44	7.9	815	.162	M9215-ND	2.89	212.00	397.50	9250-152
1.8	44	7.9	775	.162	M9216-ND	2.89	212.00	397.50	9250-182
2.2	44	7.9	650	.162	M9217-ND	2.89	212.00	397.50	9250-222
2.7	44	7.9	535	.162	M9218-ND	2.89	212.00	397.50	9250-272
3.3	44	7.9	480	.162	M9219-ND	2.89	212.00	397.50	9250-332
3.9	44	7.9	450	.162	M9222-ND	2.89	212.00	397.50	9250-392
4.7	44	7.9	380	.162	M9223-ND	2.89	212.00	397.50	9250-472
5.6	44	7.9	335	.162	M9224-ND	2.89	212.00	397.50	9250-562
6.8	50	7.9	280	.162	M9225-ND	2.89	212.00	397.50	9250-682
8.2	50	7.9	250	.162	M9226-ND	2.89	212.00	397.50	9250-822
10.0	50	7.9	220	.162	M9227-ND	2.89	212.00	397.50	9250-103
12.0	55	2.5	200	.162	M9228-ND	2.89	212.00	397.50	9250-123
Ferrite Core (Shielded)									
15.0	45	2.5	315	.162	M9229-ND	2.89	212.00	397.50	9250-153
18.0	45	2.5	300	.162	M9230-ND	2.89	212.00	397.50	9250-183
22.0	45	2.5	290	.162	M9231-ND	2.89	212.00	397.50	9250-223
27.0	45	2.5	260	.162	M9232-ND	3.18	233.00	437.50	9250-273
33.0	45	2.5	240	.162	M9233-ND	3.18	233.00	437.50	9250-333
39.0	50	2.5	205	.162	M9234-ND	3.18	233.00	437.50	9250-393
47.0	50	2.5	195	.162	M9235-ND	3.18	233.00	437.50	9250-473
56.0	50	2.5	190	.162	M9236-ND	3.18	233.00	437.50	9250-563
68.0	50	2.5	170	.162	M9237-ND	3.18	233.00	437.50	9250-683
82.0	50	2.5	180	.162	M9238-ND	3.48	255.00	477.50	9250-823
100	50	2.5	160	.162	M9239-ND	3.48	255.00	477.50	9250-104
120	55	.79	150	.162	M9240-ND	3.48	255.00	477.50	9250-124
150	55	.79	140	.162	M9241-ND	3.48	255.00	477.50	9250-154
180	55	.79	135	.162	M9242-ND	3.48	255.00	477.50	9250-184
220	55	.79	125	.162	M9243-ND	3.48	255.00	477.50	9250-224
270	55	.79	115	.162	M9244-ND	3.48	255.00	477.50	9250-274
330	55	.79	110	.162	M9245-ND	3.48	255.00	477.50	9250-334
390	60	.79	105	.162	M9246-ND	3.48	255.00	477.50	9250-394
470	60	.79	92	.162	M9247-ND	3.48	255.00	477.50	9250-474
560	60	.79	90	.162	M9248-ND	3.48	255.00	477.50	9250-564
680	60	.79	80	.162	M9249-ND	3.48	255.00	477.50	9250-684
820	60	.79	80	.162	M9250-ND	3.48	255.00	477.50	9250-824
1,000	60	.79	70	.162	M9251-ND	3.48	255.00	477.50	9250-105
1,200	45	.25	60	.162	M9252-ND	3.98	292.00	547.50	9250-125
1,500	45	.25	55	.162	M9253-ND	3.98	292.00	547.50	9250-155
1,800	45	.25	50	.162	M9254-ND	3.98	292.00	547.50	9250-185
2,200	45	.25	50	.162	M9255-ND	3.98	292.00	547.50	9250-225
2,700	45	.25	40	.162	M9256-ND	3.98	292.00	547.50	9250-275
3,300	45	.25	40	.162	M9257-ND	3.98	292.00	547.50	9250-335
3,900	45	.25	35	.162	M9258-ND	3.98	292.00	547.50	9250-395
4,700	45	.25	31	.162	M9259-ND	4.29	315.00	590.00	9250-475
5,600	44	.25	28	.162	M9260-ND	4.29	315.00	590.00	9250-565
6,800	40	.25	27	.162	M9261-ND	4.29	315.00	590.00	9250-685
8,200	40	.25	26	.162	M9262-ND	4.29	315.00	590.00	9250-825
10,000	40	.25	24	.162	M9263-ND	4.29	315.00	590.00	9250-106
12,000	30	.079	23	.162	M9264-ND	4.76	349.00	655.00	9250-126
15,000	30	079	22	.162	M9265-ND	4.76	349.00	655.00	9250-156
18,000	30	.079	21	162	M9266-ND	4.76	349.00	655.00	9250-186
22,000	27	.079	17	.162	M9267-ND	4.76	349.00	655.00	9250-226
27,000	27	.079	16	.162	M9268-ND	4.76	349.00	655.00	9250-276
33,000	27	.079	15	.162	M9269-ND	4.76	349.00	655.00	9250-336
39,000	27	.079	15	.162	M9270-ND	4.76	349.00	655.00	9250-396
47,000	23	.079	13	.162	M9271-ND	4.76	349.00	655.00	9250-476
56,000	23	.079	13	.162	M9272-ND	4.76	349.00	655.00	9250-566
68,000	23	.079	12	.162	M9273-ND	5.64	413.00	775.00	9250-686
82,000	21	.079	11	.162	M9274-ND	5.64	413.00	775.00	9250-826
100,000	18	.079	11	.162	M9275-ND	5.64	413.00	775.00	9250-107

Filter and Miniature High Current Chokes





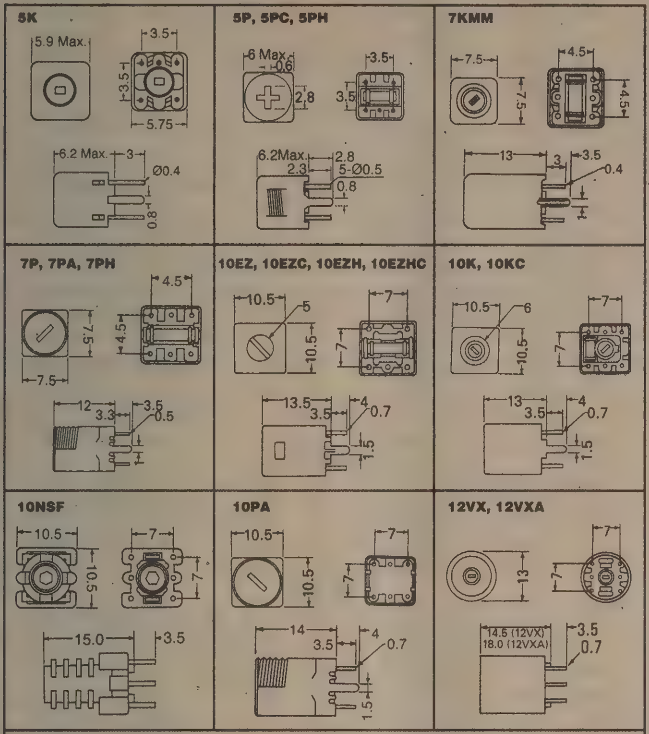
Inductance ± 15% @ 1 KHz. Coils finished with sleeving VW1 Rated. Leads No. 20 tinned copper 1" long min. Ambient Temp.: -55°C to +125°C.

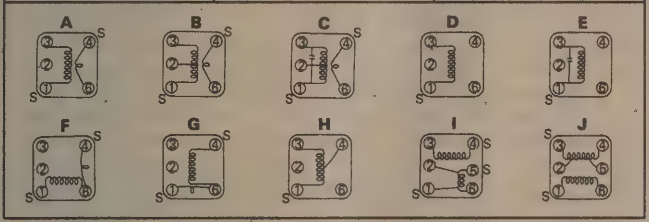
L (µH) @ 0 DC	Max. DCR Ω @ +20°C	Rated Current Amp	Digi-Key Part No.	Pricing 1	Pricing 100	Pricing 250	Miller Part No.
5800 Series							
3.9	.019	1.28	M5801-ND	1.88	138.00	257.50	5800-3R9
4.7	.022	1.28	M5802-ND	1.88	138.00	257.50	5800-4R7
5.6	.024	1.28	M5803-ND	1.88	138.00	257.50	5800-5R6
6.8	.026	1.28	M5804-ND	1.88	138.00	257.50	5800-6R8
8.2	.028	1.28	M5805-ND	1.88	138.00	257.50	5800-8R2
10	.033	1.28	M5806-ND	1.88	138.00	257.50	5800-100
12	.037	1.28	M5807-ND	1.88	138.00	257.50	5800-120
15	.040	1.28	M5808-ND	1.88	138.00	257.50	5800-150
18	.044	1.28	M5809-ND	1.88	138.00	257.50	5800-180
22	.050	1.28	M5810-ND	1.88	138.00	257.50	5800-220
27	.058	1.28	M5811-ND	1.88	138.00	257.50	5800-270
33	.075	1.008	M5812-ND	1.88	138.00	257.50	5800-330
39	.094	0.804	M5813-ND	1.88	138.00	257.50	5800-390
47	.109	0.804	M5814-ND	1.88	138.00	257.50	5800-470
56	.140	0.804	M5815-ND	1.88	138.00	257.50	5800-560
68	.145	0.804	M5816-ND	1.88	138.00	257.50	5800-680
82	.152	0.804	M5817-ND	1.88	138.00	257.50	5800-820
100	.208	0.632	M5818-ND	1.88	138.00	257.50	5800-101
120	.283	0.508	M5819-ND	1.88	138.00	257.50	5800-121
150	.340	0.508	M5820-ND	1.88	138.00	257.50	5800-151
180	.362	0.508	M5821-ND	1.88	138.00	257.50	5800-181
220	.430	0.508	M5822-ND	1.88	138.00	257.50	5800-221
270	.557	0.400	M5823-ND	1.88	138.00	257.50	5800-271
330	665	0.400	M5824-ND	1.88	138.00	257.50	5800-331
390	.772	0.400	M5825-ND	1.88	138.00	257.50	5800-391
470	1.15	0.315	M5826-ND	1.88	138.00	257.50	5800-471
560	1.27	0.315	M5827-ND	1.88	138.00	257.50	5800-561
680	1.61	0.250	M5828-ND	1.88	138.00	257.50	5800-681
820	1.96	0.200	M5829-ND	1.88	138.00	257.50	5800-821
1000	2.30	0.200	M5830-ND	1.88	138.00	257.50	5800-102
1200	2.65	0.200	M5831-ND	1.88	138.00	257.50	5800-122
1500	3.45	0.158	M5832-ND	1.88	138.00	257.50	5800-152
1800	4.03	0.158	M5833-ND	1.88	138.00	257.50	5800-182
2200	4.48	0.158	M5834-ND	1.88	138.00	257.50	5800-222
2700	5.90	0.125	M5835-ND	1.88	138.00	257.50	5800-272
3300	6.56	0.125	M5836-ND	1.88	138.00	257.50	5800-332
3900	8.63	0.100	M5837-ND	1.88	138.00	257.50	5800-392
4700	10.5	0.100	M5838-ND	1.88	138.00	257.50	5800-472
5600	13.9	0.082	M5839-ND	1.88	138.00	257.50	5800-562
6800	16.3	0.082	M5840-ND	1.88	138.00	257.50	5800-682
8200	20.8	0.065	M5841-ND	1.88	138.00	257.50	5800-822
10000	26.4	0.050	M5842-ND	1.88	138.00	257.50	5800-103
12000	29.9	0.050	M5843-ND	1.88	138.00	257.50	5800-123
15000	42.5	0.039	M5844-ND	1.88	138.00	257.50	5800-153
18000	48.3	0.039	M5845-ND	1.88	138.00	257.50	5800-183
5900 Series							
3.9	.007	4.0	M5901-ND	3.82	280.00	525.00	5900-3R9
4.7	.008	4.0	M5902-ND	3.82	280.00	525.00	5900-4R7
5.6	011	4.0	M5903-ND	3.82	280.00	525.00	5900-5R6
6.8	.011	4.0	M5904-ND	3.82	280.00	525.00	5900-6R8
8.2	.013	4.0	M5905-ND	3.82	280.00	525.00	5900-8R2
10	017	4.0	M5906-ND	3.82	280.00	525.00	5900-100
12	.019	4.0	M5907-ND	3.82	280.00	525.00	5900-120
15	022	4.0	M5908-ND	3.82	280.00	525.00	5900-150
18	.023	4.0	M5909-ND	3.82	280.00	525.00	5900-180
22	.026	4.0	M5910-ND	3.82	280.00	525.00	5900-220
27	.027	4.0	M5911-ND	3.82	280.00	525.00	5900-270
33	.032	4.0	M5912-ND	3.82	280.00	525.00	5900-330
39	.033	4.0	M5913-ND	3.82	280.00	525.00	5900-390
47	.035	4.0	M5914-ND	3.82	280.00	525.00	5900-470
56	.037	3.2	M5915-ND	3.82	280.00	525.00	5900-560
68	.047	2.5	M5916-ND	3.82	280.00	525.00	5900-680
82	.060	2.0	M5917-ND	3.82	280.00	525.00	5900-820
100	.090	1.6	M5918-ND	3.82	280.00	525.00	5900-101
120	.113	1.6	M5919-ND	3.82	280.00	525.00	5900-121
150	.129	1.6	M5920-ND	3.82	280.00	525.00	5900-151
180	.150	1.6	M5921-ND	3.82	280.00	525.00	5900-181
220	162	1.6	M5922-ND	3.82	280.00	525.00	5900-221
270	.208	1.6	M5923-ND	3.82	280.00	525.00	5900-271
330	.212	1.6	M5924-ND	3.82	280.00	525.00	5900-331
390	281	1.6	M5925-ND	3.82	280.00	525.00	5900-391
470	380	1.2	M5926-ND	3.82	280.00	525.00	5900-471
560	.420	1.0	M5927-ND	3.82	280.00	525.00	5900-561
680	.548	1.0	M5928-ND	3.82	280.00	525.00	5900-681
820	.655	0.8	M5929-ND	3.82	280.00	525.00	5900-821
1000	.844	0.8	M5930-ND	3.82	280.00	525.00	5900-102
1200	1.04	0.6	M5931-ND	3.82	280.00	525.00	5900-122
1500	1.18	0.6	M5932-ND	3.82	280.00	525.00	5900-152
1800	1.56	0.6	M5933-ND	3.82	280.00	525.00	5900-182
2200	2.00	0.5	M5934-ND	3.82	280.00	525.00	5900-222
2700	2.06	0.4	M5935-ND	3.82	280.00	525.00	5900-272
3300	2.53	0.4	M5936-ND	3.82	280.00	525.00	5900-332
3900	2.75	0.4	M5937-ND	3.82	280.00	525.00	5900-392
4700	3.19	0.4	M5938-ND	3.82	280.00	525.00	5900-472
5600	3.92	0.315	M5939-ND	3.82	280.00	525.00	5900-562
6800	5.69	0.250	M5940-ND	3.82	280.00	525.00	5900-682
8200	6.32	0.250	M5941-ND	3.82	280.00	525.00	5900-822
10000	7.30	0.250	M5942-ND	5.88	431.00	807.50	5900-103
12000	9.21	0.200	M5943-ND	5.88	431.00	807.50	5900-123
15000	10.5	0.200	M5944-ND	5.88	431.00	807.50	5900-153
18000	14.8	0.158	M5945-ND	5.88	431.00	807.50	5900-183
22000	21.8	0.125	M5946-ND	5.88	431.00	807.50	5900-223
27000	22.7	0.125	M5947-ND	5.88	431.00	807.50	5900-273
33000	25.7	0.125	M5948-ND	5.88	431.00	807.50	5900-333
39000	31.8	0.100	M5949-ND	5.88	431.00	807.50	5900-393
47000	36.1	0.100	M5950-ND	5.88	431.00	807.50	5900-473
56000	40.9	0.100	M5951-ND	5.88	431.00	807.50	5900-563
68000	57.3	0.082	M5952-ND	5.88	431.00	807.50	5900-683
82000	79.3	0.065	M5953-ND	5.88	431.00	807.50	5900-823
100000	89.7	0.065	M5954-ND	5.88	431.00	807.50	5900-104

TOKO
TOKO AMERICA, INC.

Coils

9139B-ND	Toko Coils & Filter Book	$9.95
9140B-ND	Toko Power Supplies and DC-DC Converter Book	$9.95





TK9001-ND	Plastic Tuning Tool (10NSF)	1.01
TK9002-ND	Plastic Tuning Tool (7P, 7PA, 7PH, 10EZ, 10EZC, 10EZH, 10EZHC, 10PA)	2.52
TK9003-ND	Plastic Tuning Tool (7KMM, 10K, 10KC, 12VX, 12VXA)	.76
TK9990-ND	***NEW!*** Ceramic Tuning Driver (5K) (Requires Holder TK9999-ND, below)	41.66
TK9991-ND	***NEW!*** Ceramic Tuning Driver (7KMM, 10K, 10KC, 12VX, 12VXA) Requires Holder TK9999-ND, below)	23.71
TK9993-ND	***NEW!*** Ceramic Tuning Driver (7P, 7PA, 7PH, 10EZ, 10EZC, 10EZH, 10EZHC, 10PA) (Requires Holder TK9999-ND, below)	31.84
TK9998-ND	***NEW!*** Ceramic Tuning Driver (5P, 5PC, 5PH) (Requires Holder TK9999-ND, below)	54.46
TK9999-ND	***NEW!*** Ceramic Driver Holder	4.93

Diagram	L Nom.	Freq.	Q.	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Toko Part No.
				5K Type						
D	.08µH	75.0MHz	45	TK5001-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1008Z
D	.10µH	75.0MHz	45	TK5002-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1009Z
D	.15µH	75.0MHz	45	TK5003-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1010Z
D	.22µH	45.0MHz	45	TK5004-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1011Z
D	.33µH	45.0MHz	45	TK5005-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1012Z
D	.47µH	45.0MHz	45	TK5006-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1013Z
D	.68µH	45.0MHz	45	TK5007-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1014Z
D	1.00µH	30.0MHz	45	TK5008-ND*	4.30	39.44	322.65	967.95	1291.00	294SN-T1015Z
				5P Type						
D	33µH	2.52MHz	40	TK5110-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1005Z
D	39µH	2.52MHz	40	TK5111-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1006Z
D	47µH	2.52MHz	40	TK5112-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1007Z
D	56µH	2.52MHz	40	TK5113-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1008Z
D	68µH	2.52MHz	40	TK5114-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1009Z
D	82µH	2.52MHz	40	TK5115-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1010Z
D	100µH	.796MHz	40	TK5116-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1011Z
D	120µH	.796MHz	40	TK5117-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1012Z
D	150µH	.796MHz	40	TK5118-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1013Z
D	180µH	.796MHz	40	TK5119-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1014Z
D	220µH	.796MHz	40	TK5120-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1015Z
D	270µH	.796MHz	40	TK5121-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1016Z
D	330µH	.796MHz	40	TK5122-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1017Z
D	390µH	.796MHz	40	TK5123-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1018Z
D	470µH	.796MHz	40	TK5124-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1019Z
D	560µH	.796MHz	40	TK5125-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1020Z
D	680µH	.796MHz	40	TK5126-ND*	3.14	28.82	235.80	707.40	943.00	5PNR-T1021Z
				5PC Type						
E	680µH	455KHz	50	TK5128-ND	4.30	39.44	322.65	967.95	1291.00	5PLC-1521Z
E	680µH	455KHz	85	TK5129-ND	4.30	39.44	322.65	967.95	1291.00	5PLC-1055Z
				5PH Type						
D	1.0µH	7.96MHz	55	TK5130-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1012Z
D	1.2µH	7.96MHz	55	TK5131-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1013Z
D	1.5µH	7.96MHz	55	TK5132-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1014Z
D	1.8µH	7.96MHz	55	TK5133-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1015Z
D	2.2µH	7.96MHz	55	TK5134-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1016Z
D	2.7µH	7.96MHz	55	TK5135-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1017Z
D	3.3µH	7.96MHz	55	TK5136-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1018Z
D	3.9µH	7.96MHz	55	TK5137-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1019Z
D	4.7µH	7.96MHz	55	TK5138-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1020Z
D	5.6µH	7.96MHz	55	TK5139-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1021Z
D	6.8µH	7.96MHz	55	TK5140-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1022Z
D	8.2µH	7.96MHz	55	TK5141-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1023Z
D	10.0µH	2.52MHz	55	TK5142-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1024Z
D	12.0µH	2.52MHz	55	TK5143-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1025Z
D	15.0µH	2.52MHz	55	TK5144-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1026Z
D	18.0µH	2.52MHz	55	TK5145-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1027Z
D	22.0µH	2.52MHz	55	TK5146-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1028Z
D	27.0µH	2.52MHz	55	TK5147-ND*	3.29	30.20	247.05	741.15	988.00	332PN-T1029Z
***TK4-KIT-ND**	5mm Standard Coil Kit (2 each of values denoted above)									**$108.00**
				7KMM Type						
D	0.1µH	50.0MHz	35	TK3101-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1028Z
D	0.15µH	50.0MHz	35	TK3102-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1030Z
D	0.22µH	50.0MHz	50	TK3103-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1032Z
D	0.33µH	50.0MHz	50	TK3104-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1034Z
D	0.47µH	50.0MHz	50	TK3105-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1036Z
D	0.68µH	50.0MHz	50	TK3106-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1038Z
D	1.0µH	7.96MHz	40	TK3107-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1040Z
D	1.5µH	7.96MHz	40	TK3108-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1042Z
D	2.2µH	7.96MHz	40	TK3109-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1044Z
D	3.3µH	7.96MHz	40	TK3110-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1046Z
D	4.7µH	7.96MHz	40	TK3111-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1048Z
D	6.8µH	7.96MHz	40	TK3112-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1050Z
D	10.0µH	2.52MHz	35	TK3113-ND	2.74	25.08	205.20	615.60	830.00	F292CNS-T1052Z
D	15.0µH	2.52MHz	35	TK3114-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1054Z
D	6.6µH	4.0MHz	85	TK3115-ND	2.74	25.08	205.20	615.60	830.00	MF292CNS-T1082Z
D	0.12µH	50.0MHz	35	TK3116-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1029Z
D	0.18µH	50.0MHz	35	TK3117-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1031Z
D	0.27µH	50.0MHz	50	TK3118-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1033Z
D	0.39µH	50.0MHz	50	TK3119-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1035Z
D	0.56µH	50.0MHz	50	TK3120-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1037Z
D	0.82µH	50.0MHz	50	TK3121-ND	2.74	25.08	205.20	615.60	830.00	292KNAS-T1039Z
D	1.2µH	7.96MHz	40	TK3122-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1041Z
D	1.8µH	7.96MHz	40	TK3123-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1043Z
D	2.7µH	7.96MHz	40	TK3124-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1045Z
D	3.9µH	7.96MHz	40	TK3125-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1047Z
D	5.6µH	7.96MHz	40	TK3126-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1049Z
D	8.2µH	7.96MHz	40	TK3127-ND	2.74	25.08	205.20	615.60	830.00	292CNS-T1051Z
D	12.0µH	2.52MHz	35	TK3128-ND	2.74	25.08	205.20	615.60	830.00	F292CNS-T1053Z
D	18.0µH	2.52MHz	35	TK3129-ND	2.74	25.08	205.20	615.60	830.00	F292CNS-T1055Z
D	22.0µH	2.52MHz	35	TK3130-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1056Z
D	27.0µH	2.52MHz	35	TK3131-ND	2.74	25.08	205.20	615.60	830.00	F292CNS-T1057Z
D	33.0µH	2.52MHz	35	TK3132-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1058Z
D	39.0µH	2.52MHz	35	TK3133-ND	2.74	25.08	205.20	615.60	830.00	F292CNS-T1059Z
D	47.0µH	2.52MHz	35	TK3134-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1060Z
D	56.0µH	2.52MHz	35	TK3135-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1061Z
D	68.0µH	2.52MHz	35	TK3136-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1062Z
D	82.0µH	2.52MHz	35	TK3137-ND*	2.74	25.08	205.20	615.60	830.00	F292CNS-T1063Z
				7KMM High Frequency Type						
D	0.08µH	80.0MHz	50	TK3138-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1365Z
D	0.10µH	80.0MHz	50	TK3139-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1366Z
D	0.15µH	80.0MHz	60	TK3140-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1367Z
D	0.22µH	80.0MHz	60	TK3141-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1368Z
D	0.33µH	80.0MHz	60	TK3142-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1369Z
D	0.33µH	80.0MHz	60	TK3142-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1369Z
D	0.47µH	50.0MHz	60	TK3143-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1370Z
D	0.68µH	50.0MHz	60	TK3144-ND*	2.74	25.08	205.20	615.60	830.00	292SNS-T1371Z
D	1.00µH	7.96MHz	40	TK3145-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1372Z
D	1.50µH	7.96MHz	40	TK3146-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1373Z

Diagram	L Nom.	Freq.	Q.	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Toko Part No.
D	2.20µH	7.96MHz	40	TK3147-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1374Z
D	3.30µH	7.96MHz	40	TK3148-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1375Z
D	4.70µH	7.96MHz	40	TK3149-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1376Z
D	6.80µH	7.96MHz	40	TK3151-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1377Z
D	10.0µH	7.96MHz	40	TK3152-ND*	2.74	25.08	205.20	615.60	830.00	292KNS-T1378Z
7P Type										
D	100µH	796KHz	80	TK2417-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T1040Z
D	120µH	796KHz	80	TK2418-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T1041Z
D	150µH	796KHz	80	TK2419-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T1042Z
D	180µH	796KHz	80	TK2420-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T1043Z
D	220µH	796KHz	80	TK2421-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T104
D	270µH	796KHz	80	TK2422-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T1045Z
D	330µH	796KHz	80	TK2423-ND*	2.14	19.58	161.98	489.50	648.00	A7BRS-T1046Z
A	110mH	796KHz	95	TK2424-ND	2.14	19.58	161.98	489.50	648.00	7TRS-T1098AO
—	3mH	252KHz	70	TK2425-ND	2.14	19.58	161.98	489.50	648.00	A7HN-T1253CYJ
—	1.25µH	450KHz	100	TK2426-ND	2.14	19.58	161.98	489.50	648.00	7NRES-T1099AAG
C	.679µH	455KHz	70	TK2501-ND	2.14	19.58	161.98	489.50	648.00	A7LC-T1153N
E	680µH	455KHz	70	TK2502-ND	2.14	19.58	161.98	489.50	648.00	A7LC-T1001Z
7PA Type										
D	1.0mH	252KHz	60	TK3201-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1094Z
D	1.2mH	252KHz	60	TK3202-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1095Z
D	1.5mH	252KHz	60	TK3203-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1096Z
D	1.8mH	252KHz	60	TK3204-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1097Z
D	2.2mH	252KHz	60	TK3205-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1098Z
D	2.7mH	252KHz	60	TK3206-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1099Z
D	3.3mH	252KHz	60	TK3207-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1100Z
D	3.9mH	252KHz	60	TK3208-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1101Z
D	4.7mH	252KHz	60	TK3209-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1102Z
D	5.6mH	252KHz	60	TK3210-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1103Z
D	6.8mH	252KHz	60	TK3211-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1104Z
D	8.2mH	252KHz	60	TK3212-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1105Z
D	10.0mH	79.6KHz	60	TK3213-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1106Z
D	12.0mH	79.6KHz	60	TK3214-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1107Z
D	15.0mH	79.6KHz	60	TK3215-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1108Z
D	18.0mH	79.6KHz	60	TK3216-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1109Z
D	22.0mH	79.6KHz	60	TK3217-ND	3.04	27.89	228.15	684.45	923.00	126ANS-T1110Z
D	5mH	252KHz	70	TK3218-ND	3.04	27.89	228.15	684.45	923.00	126LNS-T6285Z
7PH Type										
D	4.7µH	7.96MHz	80	TK2401-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1029Z
D	5.6µH	7.96MHz	80	TK2402-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1030Z
D	6.8µH	7.96MHz	80	TK2403-ND*	2.41	22.11	182.91	552.76	732.00	A119ANS-T1031Z
D	8.2µH	7.96MHz	80	TK2404-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1032Z
D	10.0µH	2.52MHz	80	TK2405-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1033Z
D	12.0µH	2.52MHz	80	TK2406-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1034Z
D	15.0µH	2.52MHz	80	TK2407-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1035Z
D	18.0µH	2.52MHz	80	TK2408-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1036Z
D	22.0µH	2.52MHz	80	TK2409-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1037Z
D	27.0µH	2.52MHz	80	TK2410-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1038Z
D	33.0µH	2.52MHz	80	TK2411-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1039Z
D	39.0µH	2.52MHz	80	TK2412-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1040Z
D	47.0µH	2.52MHz	80	TK2413-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1041Z
D	56.0µH	2.52MHz	80	TK2414-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1042Z
D	68.0µH	2.52MHz	80	TK2415-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1043Z
D	82.0µH	2.52MHz	80	TK2416-ND*	2.41	22.11	182.91	552.75	732.00	A119ANS-T1044Z
D	10.7µH	2.52MHz	95	TK2427-ND	2.41	22.11	182.91	552.75	732.00	A119ANS-17152Z
—	10.7µH	2.52MHz	90	TK2428-ND	2.41	22.11	182.91	552.75	732.00	A119ANS-17153Y
D	11.8µH	2.52MHz	114	TK2429-ND	2.41	22.11	182.91	552.75	732.00	A119AN-T1018Z
—	10.9µH	4.1MHz	80	TK2430-ND	2.41	22.11	182.91	552.75	732.00	119LNS-A3753GO
A	12.5µH	4.4MHz	90	TK2431-ND	2.41	22.11	182.91	552.75	732.00	119LNS-A4451DY
*TK1-KIT-ND	7mm Standard Coil Kit (2 each of values denoted above) **$59.40**									
10EZ Type										
B	.63mH	200KHz	95	TK1201-ND	1.99	18.26	149.40	448.20	598.00	RAN-10A6729EK
B	.63mH	200KHz	95	TK1202-ND	1.99	18.26	149.40	448.20	598.00	RAN-10A6845EK
D	100µH	796KHz	100	TK1219-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1015Z
D	120µH	796KHz	100	TK1220-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1016Z
D	150µH	796KHz	100	TK1221-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1017Z
D	180µH	796KHz	100	TK1222-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1018Z
D	220µH	796KHz	100	TK1223-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1019Z
D	270µH	796KHz	100	TK1224-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1020Z
D	330µH	796KHz	100	TK1225-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1021Z
D	390µH	796KHz	100	TK1226-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1022Z
D	470µH	796KHz	100	TK1227-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1023Z
D	560µH	796KHz	100	TK1228-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1024Z
D	680µH	796KHz	100	TK1229-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1025Z
D	820µH	796KHz	100	TK1230-ND*	1.99	18.26	149.40	448.20	598.00	RWRS-T1026Z
D	1000µH	252KHz	50	TK1231-ND*	1.99	18.26	149.40	448.20	598.00	RUNS-T1027Z
D	1200µH	252KHz	50	TK1232-ND*	1.99	18.26	149.40	448.20	598.00	RUNS-T1028Z
D	1500µH	252KHz	50	TK1233-ND*	1.99	18.26	149.40	448.20	598.00	RUNS-T1029Z
D	1800µH	252KHz	50	TK1234-ND*	1.99	18.26	149.40	448.20	598.00	RUNS-T1030Z
A	180µH	796KHz	80	TK1235-ND	1.99	18.26	149.40	448.20	598.00	RWOS-6A7694AO
I	17.6µH	300KHz	25	TK1801-ND	1.99	18.26	149.40	448.20	598.00	RZNS-T1147YUK

Diagram	L Nom.	Freq.	Q.	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Toko Part No.
10EZC Type										
C	815µH	455KHz	50	TK1236-ND	2.26	20.74	169.65	508.95	679.00	RLCS-A9195N
C	.64mH	455KHz	110	TK1301-ND	2.26	20.74	169.65	508.95	679.00	RMC-202313NO
E	.64mH	455KHz	110	TK1302-ND	2.26	20.74	169.65	508.95	679.00	RMC-2A6597HM
E	.64mH	455KHz	110	TK1303-ND	2.26	20.74	169.65	508.95	679.00	RMC-2A7287HM
C	.64mH	455KHz	110	TK1304-ND	2.26	20.74	169.65	508.95	679.00	RMC-402503NO
C	.64mH	455KHz	110	TK1305-ND	2.26	20.74	169.65	508.95	679.00	RMC-502182NO
C	.64mH	455KHz	110	TK1306-ND	2.26	20.74	169.65	508.95	679.00	RMC-502503NO
10EZH Type										
D	4.7µH	7.96MHz	100	TK1203-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1005Z
D	5.6µH	7.96MHz	100	TK1204-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1006Z
D	6.8µH	7.96MHz	100	TK1205-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1007Z
D	8.2µH	7.96MHz	100	TK1206-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1008Z
D	.10µH	2.52MHz	60	TK1207-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1009Z
D	12µH	2.52MHz	60	TK1208-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1010Z
D	15.0µH	2.52MHz	60	TK1209-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1011Z
D	18.0µH	2.52MHz	60	TK1210-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1012Z
D	22.0µH	2.52MHz	60	TK1211-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1013Z
D	27.0µH	2.52MHz	60	TK1212-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1014Z
D	33.0µH	2.52MHz	60	TK1213-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1015Z
D	39.0µH	2.52MHz	60	TK1214-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1016Z
D	47.0µH	2.52MHz	60	TK1215-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1017Z
D	56.0µH	2.52MHz	60	TK1216-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1018Z
D	68.0µH	2.52MHz	60	TK1217-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1019Z
D	82.0µH	2.52MHz	60	TK1218-ND*	2.16	19.80	162.00	486.00	648.00	154ANS-T1020Z
10EZHC Type										
E	2.7µH	10.7MHz	98	TK1241-ND	2.41	22.11	180.90	542.70	724.00	154AC-T1038Z
C	8.2µH	10.7MHz	110	TK1237-ND	2.41	22.11	180.90	542.70	724.00	154AC-470072NO
C	27.0µH	10.7MHz	110	TK1238-ND	2.41	22.11	180.90	542.70	724.00	154AC-7A5681EK
C	47.0µH	10.7MHz	120	TK1239-ND	2.41	22.11	180.90	542.70	724.00	154FC-560061NO
C	68.0µH	10.7MHz	60	TK1240-ND	2.41	22.11	180.90	542.70	724.00	154PC-470033NO
10K Type										
D	0.08µH	75MHz	50	TK1401-ND*	2.21	20.30	166.05	498.15	664.00	BTKENS-T1043Z
D	0.10µH	75MHz	60	TK1402-ND*	2.21	20.30	166.05	498.15	664.00	BTKENS-T1044Z
A	0.12µH	72MHz	80	TK1403-ND	2.21	20.30	166.05	498.15	664.00	KEN-K4857DZ
D	0.15µH	75MHz	60	TK1404-ND*	2.21	20.30	166.05	498.15	664.00	BTKENS-T1045Z
D	0.22µH	75MHz	60	TK1405-ND*	2.21	20.30	166.05	498.15	664.00	BTKENS-T1046Z
D	0.33µH	45MHz	60	TK1406-ND*	2.21	20.30	166.05	498.15	664.00	BTKXNS-T1047Z
A	0.41µH	49MHz	75	TK1407-ND	2.21	20.30	166.05	498.15	664.00	KEN-K4028DZ
D	0.47µH	45MHz	70	TK1408-ND*	2.21	20.30	166.05	498.15	664.00	BTKXNS-T1048Z
D	0.68µH	45MHz	70	TK1409-ND*	2.21	20.30	166.05	498.15	664.00	BTKXNS-T1049Z
A	0.79µH	27MHz	55	TK1410-ND	2.21	20.30	166.05	498.15	664.00	KXNA-K4434DZ
D	1.0µH	25.2MHz	80	TK1411-ND*	2.21	20.30	166.05	498.15	664.00	BTKXNS-T1050Z
D	1.5µH	7.96MHz	60	TK1412-ND*	2.21	20.30	166.05	498.15	664.00	BTKANS-9449HM
D	2.2µH	7.96MHz	60	TK1413-ND*	2.21	20.30	166.05	498.15	664.00	BTKANS-9447HM
D	3.3µH	7.96MHz	70	TK1414-ND*	2.21	20.30	166.05	498.15	664.00	BTKANS-9445HM
D	4.7µH	7.96MHz	70	TK1415-ND*	2.21	20.30	166.05	498.15	664.00	BTKANS-9443HM
D	6.8µH	7.96MHz	70	TK1416-ND*	2.21	20.30	166.05	498.15	664.00	BTKANS-9441HM
D	10µH	7.96MHz	70	TK1417-ND*	2.21	20.30	166.05	498.15	664.00	BTKANS-9439HM
F	0.16µH	27MHz	65	TK1418-ND	2.21	20.30	166.05	498.15	664.00	KXN-K4636BJF
G	0.34µH	49MHz	95	TK1419-ND	2.21	20.30	166.05	498.15	664.00	BKEN-K4635BJE
H	1.0µH	7.96MHz	60	TK1420-ND	2.21	20.30	166.05	498.15	664.00	BKAN-K5552AXX
H	66µH	2.52MHz	60	TK1421-ND	2.21	20.30	166.05	498.15	664.00	BKANS-K4087HUx
—	2.2µH	7.96MHz	54	TK1422-ND	2.21	20.30	166.05	498.15	664.00	TKANAS-T1390ADP
10KC Type										
E	2.7µH	10.7MHz	100	TK1501-ND	2.50	22.88	187.20	561.60	749.00	KACS-K586HM
10NSF Type										
D	1.6µH	25.2MHz	70	TK1601-ND	2.86	26.24	214.65	643.95	859.00	166JNF-A285HM
D	6.4µH	25.2MHz	50	TK1602-ND	2.86	26.24	214.65	643.95	859.00	166JNF-A286HM
A	30µH	2.52MHz	15	TK1603-ND†	2.86	26.24	214.65	643.95	859.00	166NNF-10264AG
A	30µH	2.52MHz	15	TK1604-ND†	2.86	26.24	214.65	643.95	859.00	166NNF-T1012AG
10PA Type										
D	1.35mH	200KHz	70	TK1701-ND	3.14	28.82	235.80	707.40	943.00	CAN-1A901HM
D	15.8mH	40KHz	58	TK1702-ND	3.14	28.82	235.80	707.40	943.00	CLN-2A900HM
D	1.0mH	252KHz	80	TK1703-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1018Z
D	1.2mH	252KHz	80	TK1704-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1019Z
D	1.5mH	252KHz	80	TK1705-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1020Z
D	1.8mH	252KHz	80	TK1706-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1021Z
D	2.2mH	252KHz	80	TK1707-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1022Z
D	2.7mH	252KHz	80	TK1708-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1023Z
D	3.3mH	252KHz	80	TK1709-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1024Z
D	3.9mH	252KHz	80	TK1710-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1025Z
D	4.7mH	252KHz	80	TK1711-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1026Z
D	5.6mH	252KHz	80	TK1712-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1027Z
D	6.8mH	252KHz	80	TK1713-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1028Z
D	8.2mH	252KHz	80	TK1714-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1029Z
D	10.0mH	79.6KHz	70	TK1715-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1030Z
D	12.0mH	79.6KHz	70	TK1716-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1031Z
D	15.0mH	79.6KHz	70	TK1717-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1032Z

Diagram	L Nom.	Freq.	Q.	Digi-Key Part No.	Pricing					Toko Part No.
					1	10	100	500	1,000	
D	18.0mH	79.6KHz	70	TK1718-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1033Z
D	22.0mH	79.6KHz	70	TK1719-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1034Z
D	27.0mH	79.6KHz	70	TK1720-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1035Z
D	33.0mH	79.6KHz	70	TK1721-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1036Z
D	39.0mH	79.6KHz	70	TK1722-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1037Z
D	47.0mH	79.6KHz	70	TK1723-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1038Z
D	56.0mH	79.6KHz	70	TK1724-ND*	3.14	28.82	235.80	707.40	943.00	CLNS-T1039Z
D	800μH	55KHz	50	TK1725-ND	3.14	28.82	235.80	707.40	943.00	CLN-T1069Z
***TK2-KIT-ND** 10mm Standard Coil Kit (2 each of values denoted above) **$59.40**										
12VX Type										
—	2.665mH	120KHz	73	TK1904-ND	3.97	36.36	297.45	892.35	1156.75	707VX-T1006N
12VXA Type										
I	49.1μH	125KHz	25	TK1901-ND	4.18	38.28	313.20	939.60	1253.00	719VXA-T1060YUK
I	101μH	50KHz	25	TK1902-ND	4.18	38.28	313.20	939.60	1253.00	719VXA-T1061YUK
B	217μH	100KHz	20	TK1903-ND	4.18	38.28	313.20	939.60	1253.00	719VXA-T1062N
A	1.0mH	252KHz	25	TK2001-ND	4.18	38.28	313.20	939.60	1253.00	719VXA-A017AO
J	.419mH	20KHz	30	TK2002-ND	4.18	38.28	313.20	939.60	1253.00	719VXA-A018YSU

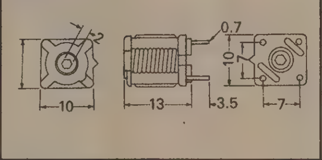
† Non-adjustable

TOKO
TOKO AMERICA, INC.

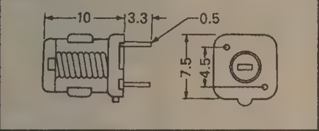
Molded Coils

9139B-ND	Toko Coils & Filter Book	**$9.95**
9140B-ND	Toko Power Supplies & DC-DC Converter Book	**$9.95**

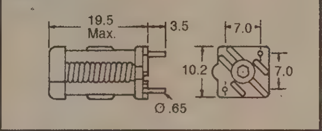
MC120



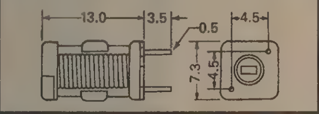
MC122



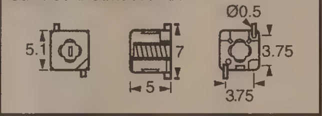
MC130



MC134



Surface Mount MC152



TK9001-ND	Plastic Tuning Tool (MC120, MC130)	1.01
TK9003-ND	Plastic Tuning Tool (MC122, MC134, MC152)	.76
TK9992-ND	***NEW!*** Ceramic Tuning Driver (MC122, MC134) (Requires Holder TK9999-ND, below)	23.71
TK9995-ND	***NEW!*** Ceramic Tuning Driver (MC152) (Requires Holder TK9999-ND, below)	44.85
TK9996-ND	***NEW!*** Ceramic Tuning Driver (MC120, MC130) (Requires Holder TK9999-ND, below)	31.39
TK9999-ND	***NEW!*** Ceramic Driver Holder	4.93

Turns/ Color	L Nom.	Freq.	Q.	Digi-Key Part No.	Pricing					Toko Part No.
					1	10	100	500	1,000	
MC120 with Case										
1½ BRW	.0393μH	100MHz	80	TK2701-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100294
2½ RED	.065μH	100MHz	90	TK2702-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100295
3½ ORG	.0994μH	100MHz	100	TK2703-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100296
4½ YEL	.141μH	100MHz	100	TK2704-ND	1.74	15.19	65.10	244 13	395.00	E526HNA-100297
5½ GRN	.169μH	50MHz	80	TK2705-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100298
6½ BLU	.211μH	50MHz	80	TK2706-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100299
7½ VIO	.241μH	50MHz	80	TK2707-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100300
8½ GRY	.29μH	50MHz	80	TK2708-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100301
9½ WHT	.338μH	50MHz	80	TK2709-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100079
1½ BRW	.0367μH	100MHz	80	TK2710-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100310
2½ RED	.0583μH	100MHz	90	TK2711-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100311
3½ ORG	.0845μH	100MHz	100	TK2712-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100312
4½ YEL	.108μH	100MHz	110	TK2713-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100313
5½ GRN	.137μH	100MHz	110	TK2714-ND	1.74	15.19	65.10	244.13	395.00	E526HNA-100314
10½ WHT	.375μH	50MHz	80	TK2729-ND	1.74	15.19	65.10	244.13	395.00	E526HNSA-P100059
MC120 without Case										
1½ BRW	.0461μH	100MHz	120	TK2715-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100302
2½ RED	.0845μH	100MHz	130	TK2716-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100303
3½ ORG	.13μH	100MHz	130	TK2717-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100304
4½ YEL	.195μH	100MHz	140	TK2718-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100305
5½ GRN	.241μH	50MHz	100	TK2719-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100306
6½ BLU	.317μH	50MHz	100	TK2720-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100307
7½ VIO	.358μH	50MHz	100	TK2721-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100308
8½ GRY	.441μH	50MHz	100	TK2722-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100309
9½ WHT	.534μH	50MHz	100	TK2723-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100109
1½ BRW	.0437μH	100MHz	100	TK2724-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100315
2½ RED	.0745μH	100MHz	150	TK2725-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100316
3½ ORG	.118μH	100MHz	170	TK2726-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100317
4½ YEL	.154μH	100MHz	180	TK2727-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100318
5½ GRN	.211μH	100MHz	190	TK2728-ND	1.42	12.39	53.10	199.13	322.00	E526HN-100319
MC122 with Case										
1½ WHT	.0323μH	100MHz	80	TK2801-ND	1.94	16.94	72.60	272.25	440.00	E528SNAS-100072
2½ RED	.0523μH	100MHz	80	TK2802-ND	1.94	16.94	72.60	272.25	440.00	E528SNAS-100073
3½ ORG	.078μH	100MHz	90	TK2803-ND	1.94	16.94	72.60	272.25	440.00	E528SNAS-100074
4½ YEL	.108μH	100MHz	90	TK2804-ND	1.94	16.94	72.60	272.25	440.00	E528SNAS-100075
5½ GRN	.149μH	100MHz	90	TK2805-ND	1.94	16.94	72.60	272.25	440.00	E528SNAS-100076
3½ ORG	.078μH	57MHz	70	TK2806-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100077
4½ YEL	.103μH	57MHz	70	TK2807-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100078
5½ GRN	.132μH	57MHz	70	TK2808-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100079
6½ BLU	.159μH	57MHz	70	TK2809-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100080
7½ VIO	.203μH	57MHz	70	TK2810-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100081
8½ WHT	.226μH	45MHz	60	TK2811-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100082
9½ RED	.25μH	45MHz	60	TK2812-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100083
10½ ORG	.291μH	45MHz	60	TK2813-ND	1.94	16.94	72.60	272.25	440.00	E528DNAS-100084
MC122 without Case										
1½ WHT	.0352μH	100MHz	90	TK2814-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100059
2½ RED	.0604μH	100MHz	110	TK2815-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100060
3½ ORG	.0957μH	100MHz	120	TK2816-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100061
4½ YEL	.137μH	100MHz	120	TK2817-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100062
5½ GRN	.195μH	100MHz	110	TK2818-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100063
3½ ORG	.0918μH	57MHz	100	TK2819-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100064
4½ YEL	.130μH	57MHz	100	TK2820-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100065
5½ GRN	.177μH	57MHz	100	TK2821-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100066
6½ BLU	.214μH	57MHz	100	TK2822-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100067
7½ VIO	289μH	57MHz	90	TK2823-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100068
8½ WHT	.317μH	45MHz	80	TK2824-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100069
9½ RED	.379μH	45MHz	80	TK2825-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100070
10½ ORG	.447μH	45MHz	70	TK2826-ND	1.74	15.19	65.10	244.13	394.94	E528SN-100071
MC130 with Case										
10½ BLK	.396μH	50MHz	105	TK2901-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60040
11½ BRW	.450μH	50MHz	100	TK2902-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60041
12½ RED	.495μH	50MHz	100	TK2903-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60042
13½ ORG	.556μH	45MHz	100	TK2904-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60043
14½ YEL	.596μH	45MHz	100	TK2905-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60044
15½ GRN	.642μH	45MHz	100	TK2906-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60045
16½ BLU	.695μH	45MHz	90	TK2907-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60046
17½ VIO	.737μH	45MHz	90	TK2908-ND	2.04	17.85	76.50	286.88	464.00	E536HNA-60047
MC130 without Case										
10½ BLK	.596μH	50MHz	125	TK2909-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60060
11½ BRW	.676μH	50MHz	120	TK2910-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60061
12½ RED	.751μH	50MHz	115	TK2911-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60062
13½ ORG	863μH	45MHz	115	TK2912-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60063
14½ YEL	.894μH	45MHz	115	TK2913-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60064
15½ GRN	1.001μH	45MHz	115	TK2914-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60065
16½ BLU	1.138μH	45MHz	110	TK2915-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60066
17½ VIO	1.173μH	40MHz	110	TK2916-ND	1.57	13.72	58.80	220.50	357.00	E536HN-60067
MC134 with Case										
10½ BLK	.260μH	50MHz	50	TK3001-ND	1.54	13.44	57.60	216.00	349.00	E540SNA-10005
11½ BRW	.294μH	50MHz	50	TK3002-ND	1.54	13.44	57.60	216.00	349.00	E540SNA-11003
12½ RED	.317μH	50MHz	60	TK3003-ND	1.54	13.44	57.60	216.00	349.00	E540SNA-12003
13½ ORG	.350μH	50MHz	60	TK3004-ND	1.54	13.44	57.60	216.00	349.00	E540SNA-13003
14½ YEL	.383μH	50MHz	55	TK3005-ND	1.54	13.44	57.60	216.00	349.00	E540SNA-14002
15½ GRN	.422μH	50MHz	80	TK3006-ND	1.54	13.44	57.60	216.00	349.00	E540SNA-15002
MC134 without Case										
10½ BLK	.398μH	50MHz	80	TK3007-ND	1.30	11.34	48.60	182.25	295.00	E540SN-10004
11½ BRW	.451μH	50MHz	80	TK3008-ND	1.30	11.34	48.60	182.25	295.00	E540SN-11002
12½ RED	.483μH	50MHz	80	TK3009-ND	1.30	11.34	48.60	182.25	295.00	E540SN-12002
13½ ORG	.545μH	50MHz	80	TK3010-ND	1.30	11.34	48.60	182.25	295.00	E540SN-13002
14½ YEL	.603μH	50MHz	80	TK3011-ND	1.30	11.34	48.60	182.25	295.00	E540SN-14001
15½ GRN	.685μH	50MHz	80	TK3012-ND	1.30	11.34	48.60	182.25	295.00	E540SN-15001
S-18 without Case										
7½ VIO	.333μH	58.75MHz	140	TK3801-ND*	1.80	11.88	59.40	227.70	356.00	E502LN-7000037

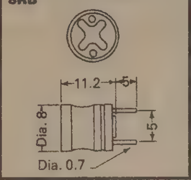
* Not recommended for new applications.

Turns/ Color	L Nom.	Freq.	Q.	Digi-Key Part No.	Pricing			Digi-Key Part No.	T&R Pricing	Toko Part No.
					1	10	100		1500	
MC152 Ferrite Core — Surface Mount										
1 1/2 WHT	.032μH	100MHz	90	TKS2700CT-ND	1.73	15.20	115.14	TKS2700TR-ND	1026.00	E558CN-100020
2 1/2 VIO	.047μH	100MHz	110	TKS2701CT-ND	1.73	15.20	115.14	TKS2701TR-ND	1026.00	E558CN-100021
3 1/2 ORG	.068μH	100MHz	110	TKS2702CT-ND	1.73	15.20	115.14	TKS2702TR-ND	1026.00	E558CN-100022
4 1/2 YEL	.090μH	100MHz	115	TKS2703CT-ND	1.73	15.20	115.14	TKS2703TR-ND	1026.00	E558CN-100023
5 1/2 WHT	.112μH	100MHz	120	TKS2704CT-ND	1.73	15.20	115.14	TKS2704TR-ND	1026.00	E558CN-100024
6 1/2 BLU	.142μH	100MHz	120	TKS2705CT-ND	1.73	15.20	115.14	TKS2705TR-ND	1026.00	E558CN-100025
MC152 Air Core — Surface Mount										
1 1/2 WHT	.029μH	100MHz	85	TKS2706CT-ND	1.48	13.04	98.78	TKS2706TR-ND	880.50	E558HN-100096
2 1/2 VIO	.046μH	100MHz	100	TKS2707CT-ND	1.48	13.04	98.78	TKS2707TR-ND	880.50	E558HN-100097
3 1/2 ORG	.056μH	100MHz	105	TKS2708CT-ND	1.48	13.04	98.78	TKS2708TR-ND	880.50	E558HN-100098
4 1/2 YEL	.073μH	100MHz	105	TKS2709CT-ND	1.48	13.04	98.78	TKS2709TR-ND	880.50	E558HN-100099
5 1/2 WHT	.091μH	100MHz	120	TKS2710CT-ND	1.48	13.04	98.78	TKS2710TR-ND	880.50	E558HN-100100
6 1/2 BLU	.111μH	100MHz	120	TKS2711CT-ND	1.48	13.04	98.78	TKS2711TR-ND	880.50	E558HN-100101
MC152 Brass Core — Surface Mount										
1 1/2 WHT	.029μH	100MHz	52	TKS2712CT-ND	2.28	20.08	152.11	TKS2712TR-ND	1356.00	E558AN-100040
2 1/2 VIO	.038μH	100MHz	63	TKS2713CT-ND	2.28	20.08	152.11	TKS2713TR-ND	1356.00	E558AN-100041
3 1/2 ORG	.048μH	100MHz	56	TKS2714CT-ND	2.28	20.08	152.11	TKS2714TR-ND	1356.00	E558AN-100042
4 1/2 YEL	.057μH	100MHz	50	TKS2715CT-ND	2.28	20.08	152.11	TKS2715TR-ND	1356.00	E558AN-100043
5 1/2 WHT	.072μH	100MHz	50	TKS2716CT-ND	2.28	20.08	152.11	TKS2716TR-ND	1356.00	E558AN-100044
6 1/2 BLU	.084μH	100MHz	50	TKS2717CT-ND	2.28	20.08	152.11	TKS2717TR-ND	1356.00	E558AN-100045

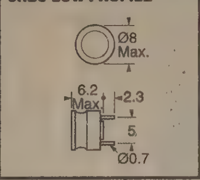
TOKO
TOKO AMERICA, INC.

Fixed Inductors

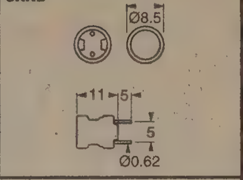
8RB



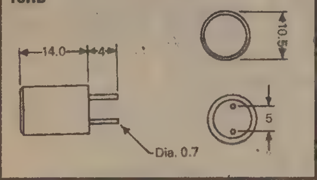
8RBS LOW PROFILE



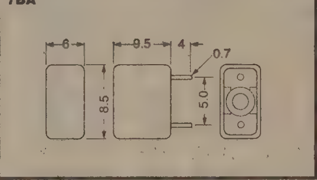
8RHB



10RB



7BA



L. Nom.	Test Freq.	Q. Min.	Rated DC Current	Digi-Key Part No.	Pricing					Toko Part No.
					1	10	100	500	1,000	
7BA Type										
1.0µH	7.96MHz	30	30mA	TK4200-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R0K
1.1µH	7.96MHz	30	30mA	TK4201-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R1K
1.2µH	7.96MHz	30	30mA	TK4202-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R2K
1.3µH	7.96MHz	30	30mA	TK4203-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R3K
1.5µH	7.96MHz	30	30mA	TK4204-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R5K
1.6µH	7.96MHz	30	30mA	TK4205-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R6K
1.8µH	7.96MHz	30	30mA	TK4206-ND	1.23	9.96	48.87	205.44	329.00	144LY-1R8K
2.0µH	7.96MHz	30	30mA	TK4207-ND	1.23	9.96	48.87	205.44	329.00	144LY-2R0K
2.2µH	7.96MHz	30	30mA	TK4208-ND	1.23	9.96	48.87	205.44	329.00	144LY-2R2K
2.4µH	7.96MHz	30	30mA	TK4209-ND	1.23	9.96	48.87	205.44	329.00	144LY-2E4K
2.7µH	7.96MHz	30	30mA	TK4210-ND	1.23	9.96	48.87	205.44	329.00	144LY-2R4K
3.0µH	7.96MHz	30	30mA	TK4211-ND	1.23	9.96	48.87	205.44	329.00	144LY-3R0K
3.3µH	7.96MHz	30	30mA	TK4212-ND	1.23	9.96	48.87	205.44	329.00	144LY-3R3K
3.6µH	7.96MHz	30	30mA	TK4213-ND	1.23	9.96	48.87	205.44	329.00	144LY-3R6K
3.9µH	7.96MHz	30	30mA	TK4214-ND	1.23	9.96	48.87	205.44	329.00	144LY-3R9K
4.3µH	7.96MHz	30	30mA	TK4215-ND	1.23	9.96	48.87	205.44	329.00	144LY-4R3K
4.7µH	7.96MHz	30	30mA	TK4216-ND	1.23	9.96	48.87	205.44	329.00	144LY-4R7K
5.1µH	7.96MHz	30	30mA	TK4217-ND	1.23	9.96	48.87	205.44	329.00	144LY-5R1K
5.6µH	7.96MHz	30	30mA	TK4218-ND	1.23	9.96	48.87	205.44	329.00	144LY-5R6K
6.2µH	7.96MHz	30	30mA	TK4219-ND	1.23	9.96	48.87	205.44	329.00	144LY-6R2K
6.8µH	7.96MHz	30	30mA	TK4220-ND	1.23	9.96	48.87	205.44	329.00	144LY-6R8K
7.5µH	7.96MHz	30	30mA	TK4221-ND	1.23	9.96	48.87	205.44	329.00	144LY-7R5K
8.2µH	7.96MHz	30	30mA	TK4222-ND	1.23	9.96	48.87	205.44	329.00	144LY-8R2K
9.1µH	7.96MHz	30	30mA	TK4223-ND	1.23	9.96	48.87	205.44	329.00	144LY-9R1K
10µH	7.96MHz	30	30mA	TK4224-ND	1.23	9.96	48.87	205.44	329.00	144LY-100J
11µH	2.52MHz	30	30mA	TK4225-ND	1.23	9.96	48.87	205.44	329.00	144LY-110J
12µH	2.52MHz	30	30mA	TK4226-ND	1.23	9.96	48.87	205.44	329.00	144LY-120J
13µH	2.52MHz	30	30mA	TK4227-ND	1.23	9.96	48.87	205.44	329.00	144LY-130J
15µH	2.52MHz	30	30mA	TK4228-ND	1.23	9.96	48.87	205.44	329.00	144LY-150J
16µH	2.52MHz	30	30mA	TK4229-ND	1.23	9.96	48.87	205.44	329.00	144LY-160J
18µH	2.52MHz	30	30mA	TK4230-ND	1.23	9.96	48.87	205.44	329.00	144LY-180J
20µH	2.52MHz	30	30mA	TK4231-ND	1.23	9.96	48.87	205.44	329.00	144LY-200J
22µH	2.52MHz	30	30mA	TK4232-ND	1.23	9.96	48.87	205.44	329.00	144LY-220J
24µH	2.52MHz	30	30mA	TK4233-ND	1.23	9.96	48.87	205.44	329.00	144LY-240J
27µH	2.52MHz	30	30mA	TK4234-ND	1.23	9.96	48.87	205.44	329.00	144LY-270J
30µH	2.52MHz	30	30mA	TK4235-ND	1.23	9.96	48.87	205.44	329.00	144LY-300J
33µH	2.52MHz	30	30mA	TK4236-ND	1.23	9.96	48.87	205.44	329.00	144LY-330J
36µH	2.52MHz	30	30mA	TK4237-ND	1.23	9.96	48.87	205.44	329.00	144LY-360J
39µH	2.52MHz	30	30mA	TK4238-ND	1.23	9.96	48.87	205.44	329.00	144LY-390J
43µH	2.52MHz	30	30mA	TK4250-ND	1.23	9.96	48.87	205.44	329.00	144HY-430J
47µH	2.52MHz	30	30mA	TK4251-ND	1.23	9.96	48.87	205.44	329.00	144HY-470J
51µH	2.52MHz	30	30mA	TK4252-ND	1.23	9.96	48.87	205.44	329.00	144HY-510J
56µH	2.52MHz	30	30mA	TK4253-ND	1.23	9.96	48.87	205.44	329.00	144HY-560J
62µH	2.52MHz	30	30mA	TK4254-ND	1.23	9.96	48.87	205.44	329.00	144HY-620J
68µH	2.52MHz	30	30mA	TK4255-ND	1.23	9.96	48.87	205.44	329.00	144HY-680J
75µH	2.52MHz	30	30mA	TK4256-ND	1.23	9.96	48.87	205.44	329.00	144HY-750J
82µH	2.52MHz	30	30mA	TK4257-ND	1.23	9.96	48.87	205.44	329.00	144HY-820J
91µH	2.52MHz	30	30mA	TK4258-ND	1.23	9.96	48.87	205.44	329.00	144HY-910J
100µH	2.52MHz	30	30mA	TK4259-ND	1.23	9.96	48.87	205.44	329.00	144HY-101J
110µH	796KHz	30	30mA	TK4260-ND	1.23	9.96	48.87	205.44	329.00	144HY-111J
120µH	796KHz	30	30mA	TK4261-ND	1.23	9.96	48.87	205.44	329.00	144HY-121J
130µH	796KHz	30	30mA	TK4262-ND	1.23	9.96	48.87	205.44	329.00	144HY-131J
150µH	796KHz	30	30mA	TK4263-ND	1.23	9.96	48.87	205.44	329.00	144HY-151J
160µH	796KHz	30	30mA	TK4264-ND	1.23	9.96	48.87	205.44	329.00	144HY-161J
180µH	796KHz	30	30mA	TK4265-ND	1.23	9.96	48.87	205.44	329.00	144HY-181J
200µH	796KHz	30	30mA	TK4266-ND	1.23	9.96	48.87	205.44	329.00	144HY-201J
220µH	796KHz	30	30mA	TK4267-ND	1.23	9.96	48.87	205.44	329.00	144HY-221J
240µH	796KHz	30	30mA	TK4268-ND	1.23	9.96	48.87	205.44	329.00	144HY-241J
270µH	796KHz	30	30mA	TK4269-ND	1.23	9.96	48.87	205.44	329.00	144HY-271J
300µH	796KHz	30	30mA	TK4270-ND	1.23	9.96	48.87	205.44	329.00	144HY-301J
330µH	796KHz	30	30mA	TK4271-ND	1.23	9.96	48.87	205.44	329.00	144HY-331J
360µH	796KHz	30	30mA	TK4272-ND	1.23	9.96	48.87	205.44	329.00	144HY-361J
390µH	796KHz	30	30mA	TK4273-ND	1.23	9.96	48.87	205.44	329.00	144HY-391J
430µH	796KHz	30	30mA	TK4274-ND	1.23	9.96	48.87	205.44	329.00	144HY-431J
470µH	796KHz	30	30mA	TK4275-ND	1.23	9.96	48.87	205.44	329.00	144HY-471J
510µH	796KHz	30	30mA	TK4276-ND	1.23	9.96	48.87	205.44	329.00	144HY-511J
560µH	796KHz	30	30mA	TK4277-ND	1.23	9.96	48.87	205.44	329.00	144HY-561J
620µH	796KHz	30	30mA	TK4278-ND	1.23	9.96	48.87	205.44	329.00	144HY-621J
680µH	796KHz	30	30mA	TK4279-ND	1.23	9.96	48.87	205.44	329.00	144HY-681J
750µH	796kHz	30	30mA	TK4280-ND	1.23	9.96	48.87	205.44	329.00	144HY-751J
820µH	796KHz	30	30mA	TK4281-ND	1.23	9.96	48.87	205.44	329.00	144HY-821J
910µH	796KHz	30	30mA	TK4282-ND	1.23	9.96	48.87	205.44	329.00	144HY-911J
1000µH	796KHz	30	30mA	TK4283-ND	1.23	9.96	48.87	205.44	329.00	144HY-102J
8RB Type										
.10mH	796KHz	80	200mA	TK4300-ND	2.05	16.61	81.54	342.77	550.00	187LY-101J
.12mH	796KHz	80	200mA	TK4301-ND	2.05	16.61	81.54	342.77	550.00	187LY-121J
.15mH	796KHz	80	200mA	TK4302-ND	2.05	16.61	81.54	342.77	550.00	187LY-151J
.18mH	796KHz	80	200mA	TK4303-ND	2.05	16.61	81.54	342.77	550.00	187LY-181J
.22mH	796KHz	80	200mA	TK4304-ND	2.05	16.61	81.54	342.77	550.00	187LY-221J
.27mH	796KHz	80	200mA	TK4305-ND	2.05	16.61	81.54	342.77	550.00	187LY-271J
.33mH	796KHz	80	200mA	TK4306-ND	2.05	16.61	81.54	342.77	550.00	187LY-331J
.39mH	796KHz	80	200mA	TK4307-ND	2.05	16.61	81.54	342.77	550.00	187LY-391J
.47mH	796KHz	80	200mA	TK4308-ND	2.05	16.61	81.54	342.77	550.00	187LY-471J
.56mH	796KHz	80	200mA	TK4309-ND	2.05	16.61	81.54	342.77	550.00	187LY-561J
.68mH	796KHz	80	200mA	TK4310-ND	2.05	16.61	81.54	342.77	550.00	187LY-681J
.82mH	796KHz	80	200mA	TK4311-ND	2.05	16.61	81.54	342.77	550.00	187LY-821J
1.0mH	252KHz	80	150mA	TK4312-ND	2.05	16.61	81.54	342.77	550.00	187LY-102J
1.2mH	252KHz	90	150mA	TK4313-ND	2.05	16.61	81.54	342.77	550.00	187LY-122J
1.5mH	252KHz	90	150mA	TK4314-ND	2.05	16.61	81.54	342.77	550.00	187LY-152J
1.8mH	252KHz	90	100mA	TK4315-ND	2.05	16.61	81.54	342.77	550.00	187LY-182J
2.2mH	252KHz	90	100mA	TK4316-ND	2.05	16.61	81.54	342.77	550.00	187LY-222J
2.7mH	252KHz	90	100mA	TK4317-ND	2.05	16.61	81.54	342.77	550.00	187LY-272J
3.3mH	252KHz	90	100mA	TK4318-ND	2.05	16.61	81.54	342.77	550.00	187LY-332J
3.9mH	252KHz	90	50mA	TK4319-ND	2.05	16.61	81.54	342.77	550.00	187LY-392J
4.7mH	252KHz	90	50mA	TK4320-ND	2.05	16.61	81.54	342.77	550.00	187LY-472J
5.6mH	252KHz	90	50mA	TK4321-ND	2.05	16.61	81.54	342.77	550.00	187LY-562J
6.8mH	252KHz	90	50mA	TK4322-ND	2.05	16.61	81.54	342.77	550.00	187LY-682J
8.2mH	252KHz	90	50mA	TK4323-ND	2.05	16.61	81.54	342.77	550.00	187LY-822J
10mH	79.6KHz	100	40mA	TK4324-ND	2.05	16.61	81.54	342.77	550.00	187LY-103J
12mH	79.6KHz	100	40mA	TK4325-ND	2.05	16.61	81.54	342.77	550.00	187LY-123J
15mH	79.6KHz	100	40mA	TK4326-ND	2.05	16.61	81.54	342.77	550.00	187LY-153J
18mH	79.6KHz	100	30mA	TK4327-ND	2.05	16.61	81.54	342.77	550.00	187LY-183J
22mH	79.6KHz	100	30mA	TK4328-ND	2.05	16.61	81.54	342.77	550.00	187LY-223J
27mH	79.6KHz	100	30mA	TK4329-ND	2.05	16.61	81.54	342.77	550.00	187LY-273J
33mH	79.6KHz	100	30mA	TK4330-ND	2.05	16.61	81.54	342.77	550.00	187LY-333J
8RBS Type Low Profile										
.10mH	796kHz	60	200mA	TK4333-ND	2.61	20.66	117.45	500.25	792.00	262LY-101K
.12mH	796kHz	60	200mA	TK4381-ND	2.61	20.66	117.45	500.25	792.00	262LY-121K
.15mH	796kHz	60	200mA	TK4382-ND	2.61	20.66	117.45	500.25	792.00	262LY-151K
.18mH	796kHz	60	200mA	TK4383-ND	2.61	20.66	117.45	500.25	792.00	262LY-181K
.22mH	796kHz	60	150mA	TK4384-ND	2.61	20.66	117.45	500.25	792.00	262LY-221K
.27mH	796kHz	60	150mA	TK4385-ND	2.61	20.66	117.45	500.25	792.00	262LY-271K
.33mH	796kHz	60	150mA	TK4386-ND	2.61	20.66	117.45	500.25	792.00	262LY-331K
.39mH	796kHz	60	100mA	TK4387-ND	2.61	20.66	117.45	500.25	792.00	262LY-391K
.47mH	796kHz	60	100mA	TK4388-ND	2.61	20.66	117.45	500.25	792.00	262LY-471K
.56mH	796kHz	60	100mA	TK4389-ND	2.61	20.66	117.45	500.25	792.00	262LY-561K
68mH	796kHz	60	100mA	TK4390-ND	2.61	20.66	117.45	500.25	792.00	262LY-681K
.82mH	796kHz	60	50mA	TK4391-ND	2.61	20.66	117.45	500.25	792.00	262LY-821K
1.0mH	252kHz	80	50mA	TK4392-ND	2.61	20.66	117.45	500.25	792.00	262LY-102K
1.2mH	252kHz	80	50mA	TK4393-ND	2.61	20.66	117.45	500.25	792.00	262LY-122K
1.5mH	252kHz	80	50mA	TK4394-ND	2.61	20.66	117.45	500.25	792.00	262LY-152K
1.8mH	252kHz	80	50mA	TK4395-ND	2.61	20.66	117.45	500.25	792.00	262LY-182K
2.2mH	252kHz	80	50mA	TK4396-ND	2.61	20.66	117.45	500.25	792.00	262LY-222K
2.7mH	252kHz	80	50mA	TK4397-ND	2.61	20.66	117.45	500.25	792.00	262LY-272K
3.3mH	252kHz	80	40mA	TK4398-ND	2.61	20.66	117.45	500.25	792.00	262LY-332K
3.9mH	252kHz	80	40mA	TK4399-ND	2.61	20.66	117.45	500.25	792.00	262LY-392K
4.7mH	252kHz	80	40mA	TK4340-ND	2.61	20.66	117.45	500.25	792.00	262LY-472K
5.6mH	252kHz	80	30mA	TK4339-ND	2.61	20.66	117.45	500.25	792.00	262LY-562K
6.8mH	252kHz	80	30mA	TK4338-ND	2.61	20.66	117.45	500.25	792.00	262LY-682K
8.2mH	252kHz	80	30mA	TK4337-ND	2.61	20.66	117.45	500.25	792.00	262LY-822K
10.0mH	79.6kHz	60	20mA	TK4336-ND	2.61	20.66	117.45	500.25	792.00	262LY-103K
12.0mH	79.6kHz	60	20mA	TK4335-ND	2.61	20.66	117.45	500.25	792.00	262LY-123K
15.0mH	79.6kHz	60	20mA	TK4334-ND	2.61	20.66	117.45	500.25	792.00	262LY-153K
8RHB Type										
1.0µH	7.96MHz	20	10A	TK4430-ND	2.42	19.69	96.66	406.33	652.00	622LY-1R0M
1.5µH	7.96MHz	20	8.5A	TK4431-ND	2.42	19.69	96.66	406.33	652.00	622LY-1R5M
2.2µH	7.96MHz	20	6.5A	TK4432-ND	2.42	19.69	96.66	406.33	652.00	622LY-2R2M
3.3µH	7.96MHz	20	5.5A	TK4433-ND	2.42	19.69	96.66	406.33	652.00	622LY-3R3M
4.7µH	7.96MHz	20	4.3A	TK4434-ND	2.42	19.69	96.66	406.33	652.00	622LY-4R7M
6.8µH	7.96MHz	20	3.7A	TK4435-ND	2.42	19.69	96.66	406.33	652.00	622LY-6R8M
10µH	2.52MHz	50	3.0A	TK4436-ND	2.42	19.69	96.66	406.33	652.00	622LY-100K
12µH	2.52MHz	50	2.6A	TK4437-ND	2.42	19.69	96.66	406.33	652.00	622LY-120K
15µH	2.52MHz	50	2.3A	TK4438-ND	2.42	19.69	96.66	406.33	652.00	622LY-150K
18µH	2.52MHz	40	2.2A	TK4439-ND	2.42	19.69	96.66	406.33	652.00	622LY-180K
22µH	2.52MHz	40	2.0A	TK4440-ND	2.42	19.69	96.66	406.33	652.00	622LY-220K
27µH	2.52MHz	40	1.7A	TK4441-ND	2.42	19.69	96.66	406.33	652.00	622LY-270K
33µH	2.52MHz	30	1.6A	TK4442-ND	2.42	19.69	96.66	406.33	652.00	622LY-330K
39µH	2.52MHz	30	1.5A	TK4443-ND	2.42	19.69	96.66	406.33	652.00	622LY-390K
47µH	2.52MHz	30	1.4A	TK4444-ND	2.42	19.69	96.66	406.33	652.00	622LY-470K
56µH	2.52MHz	30	1.3A	TK4445-ND	2.42	19.69	96.66	406.33	652.00	622LY-560K
68µH	2.52MHz	30	1.2A	TK4446-ND	2.42	19.69	96.66	406.33	652.00	622LY-680K
82µH	2.52MHz	30	1.1A	TK4447-ND	2.42	19.69	96.66	406.33	652.00	622LY-820K
100µH	0.796MHz	20	0.91A	TK4448-ND	2.42	19.69	96.66	406.33	652.00	622LY-101K
120µH	0.796MHz	20	0.84A	TK4449-ND	2.42	19.69	96.66	406.33	652.00	622LY-121K
150µH	0.796MHz	20	0.75A	TK4450-ND	2.42	19.69	96.66	406.33	652.00	622LY-151K
180µH	0.796MHz	20	0.69A	TK4451-ND	2.42	19.69	96.66	406.33	652.00	622LY-181K
220µH	0.796MHz	20	0.64A	TK4452-ND	2.42	19.69	96.66	406.33	652.00	622LY-221K
270µH	0.796MHz	20	0.57A	TK4453-ND	2.42	19.69	96.66	406.33	652.00	622LY-271K
330µH	0.796MHz	20	0.54A	TK4454-ND	2.42	19.69	96.66	406.33	652.00	622LY-331K
390µH	0.796MHz	20	0.48A	TK4455-ND	2.42	19.69	96.66	406.33	652.00	622LY-391K
470µH	0.796MHz	20	0.46A	TK4456-ND	2.42	19.69	96.66	406.33	652.00	622LY-471K
560µH	0.796MHz	20	0.41A	TK4457-ND	2.42	19.69	96.66	406.33	652.00	622LY-561K
680µH	0.796MHz	20	0.38A	TK4458-ND	2.42	19.69	96.66	406.33	652.00	622LY-681K
820µH	0.796MHz	20	0.35A	TK4459-ND	2.42	19.69	96.66	406.33	652.00	622LY-821K
1000µH	0.252MHz	50	0.29A	TK4460-ND	2.42	19.69	96.66	406.33	652.00	622LY-102K

TK5-KIT-ND ***NEW!*** Leaded Fixed Inductor Kit-2 each of 8RBS/8RHB Series (116 total parts)......................$59.40

L Nom.	Test Freq.	Q Min.	Rated DC Current	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Toko Part No.
10RB Type										
1.0mH	50KHz	70	90mA	TK4400-ND	3.75	30.58	150.12	631.06	1012.00	181LY-102J
1.2mH	50KHz	70	75mA	TK4401-ND	3.75	30.58	150.12	631.06	1012.00	181LY-122J
1.5mH	50KHz	70	70mA	TK4402-ND	3.75	30.58	150.12	631.06	1012.00	181LY-152J
1.8mH	50KHz	70	65mA	TK4403-ND	3.75	30.58	150.12	631.06	1012.00	181LY-182J
2.2mH	50KHz	70	60mA	TK4404-ND	3.75	30.58	150.12	631.06	1012.00	181LY-222J
2.7mH	50KHz	70	55mA	TK4405-ND	3.75	30.58	150.12	631.06	1012.00	181LY-272J
3.3mH	50KHz	100	50mA	TK4406-ND	3.75	30.58	150.12	631.06	1012.00	181LY-332J
3.9mH	50KHz	100	45mA	TK4407-ND	3.75	30.58	150.12	631.06	1012.00	181LY-392J
4.7mH	50KHz	100	40mA	TK4408-ND	3.75	30.58	150.12	631.06	1012.00	181LY-472J
5.6mH	50KHz	100	40mA	TK4409-ND	3.75	30.58	150.12	631.06	1012.00	181LY-562J
6.8mH	50KHz	100	35mA	TK4410-ND	3.75	30.58	150.12	631.06	1012.00	181LY-682J
8.2mH	50KHz	100	30mA	TK4411-ND	3.75	30.58	150.12	631.06	1012.00	181LY-822J
10.0mH	50KHz	100	25mA	TK4412-ND	3.75	30.58	150.12	631.06	1012.00	181LY-103J
12mH	50KHz	100	25mA	TK4413-ND	3.75	30.58	150.12	631.06	1012.00	181LY-123J
15mH	50KHz	100	20mA	TK4414-ND	3.75	30.58	150.12	631.06	1012.00	181LY-153J
18mH	50KHz	100	22mA	TK4415-ND	3.75	30.58	150.12	631.06	1012.00	181LY-183J
22mH	50KHz	100	21mA	TK4416-ND	3.75	30.58	150.12	631.06	1012.00	181LY-223J
27mH	50KHz	100	18mA	TK4417-ND	3.75	30.58	150.12	631.06	1012.00	181LY-273J
33mH	50KHz	100	18mA	TK4418-ND	3.75	30.58	150.12	631.06	1012.00	181LY-333J
36mH	50KHz	100	16mA	TK4419-ND	3.75	30.58	150.12	631.06	1012.00	181LY-363J
39mH	50KHz	100	15mA	TK4420-ND	3.75	30.58	150.12	631.06	1012.00	181LY-393J
47mH	50KHz	100	13mA	TK4421-ND	3.75	30.58	150.12	631.06	1012.00	181LY-473J
56mH	50KHz	100	12mA	TK4422-ND	3.75	30.58	150.12	631.06	1012.00	181LY-563J
68mH	50KHz	100	11mA	TK4423-ND	3.75	30.58	150.12	631.06	1012.00	181LY-683J
82mH	50KHz	100	10mA	TK4424-ND	3.75	30.58	150.12	631.06	1012.00	181LY-823J
100mH	50KHz	100	9mA	TK4425-ND	3.75	30.58	150.12	631.06	1012.00	181LY-104J
120mH	50KHz	100	8mA	TK4426-ND	3.75	30.58	150.12	631.06	1012.00	181LY-124J

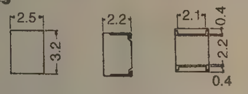
TOKO Surface Mount Inductors

TOKO AMERICA, INC.

9139B-ND Toko Coils & Filter Book **$9.95**

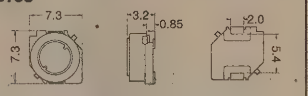
Features: 32CS – For dip-soldering type. Very small. **43FS** – For reflow soldering type. Small size. **D73:** • Miniature Surface Mount Type • Low Profile (3.2 or 4.8mm height) • Available in Magnetically Shielded or Unshielded Versions • Operating Temperature: -40°C to +80°C • Step Up/Step Down Inductor for up to 4W DC/DC Converter Circuit • Current Limiting Inductor For DC/AC Inverter Circuit. **5CB** – For reflow soldering type. Small size. Capacitor cannot be inserted. Adjustable type. **5CD** – For reflow soldering type. Small size. One capacitor can be inserted. Adjustable type. Most suitable for use in small size radios and thin type portable equipment. **5CT** – For reflow soldering type. Small size. One capacitor can be inserted. Bias oscillator coil. DC-DC connector transformer most suitable for use in portable equipment. **LL1608F & LL2012F:** For Reflow Soldering • Temperature Coefficient of L: +250ppm/°C max. • Temperature Range: -30°C +85°C • Features Laminated ceramic allows high SRF

32CS



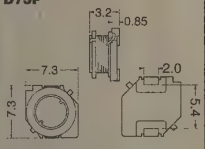
Tape & Reel quantity is 1,500 pieces.

D73C



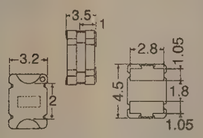
Tape & Reel quantity is 1,000 pieces.

D73F



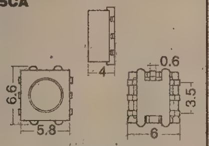
Tape & Reel quantity is 1,000 pieces.

43FS



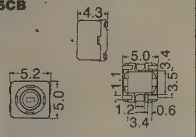
Tape & Reel quantity is 500 pieces.

5CA



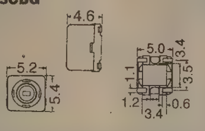
Tape & Reel quantity is 1000 pieces.

5CB



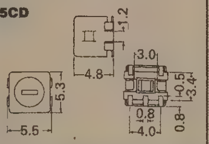
Tape & Reel quantity is 400 pieces.

5CBG



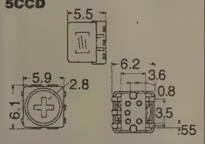
Tape & Reel quantity is 400 pieces.

5CD



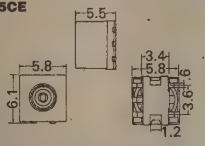
Tape & Reel quantity is 400 pieces.

5CCD



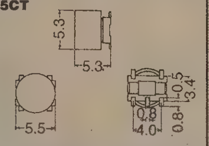
Tape & Reel quantity is 1000 pieces.

5CE



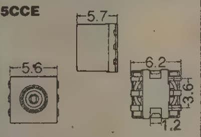
Tape & Reel quantity is 1000 pieces.

5CT



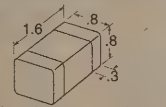
Tape & Reel pricing not available.

5CCE



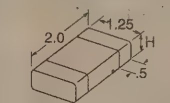
Tape & Reel quantity is 750 pieces.

LL1608 - 0603 Package



Tape & Reel quantity is 4000 pieces.

LL2012 - 0805 Package



Tape & Reel quantity is 3000 or 4000 pieces.

TK9990-ND	***NEW!*** Ceramic Tuning Driver (5CB, 5CBG, 5CE, 5CCE) (Requires Holder TK9999-ND, below)	**41.66**
TK9993-ND	***NEW!*** Ceramic Tuning Driver (5CD) (Requires Holder TK9999-ND, below)	**31.84**
TK9994-ND	***NEW!*** Ceramic Tuning Driver (5CCD) (Requires Holder TK9999-ND, below)	**69.64**
TK9999-ND	***NEW!*** Ceramic Driver Holder	**4.93**

L Nom.	Q Min.	Freq.	Rated DC Current	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	*Tape & Reel Pricing	Toko Part No.
32CS Type										
10nH± 20%	18	100MHz	510mA	TKS1001CT-ND	1.50	11.52	86.40	TKS1001TR-ND	786.00•	380NB-10NM
12nH ± 20%	19	100MHz	490mA	TKS1002CT-ND	1.50	11.52	86.40	TKS1002TR-ND	786.00•	380NB-12NM
15nH ± 20%	20	100MHz	470mA	TKS1003CT-ND	1.50	11.52	86.40	TKS1003TR-ND	786.00•	380NB-15NM
18nH ± 20%	20	100MHz	450mA	TKS1004CT-ND	1.50	11.52	86.40	TKS1004TR-ND	786.00•	380NB-18NM
22nH ± 20%	21	100MHz	430mA	TKS1005CT-ND	1.50	11.52	86.40	TKS1005TR-ND	786.00•	380NB-22NM
27nH ± 20%	22	100MHz	410mA	TKS1006CT-ND	1.50	11.52	86.40	TKS1006TR-ND	786.00•	380NB-27NM
33nH ± 20%	22	100MHz	390mA	TKS1007CT-ND	1.50	11.52	86.40	TKS1007TR-ND	786.00•	380NB-33NM
39nH ± 20%	23	100MHz	380mA	TKS1008CT-ND	1.50	11.52	86.40	TKS1008TR-ND	786.00•	380NB-39NM
47nH ± 20%	24	100MHz	360mA	TKS1009CT-ND	1.50	11.52	86.40	TKS1009TR-ND	786.00•	380NB-47NM
56nH ± 20%	25	100MHz	340mA	TKS1010CT-ND	1.50	11.52	86.40	TKS1010TR-ND	786.00•	380NB-56NM
68nH ± 20%	26	100MHz	320mA	TKS1011CT-ND	1.50	11.52	86.40	TKS1011TR-ND	786.00•	380NB-68NM
82nH ± 20%	27	100MHz	300mA	TKS1012CT-ND	1.50	11.52	86.40	TKS1012TR-ND	786.00•	380NB-82NM
.10µH ± 20%	18	25.2MHz	250mA	TKS1013CT-ND	1.50	11.52	86.40	TKS1013TR-ND	786.00•	380NB-R10M
.12µH ± 20%	18	25.2MHz	240mA	TKS1014CT-ND	1.50	11.52	86.40	TKS1014TR-ND	786.00•	380NB-R12M
.15µH ± 20%	17	25.2MHz	230mA	TKS1015CT-ND	1.50	11.52	86.40	TKS1015TR-ND	786.00•	380NB-R15M
.18µH ± 20%	16	25.2MHz	220mA	TKS1016CT-ND	1.50	11.52	86.40	TKS1016TR-ND	786.00•	380NB-R18M
.22µH ± 20%	15	25.2MHz	200mA	TKS1017CT-ND	1.50	11.52	86.40	TKS1017TR-ND	786.00•	380NB-R22M
.27µH ± 20%	15	25.2MHz	190mA	TKS1018CT-ND	1.50	11.52	86.40	TKS1018TR-ND	786.00•	380NB-R27M
.33µH ± 20%	15	25.2MHz	180mA	TKS1019CT-ND	1.50	11.52	86.40	TKS1019TR-ND	786.00•	380NB-R33M
.39µH ± 20%	14	25.2MHz	170mA	TKS1020CT-ND	1.50	11.52	86.40	TKS1020TR-ND	786.00•	380NB-R39M
.47µH ± 20%	13	25.2MHz	170mA	TKS1021CT-ND	1.50	11.52	86.40	TKS1021TR-ND	786.00•	380NB-R47M
.56µH ± 20%	12	25.2MHz	160mA	TKS1022CT-ND	1.50	11.52	86.40	TKS1022TR-ND	786.00•	380NB-R56M
.68µH ± 20%	12	25.2MHz	150mA	TKS1023CT-ND	1.50	11.52	86.40	TKS1023TR-ND	786.00•	380NB-R68M
.82µH ± 20%	12	25.2MHz	140mA	TKS1024CT-ND	1.50	11.52	86.40	TKS1024TR-ND	786.00•	380NB-R82M
1.0µH ± 10%	30	7.96MHz	235mA	TKS1025CT-ND	1.50	11.52	86.40	TKS1025TR-ND	786.00•	380LB-1R0K
1.2µH ± 10%	30	7.96MHz	225mA	TKS1026CT-ND	1.50	11.52	86.40	TKS1026TR-ND	786.00•	380LB-1R2K
1.5µH ± 10%	30	7.96MHz	200mA	TKS1027CT-ND	1.50	11.52	86.40	TKS1027TR-ND	786.00•	380LB-1R5K
1.8µH ± 10%	30	7.96MHz	190mA	TKS1028CT-ND	1.50	11.52	86.40	TKS1028TR-ND	786.00•	380LB-1R8K
2.2µH ± 10%	30	7.96MHz	180mA	TKS1029CT-ND	1.50	11.52	86.40	TKS1029TR-ND	786.00•	380LB-2R2K
2.7µH ± 10%	30	7.96MHz	178mA	TKS1030CT-ND	1.50	11.52	86.40	TKS1030TR-ND	786.00•	380LB-2R7K
3.3µH ± 10%	30	7.96MHz	175mA	TKS1031CT-ND	1.50	11.52	86.40	TKS1031TR-ND	786.00•	380LB-3R3K
3.9µH ± 10%	30	7.96MHz	170mA	TKS1032CT-ND	1.50	11.52	86.40	TKS1032TR-ND	786.00•	380LB-3R9K
4.7µH ± 10%	30	7.96MHz	160mA	TKS1033CT-ND	1.50	11.52	86.40	TKS1033TR-ND	786.00•	380LB-4R7K
5.6µH ± 10%	30	7.96MHz	127mA	TKS1034CT-ND	1.50	11.52	86.40	TKS1034TR-ND	786.00•	380LB-5R6K
6.8µH ± 10%	30	7.96MHz	125mA	TKS1035CT-ND	1.50	11.52	86.40	TKS1035TR-ND	786.00•	380LB-6R8K
8.2µH ± 10%	30	7.96MHz	120mA	TKS1036CT-ND	1.50	11.52	86.40	TKS1036TR-ND	786 00•	380LB-8R2K
10µH ± 5%	30	2.52MHz	118mA	TKS1037CT-ND	1.50	11.52	86.40	TKS1037TR-ND	786.00•	380KB-100J
12µH ± 5%	30	2.52MHz	93.0mA	TKS1038CT-ND	1.50	11.52	86.40	TKS1038TR-ND	786.00•	380KB-120J
15µH ± 5%	30	2.52MHz	85.0mA	TKS1039CT-ND	1.50	11.52	86.40	TKS1039TR-ND	786.00•	380KB-150J
18µH ± 5%	30	2.52MHz	80.0mA	TKS1040CT-ND	1.50	11.52	86.40	TKS1040TR-ND	786.00•	380KB-180J
22µH ± 5%	30	2.52MHz	73.3mA	TKS1041CT-ND	1.50	11.52	86.40	TKS1041TR-ND	786.00•	380KB-220J
27µH ± 5%	30	2.52MHz	68.2mA	TKS1042CT-ND	1.50	11.52	86.40	TKS1042TR-ND	786.00•	380KB-270J
33µH ± 5%	30	2.52MHz	61.7mA	TKS1043CT-ND	1.50	11.52	86.40	TKS1043TR-ND	786.00•	380KB-330J
39µH ± 5%	30	2.52MHz	56.7mA	TKS1044CT-ND	1.50	11.52	86.40	TKS1044TR-ND	786.00•	380KB-390J
47µH ± 5%	30	2.52MHz	51.7mA	TKS1045CT-ND	1.50	11.52	86.40	TKS1045TR-ND	786.00•	380KB-470J
56µH ± 5%	30	2.52MHz	43.3mA	TKS1046CT-ND	1.50	11.52	86.40	TKS1046TR-ND	786.00•	380KB-560J
68µH ± 5%	30	2.52MHz	42.5mA	TKS1047CT-ND	1.50	11.52	86.40	TKS1047TR-ND	786.00•	380KB-680J
82µH ± 5%	30	2.52MHz	37.5mA	TKS1048CT-ND	1.50	11.52	86.40	TKS1048TR-ND	786.00•	380KB-820J
100µH ± 5%	18	.796MHz	37.3mA	TKS1049CT-ND	1.50	11.52	86.40	TKS1049TR-ND	786.00•	380HB-101J
120µH ± 5%	18	.796MHz	35.0mA	TKS1050CT-ND	1.50	11.52	86.40	TKS1050TR-ND	786.00•	380HB-121J
150µH ± 5%	18	.796MHz	32.0mA	TKS1051CT-ND	1.50	11.52	86.40	TKS1051TR-ND	786.00•	380HB-151J
180µH ± 5%	18	.796MHz	31.0mA	TKS1052CT-ND	1.50	11.52	86.40	TKS1052TR-ND	786.00•	380HB-181J
220µH ± 5%	18	.796MHz	30.0mA	TKS1053CT-ND	1.50	11.52	86.40	TKS1053TR-ND	786.00•	380HB-221J
D73C Type, with Ferrite Shield										
1.0µH	—	100KHz	3.12A	TKS2501CT-ND	2.55	19.64	147.30	TKS2501TR-ND	884.00	636CY-1R0M
1.5µH	—	100KHz	2.85A	TKS2502CT-ND	2.55	19.64	147.30	TKS2502TR-ND	884.00	636CY-1R5M
2.2µH	—	100KHz	2.66A	TKS2503CT-ND	2.55	19.64	147.30	TKS2503TR-ND	884.00	636CY-2R2M
3.3µH	—	100KHz	2.26A	TKS2504CT-ND	2.55	19.64	147.30	TKS2504TR-ND	884.00	636CY-3R3M
4.7µH	—	100KHz	1.96A	TKS2505CT-ND	2.55	19.64	147.30	TKS2505TR-ND	884.00	636CY-4R7M
6.8µH	—	100KHz	1.76A	TKS2506CT-ND	2.55	19.64	147.30	TKS2506TR-ND	884.00	636CY-6R8M
10µH	—	100KHz	1.34A	TKS2507CT-ND	2.55	19.64	147.30	TKS2507TR-ND	884.00	636CY-100M
12µH	—	100KHz	1.23A	TKS2508CT-ND	2.55	19.64	147.30	TKS2508TR-ND	884 00	636CY-120M
15µH	—	100KHz	1.09A	TKS2509CT-ND	2.55	19.64	147.30	TKS2509TR-ND	884.00	636CY-150M
18µH	—	100KHz	.99A	TKS2539CT-ND	2.55	19.64	147.30	TKS2539TR-ND	894.00	636CY-180M
22µH	—	100KHz	.90A	TKS2540CT-ND	2.55	19.64	147.30	TKS2540TR-ND	894.00	636CY-220M
27µH	—	100KHz	.81A	TKS2541CT-ND	2.55	19.64	147.30	TKS2541TR-ND	894.00	636CY-270M
33µH	—	100KHz	.72A	TKS2542CT-ND	2.55	19.64	147.30	TKS2542TR-ND	894.00	636CY-330M
39µH	—	100KHz	.67A	TKS2543CT-ND	2.55	19.64	147.30	TKS2543TR-ND	894.00	636CY-390M
47µH	—	100KHz	.60A	TKS2544CT-ND	2.55	19.64	147.30	TKS2544TR-ND	894.00	636CY-470M
56µH	—	100KHz	.55A	TKS2545CT-ND	2.55	19.64	147.30	TKS2545TR-ND	894.00	636CY-560M
68µH	—	100KHz	.50A	TKS2546CT-ND	2.55	19.64	147.30	TKS2546TR-ND	894.00	636CY-680M
82µH	—	100KHz	.46A	TKS2547CT-ND	2.55	19.64	147.30	TKS2547TR-ND	894.00	636CY-820M
100µH	—	100KHz	.41A	TKS2548CT-ND	2.55	19.64	147.30	TKS2548TR-ND	894.00	636CY-101M
D73F Type, Unshielded										
1.0µH	—	100KHz	2.88A	TKS2520CT-ND	2.27	17.48	131.10	TKS2520TR-ND	795.00	636FY-1R0M
1.5µH	—	100KHz	2.67A	TKS2521CT-ND	2.27	17.48	131.10	TKS2521TR-ND	795.00	636FY-1R5M
2.2µH	—	100KHz	2.40A	TKS2522CT-ND	2.27	17.48	131.10	TKS2522TR-ND	795.00	636FY-2R2M
3.3µH	—	100KHz	2.08A	TKS2523CT-ND	2.27	17.48	131.10	TKS2523TR-ND	795.00	636FY-3R3M
4.7µH	—	100KHz	1.92A	TKS2524CT-ND	2.27	17.48	131.10	TKS2524TR-ND	795.00	636FY-4R7M
6.8µH	—	100KHz	1.60A	TKS2525CT-ND	2.27	17.48	131.10	TKS2525TR-ND	795.00	636FY-6R8M
10µH	—	100KHz	1.41A	TKS2526CT-ND	2.27	17.48	131.10	TKS2526TR-ND	795.00	636FY-100M
12µH	—	100KHz	1.28A	TKS2527CT-ND	2.27	17.48	131.10	TKS2527TR-ND	795.00	636FY-120M
15µH	—	100KHz	1.12A	TKS2528CT-ND	2.27	17.48	131.10	TKS2528TR-ND	795.00	636FY-150M
18µH	—	100KHz	1.00A	TKS2529CT-ND	2.27	17.48	131.10	TKS2529TR-ND	795.00	636FY-180M
22µH	—	100KHz	.93A	TKS2530CT-ND	2.27	17.48	131.10	TKS2530TR-ND	795.00	636FY-220M
27µH	—	100KHz	.80A	TKS2531CT-ND	2.27	17.48	131.10	TKS2531TR-ND	795.00	636FY-270M
33µH	—	100KHz	.72A	TKS2532CT-ND	2.27	17.48	131.10	TKS2532TR-ND	795.00	636FY-330M
39µH	—	100KHz	.66A	TKS2533CT-ND	2.27	17.48	131.10	TKS2533TR-ND	795.00	636FY-390M
47µH	—	100KHz	.59A	TKS2534CT-ND	2.27	17.48	131 10	TKS2534TR-ND	795.00	636FY-470M
56µH	—	100KHz	.55A	TKS2535CT-ND	2.27	17.48	131.10	TKS2535TR-ND	795.00	636FY-560M
68µH	—	100KHz	.49A	TKS2536CT-ND	2.27	17.48	131.10	TKS2536TR-ND	795.00	636FY-680M
82µH	—	100KHz	.44A	TKS2537CT-ND	2.27	17.48	131.10	TKS2537TR-ND	795.00	636FY-820M
100µH	—	100KHz	.38A	TKS2538CT-ND	2.27	17.48	131.10	TKS2538TR-ND	795.00	636FY-101M
TK9-KIT-ND *NEW!* (SPK-D7-1994) D7 Series Fixed Inductor Kit - 2 ea. of 43 values (1µH - 470µH) $97.20										
43FS Type										
0.1µH ± 20%	23	25.2MHz	290mA	TKS1201CT-ND	1.50	11.52	86.40	TKS1201TR-ND	306.72†	300NS-R10M
.12µH ± 20%	23	25.2MHz	250mA	TKS1202CT-ND	1.50	11.52	86.40	TKS1202TR-ND	306.72†	300NS-R12M
.15µH ± 20%	23	25.2MHz	220mA	TKS1203CT-ND	1.50	11.52	86.40	TKS1203TR-ND	306.72†	300NS-R15M
.18µH ± 20%	23	25.2MHz	210mA	TKS1204CT-ND	1.50	11.52	86.40	TKS1204TR-ND	306.72†	300NS-R18M
.22µH ± 20%	22	25.2MHz	190mA	TKS1205CT-ND	1.50	11.52	86.40	TKS1205TR-ND	306.72†	300NS-R22M
.27µH ± 20%	22	25.2MHz	170mA	TKS1206CT-ND	1.50	11.52	86.40	TKS1206TR-ND	306.72†	300NS-R27M
.33µH ± 20%	21	25.2MHz	160mA	TKS1207CT-ND	1.50	11.52	86.40	TKS1207TR-ND	306.72†	300NS-R33M
.39µH ± 20%	21	25.2MHz	155mA	TKS1208CT-ND	1.50	11.52	86.40	TKS1208TR-ND	306.72†	300NS-R39M
.47µH ± 20%	20	25.2MHz	150mA	TKS1209CT-ND	1.50	11.52	86.40	TKS1209TR-ND	306.72†	300NS-R47M
.56µH ± 20%	19	25.2MHz	145mA	TKS1210CT-ND	1 50	11.52	86.40	TKS1210TR-ND	306.72†	300NS-R56M

★ Tape & Reel pricing is priced per 1,000 unless otherwise noted. • Tape & Reel pricing is priced per 1,500. † Tape & Reel pricing is priced per 500.

L Nom.	Q Min.	Freq.	Rated DC Current	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	*Tape & Reel Pricing	Toko Part No.
.68µH ± 20%	18	25.2MHz	140mA	TKS1211CT-ND	1.50	11.52	86.40	TKS1211TR-ND	306.72†	300NS-R68M
.82µH ± 20%	17	25.2MHz	135mA	TKS1212CT-ND	1.50	11.52	86.40	TKS1212TR-ND	306.72†	300NS-R82M
1.0µH ± 10%	50	7.96MHz	250mA	TKS1213CT-ND	1.51	11.60	87.00	TKS1213TR-ND	304.50†	300LS-1R0K
1.2µH ± 10%	50	7.96MHz	240mA	TKS1214CT-ND	1.51	11.60	87.00	TKS1214TR-ND	304.50†	300LS-1R2K
1.5µH ± 10%	50	7.96MHz	230mA	TKS1215CT-ND	1.51	11.60	87.00	TKS1215TR-ND	304.50†	300LS-1R5K
1.8µH ± 10%	50	7.96MHz	220mA	TKS1216CT-ND	1.51	11.60	87.00	TKS1216TR-ND	304.50†	300LS-1R8K
2.2µH ± 10%	50	7.96MHz	200mA	TKS1217CT-ND	1.51	11.60	87.00	TKS1217TR-ND	304.50†	300LS-2R2K
2.7µH ± 10%	50	7.96MHz	190mA	TKS1218CT-ND	1.51	11.60	87.00	TKS1218TR-ND	304.50†	300LS-2R7K
3.3µH ± 10%	50	7.96MHz	180mA	TKS1219CT-ND	1.51	11.60	87.00	TKS1219TR-ND	304.50†	300LS-3R3K
3.9µH ± 10%	50	7.96MHz	160mA	TKS1220CT-ND	1.51	11.60	87.00	TKS1220TR-ND	304.50†	300LS-3R9K
4.7µH ± 10%	50	7.96MHz	160mA	TKS1221CT-ND	1.51	11.60	87.00	TKS1221TR-ND	304.50†	300LS-4R7K
5.6µH ± 10%	50	7.96MHz	150mA	TKS1222CT-ND	1.51	11.60	87.00	TKS1222TR-ND	304.50†	300LS-5R6K
6.8µH ± 10%	50	7.96MHz	150mA	TKS1223CT-ND	1.51	11.60	87.00	TKS1223TR-ND	304.50†	300LS-6R8K
8.2µH ± 10%	50	7.96MHz	150mA	TKS1224CT-ND	1.51	11.60	87.00	TKS1224TR-ND	304.50†	300LS-8R2K
10.0µH ± 10%	50	7.96MHz	145mA	TKS1225CT-ND	1.51	11.60	87.00	TKS1225TR-ND	304.50†	300LS-100K
12.0µH ± 10%	50	2.52MHz	140mA	TKS1226CT-ND	1.51	11.60	87.00	TKS1226TR-ND	304.50†	300LS-120K
15.0µH ± 10%	50	2.52MHz	130mA	TKS1227CT-ND	1.51	11.60	87.00	TKS1227TR-ND	304.50†	300LS-150K
18.0µH ± 10%	50	2.52MHz	125mA	TKS1228CT-ND	1.51	11.60	87.00	TKS1228TR-ND	304.50†	300LS-180K
22.0µH ± 10%	50	2.52MHz	115mA	TKS1229CT-ND	1.51	11.60	87.00	TKS1229TR-ND	304.50†	300LS-220K
27.0µH ± 10%	50	2.52MHz	105mA	TKS1230CT-ND	1.51	11.60	87.00	TKS1230TR-ND	304.50†	300LS-270K
33.0µH ± 10%	50	2.52MHz	100mA	TKS1231CT-ND	1.51	11.60	87.00	TKS1231TR-ND	304.50†	300LS-330K
39.0µH ± 10%	50	2.52MHz	95mA	TKS1232CT-ND	1.51	11.60	87.00	TKS1232TR-ND	304.50†	300LS-390K
47.0µH ± 10%	50	2.52MHz	85mA	TKS1233CT-ND	1.51	11.60	87.00	TKS1233TR-ND	304.50†	300LS-470K
56.0µH ± 10%	50	2.52MHz	85mA	TKS1234CT-ND	1.51	11.60	87.00	TKS1234TR-ND	304.50†	300LS-560K
68.0µH ± 10%	50	2.52MHz	75mA	TKS1235CT-ND	1.51	11.60	87.00	TKS1235TR-ND	304.50†	300LS-680K
82.0µH ± 10%	50	2.52MHz	75mA	TKS1236CT-ND	1.51	11.60	87.00	TKS1236TR-ND	304.50†	300LS-820K
100µH ± 5%	50	2.52MHz	70mA	TKS1237CT-ND	1.60	12.28	92.10	TKS1237TR-ND	322.35†	300LS-101J
120µH ± 5%	50	796KHz	70mA	TKS1238CT-ND	1.60	12.28	92.10	TKS1238TR-ND	322.35†	300HS-121J
150µH ± 5%	50	796KHz	65mA	TKS1239CT-ND	1.60	12.28	92.10	TKS1239TR-ND	322.35†	300HS-151J
180µH ± 5%	50	796KHz	60mA	TKS1240CT-ND	1.60	12.28	92.10	TKS1240TR-ND	322.35†	300HS-181J
220µH ± 5%	50	796KHz	60mA	TKS1241CT-ND	1.60	12.28	92.10	TKS1241TR-ND	322.35†	300HS-221J
270µH ± 5%	50	796KHz	55mA	TKS1242CT-ND	1.60	12.28	92.10	TKS1242TR-ND	322.35†	300HS-271J
330µH ± 5%	50	796KHz	50mA	TKS1243CT-ND	1.60	12.28	92.10	TKS1243TR-ND	322.35†	300HS-331J
390µH ± 5%	50	796KHz	50mA	TKS1244CT-ND	1.60	12.28	92.10	TKS1244TR-ND	322.35†	300HS-391J
470µH ± 5%	50	796KHz	45mA	TKS1245CT-ND	1.60	12.28	92.10	TKS1245TR-ND	322.35†	300HS-471J
560µH ± 5%	50	796KHz	45mA	TKS1246CT-ND	1.60	12.28	92.10	TKS1246TR-ND	322.35†	300SS-561J
680µH ± 5%	50	796KHz	40mA	TKS1247CT-ND	1.60	12.28	92.10	TKS1247TR-ND	322.35†	300SS-681J
820µH ± 5%	50	796KHz	50mA	TKS1248CT-ND	1.60	12.28	92.10	TKS1248TR-ND	322.35†	300SS-821J
1000µH ± 5%	50	796KHz	40mA	TKS1249CT-ND	1.60	12.28	92.10	TKS1249TR-ND	322.35†	300SS-102J
5CA Type										
.05mH	20	2.52MHz	—	TKS2320CT-ND	2.32	21.08	160.17	TKS2320TR-ND	1121.00	395AN-0103IB
.10mH	15	2.52MHz	—	TKS2321CT-ND	2.32	21.08	160.17	TKS2321TR-ND	1121.00	395AN-0064
.22mH	50	796KHz	—	TKS2322CT-ND	2.32	21.08	160.17	—	—	395AN-0101IB
.55mH	50	796KHz	—	TKS2324CT-ND	2.32	21.08	160.17	TKS2324TR-ND	1121.00	395AN-0065Z
3.5mH	90	252KHz	—	TKS2329CT-ND	2.32	21.08	160.17	—	—	395AN-0119
4.0mH	75	252KHz	—	TKS2330CT-ND	2.32	21.08	160.17	—	—	395AN-0118
5CB Type										
.10µH ± 2%	48	100MHz	200mA	TKS2101CT-ND	2.80	25.45	193.42	TKS2101TR-ND	610.80‡	5CB-1318Z
22µH ± 2%	58	100MHz	200mA	TKS2102CT-ND	2.80	25.45	193.42	TKS2102TR-ND	610.80‡	5CB-1319Z
.68µH ± 2%	42	50MHz	200mA	TKS2105CT-ND	2.80	25.45	193.42	TKS2105TR-ND	610.80‡	5CB-1322Z
1.50µH ± 2%	34	40MHz	200mA	TKS2108CT-ND	2.80	25.45	193.42	TKS2108TR-ND	610.80‡	5CB-1325Z
5CBG Type										
.68µH ± 2%	33	50MHz	200mA	TKS2241CT-ND	2.54	23.10	175.56	TKS2241TR-ND	556.20‡	609AN-1106Z
1.60µH ± 2%	27	40MHz	200mA	TKS2244CT-ND	2.54	23.10	175.56	TKS2244TR-ND	556.20‡	609AN-1170Z
5CD Type										
1.2µH ± 4%	40	7.96MHz	200mA	TKS2202CT-ND	2.80	25.45	193.42	TKS2202TR-ND	591.60‡	303AN-1101
4.7µH ± 4%	40	7.96MHz	200mA	TKS2209CT-ND	2.80	25.45	193.42	—	—	303AN-1108
6.8µH ± 4%	40	7.96MHz	200mA	TKS2211CT-ND	2.80	25.45	193.42	TKS2211TR-ND	591.60‡	303AN-1110
15.0µH ± 4%	40	2.52MHz	155mA	TKS2215CT-ND	2.80	25.45	193.42	TKS2215TR-ND	591.60‡	303AN-1114
18.0µH ± 4%	40	2.52MHz	164mA	TKS2216CT-ND	2.80	25.45	193.42	TKS2216TR-ND	591.60‡	303AN-1115
22.0µH ± 4%	40	2.52MHz	144mA	TKS2217CT-ND	2.80	25.45	193.42	TKS2217TR-ND	591.60‡	303AN-1116
33.0µH ± 4%	40	2.52MHz	111mA	TKS2219CT-ND	2.80	25.45	193.42	TKS2219TR-ND	591.60‡	303AN-1118
56.0µH ± 4%	40	2.52MHz	90mA	TKS2222CT-ND	2.80	25.45	193.42	TKS2222TR-ND	591.60‡	303AN-1121
68.0µH ± 4%	25	2.52MHz	15mA	TKS2223CT-ND	2.80	25.45	193.42	TKS2223TR-ND	591.60‡	303LN-1122
120µH ± 4%	30	796KHz	12mA	TKS2226CT-ND	2.80	25.45	193.42	TKS2226TR-ND	591.60‡	303LN-1125
180µH ± 4%	30	796KHz	9mA	TKS2228CT-ND	2.80	25.45	193.42	TKS2228TR-ND	591.60‡	303LN-1127
220µH ± 4%	30	796KHz	8mA	TKS2229CT-ND	2.80	25.45	193.42	TKS2229TR-ND	591.60‡	303LN-1128
270µH ± 4%	30	796KHz	8mA	TKS2230CT-ND	2.80	25.45	193.42	TKS2230TR-ND	591.60‡	303LN-1129
390µH ± 4%	30	796KHz	6mA	TKS2232CT-ND	2.80	25.45	193.42	—	—	303LN-1131
470µH ± 4%	30	796KHz	5mA	TKS2233CT-ND	2.80	25.45	193.42	TKS2233TR-ND	591.60‡	303LN-1132
560µH ± 4%	30	796KHz	5mA	TKS2234CT-ND	2.80	25.45	193.42	TKS2234TR-ND	591.60‡	303LN-1133
5CCD Type										
1.8µH ± 3%	45	7.96MHz	—	TKS2245CT-ND	3.34	25.68	192.60	TKS2245TR-ND	1168.00	614BN-9018Z
2.2µH ± 3%	45	7.96MHz	—	TKS2246CT-ND	3.34	25.68	192.60	TKS2246TR-ND	1168.00	614BN-9022Z
2.7µH ± 3%	50	7.96MHz	—	TKS2247CT-ND	3.34	25.68	192.60	TKS2247TR-ND	1168.00	614BN-9027IB
3.3µH ± 3%	55	7.96MHz	—	TKS2248CT-ND	3.34	25.68	192.60	TKS2248TR-ND	1168.00	614BN-9033Z
3.9µH ± 3%	55	7.96MHz	—	TKS2249CT-ND	3.34	25.68	192.60	TKS2249TR-ND	1168.00	614BN-9039Z
4.7µH ± 3%	55	7.96MHz	—	TKS2250CT-ND	3.34	25.68	192.60	TKS2250TR-ND	1168.00	614BN-9047Z
5.6µH ± 3%	65	7.96MHz	—	TKS2251CT-ND	3.34	25.68	192.60	TKS2251TR-ND	1168.00	614BN-9056Z
6.8µH ± 3%	65	7.96MHz	—	TKS2252CT-ND	3.34	25.68	192.60	TKS2252TR-ND	1168.00	614BN-9068Z
8.2µH ± 3%	65	7.96MHz	—	TKS2253CT-ND	3.34	25.68	192.60	TKS2253TR-ND	1168.00	614BN-9082Z
10.0µH ± 3%	45	2.52MHz	—	TKS2254CT-ND	3.34	25.68	192.60	TKS2254TR-ND	1168.00	614BN-9100Z
12.0µH ± 3%	45	2.52MHz	—	TKS2255CT-ND	3.34	25.68	192.60	TKS2255TR-ND	1168.00	614BN-9120Z
15.0µH ± 3%	45	2.52MHz	—	TKS2256CT-ND	3.34	25.68	192.60	TKS2256TR-ND	1168.00	614BN-9150Z
18.0µH ± 3%	45	2.52MHz	—	TKS2257CT-ND	3.34	25.68	192.60	TKS2257TR-ND	1168.00	614BN-9180Z
22.0µH ± 3%	45	2.52MHz	—	TKS2258CT-ND	3.34	25.68	192.60	TKS2258TR-ND	1168.00	614BN-9220Z
27.0µH ± 3%	45	2.52MHz	—	TKS2259CT-ND	3.34	25.68	192.60	TKS2259TR-ND	1168.00	614BN-9270Z
33.0µH ± 3%	45	2.52MHz	—	TKS2260CT-ND	3.34	25.68	192.60	TKS2260TR-ND	1168.00	614BN-9330Z
39.0µH ± 3%	45	2.52MHz	—	TKS2261CT-ND	3.34	25.68	192.60	TKS2261TR-ND	1168.00	614BN-9390Z
47.0µH ± 3%	45	2.52MHz	—	TKS2262CT-ND	3.34	25.68	192.60	TKS2262TR-ND	1168.00	614BN-9470Z
56.0µH ± 3%	45	2.52MHz	—	TKS2263CT-ND	3.34	25.68	192.60	TKS2263TR-ND	1168.00	614BN-9560Z
68.0µH ± 3%	30	2.52MHz	—	TKS2264CT-ND	3.34	25.68	192.60	TKS2264TR-ND	1168.00	614AN-9680Z
82.0µH ± 3%	30	2.52MHz	—	TKS2265CT-ND	3.34	25.68	192.60	TKS2265TR-ND	1168.00	614AN-9820Z
100µH ± 3%	45	796KHz	—	TKS2266CT-ND	3.34	25.68	192.60	TKS2266TR-ND	1168.00	614AN-9101Z
120µH ± 3%	45	796KHz	—	TKS2267CT-ND	3.34	25.68	192.60	TKS2267TR-ND	1168.00	614AN-9121Z
150µH ± 3%	45	796KHz	—	TKS2268CT-ND	3.34	25.68	192.60	TKS2268TR-ND	1168.00	614AN-9151Z
180µH ± 3%	45	796KHz	—	TKS2269CT-ND	3.34	25.68	192.60	TKS2269TR-ND	1168.00	614AN-9181Z
220µH ± 3%	45	796KHz	—	TKS2270CT-ND	3.34	25.68	192.60	TKS2270TR-ND	1168.00	614AN-9221Z
270µH ± 3%	45	796KHz	—	TKS2271CT-ND	3.34	25.68	192.60	TKS2271TR-ND	1168.00	614AN-9271Z
330µH ± 3%	45	796KHz	—	TKS2272CT-ND	3.34	25.68	192.60	TKS2272TR-ND	1168.00	614AN-9331Z
390µH ± 3%	45	796KHz	—	TKS2273CT-ND	3.34	25.68	192.60	TKS2273TR-ND	1168.00	614AN-9391Z
470µH ± 3%	45	796KHz	—	TKS2274CT-ND	3.34	25.68	192.60	TKS2274TR-ND	1168.00	614AN-9471Z

★ Tape & Reel pricing is priced per 1,000 unless otherwise noted. † Tape & Reel pricing is priced per 500. ‡ Tape & Reel pricing is priced per 400.

L Nom.	Q Min.	Freq.	Rated DC Current	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	*Tape & Reel Pricing	Toko Part No.
560µH ± 3%	45	796KHz	—	TKS2275CT-ND	3.34	25.68	192.60	TKS2275TR-ND	1168.00	614AN-9561Z
680µH ± 3%	45	796KHz	—	TKS2276CT-ND	3.34	25.68	192.60	TKS2276TR-ND	1168.00	614AN-9681Z
820µH ± 3%	45	796KHz	—	TKS2277CT-ND	3.34	25.68	192.60	TKS2277TR-ND	1168.00	614AN-9821Z
1000µH ± 3%	30	252KHz	—	TKS2278CT-ND	3.34	25.68	192.60	TKS2278TR-ND	1168.00	614AN-9102Z
1200µH ± 3%	30	252KHz	—	TKS2279CT-ND	3.34	25.68	192.60	TKS2279TR-ND	1168.00	614AN-9122Z
1300µH ± 3%	30	252KHz	—	TKS2280CT-ND	3.34	25.68	192.60	TKS2280TR-ND	1168.00	614AN-9132Z
5CE Type										
330nH ± 5%	60	273MHz	—	TKS2409CT-ND	6.02	48.12	360.90	TKS2409TR-ND	2165.00	432AN-1058Z
5CT Type										
.05mH ± 20%	25	2.52MHz	460mA	TKS2301CT-ND	3.73	29.80	223.50	—	—	312AN-1031Z
2.0mH ± 20%	120	252KHz	83mA	TKS2305CT-ND	3.73	29.80	223.50	—	—	312AN-1035Z
2.5mH ± 20%	110	252KHz	77mA	TKS2306CT-ND	3.73	29.80	223.50	—	—	312AN-1036Z
4.0mH ± 20%	110	252KHz	65mA	TKS2309CT-ND	3.73	29.80	223.50	—	—	312AN-1039Z

★Tape & Reel Pricing is priced per 1,000 unless otherwise noted.

L Nom.	Q Min.	Freq.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape/Reel Pricing 750	Toko Part No.
5CCE Type									
68nH ± 5%	60	100MHz	TKS2420CT-ND	5.45	43.60	327.00	TKS2420TR-ND	1978.50	A638AN-0150Z
82nH ± 5%	63	100MHz	TKS2421CT-ND	5.45	43.60	327.00	TKS2421TR-ND	1978.50	A638AN-0151Z
100nH ± 5%	65	100MHz	TKS2422CT-ND	5.45	43.60	327.00	TKS2422TR-ND	1978.50	A638AN-0152Z
120nH ± 5%	[illegible]	100MHz	TKS2423CT-ND	5.45	43.60	327.00	TKS2423TR-ND	1978.50	A638AN-0153Z
150nH ± 5%	63	100MHz	TKS2424CT-ND	5.45	43.60	327.00	TKS2424TR-ND	1978.50	A638AN-0154Z
180nH ± 5%	73	100MHz	TKS2425CT-ND	5.45	43.60	327.00	TKS2425TR-ND	1978.50	A638AN-0155Z
220nH ± 5%	60	100MHz	TKS2426CT-ND	5.45	43.60	327.00	TKS2426TR-ND	1978.50	A638AN-0156Z
270nH ± 5%	72	100MHz	TKS2427CT-ND	5.45	43.60	327.00	TKS2427TR-ND	1978.50	A638AN-0157Z
330nH ± 5%	75	100MHz	TKS2428CT-ND	5.45	43.60	327.00	TKS2428TR-ND	1978.50	A638AN-0158Z
390nH ± 5%	68	100MHz	TKS2429CT-ND	5.45	43.60	327.00	TKS2429TR-ND	1978.50	A638AN-0159Z
470nH ± 5%	67	100MHz	TKS2430CT-ND	5.45	43.60	327.00	TKS2430TR-ND	1978.50	A638AN-0160Z
560nH ± 5%	68	100MHz	TKS2431CT-ND	5.45	43.60	327.00	TKS2431TR-ND	1978.50	A638AN-0161Z
680nH ± 5%	50	30MHz	TKS2432CT-ND	5.45	43.60	327.00	TKS2432TR-ND	1978.50	A638AN-0162Z
820nH ± 5%	48	30MHz	TKS2433CT-ND	5.45	43.60	327.00	TKS2433TR-ND	1978.50	A638AN-0163Z
1000nH ± 5%	50	30MHz	TKS2434CT-ND	5.45	43.60	327.00	TKS2434TR-ND	1978.50	A638AN-0164Z
1200nH ± 5%	48	30MHz	TKS2435CT-ND	5.45	43.60	327.00	TKS2435TR-ND	1978.50	A638AN-0165Z
1500nH ± 5%	48	30MHz	TKS2436CT-ND	5.45	43.60	327.00	TKS2436TR-ND	1978.50	A638AN-0166Z
1800nH ± 5%	47	30MHz	TKS2437CT-ND	5.45	43.60	327.00	TKS2437TR-ND	1978.50	A638AN-0167Z
2200nH ± 5%	47	30MHz	TKS2438CT-ND	5.45	43.60	327.00	TKS2438TR-ND	1978.50	A638AN-0168Z
TK8-KIT-ND *NEW!* (SPK-5SMD-1993) 5MM SMD Coil Kit - 2 ea. of 54 values (68nH - 2200nH & 1.8µH - 1000µH). . .$97.20									

Dim. H (mm)	Lo (nH)	Q (typ)	SRF MHz (typ)	IDC mA (Max)	Digi-Key Part No.	Pricing 10	100	500	Digi-Key Part No.	Tape/Reel Pricing 4000	Toko Part No.
LL1608F §NEW!											
—	1.5	60	>6000	300	TKS2353CT-ND	10.58	94.47	—	TKS2353TR-ND	1320.00	LL1608-F1N5S
—	1.8	37	>6000	300	TKS2354CT-ND	10.58	94.47	—	TKS2354TR-ND	1320.00	LL1608-F1N8S
—	2.2	35	>6000	300	TKS2355CT-ND	10.58	94.47	—	TKS2355TR-ND	1320.00	LL1608-F2N2S
—	2.7	30	>6000	300	TKS2356CT-ND	10.58	94.47	—	TKS2356TR-ND	1320.00	LL1608-F2N7S
—	3.3	30	5500	300	TKS2357CT-ND	9.68	86.43	213.00	TKS2357TR-ND	1204.00	LL1608-F3N3K
—	3.9	31	5700	300	TKS2340CT-ND	9.68	86.43	213.00	TKS2340TR-ND	1204.00	LL1608-F3N9K
—	4.7	31	4800	300	TKS2341CT-ND	9.68	86.43	213.00	TKS2341TR-ND	1204.00	LL1608-F4N7K
—	5.6	27	4600	300	TKS2342CT-ND	9.68	86.43	213.00	TKS2342TR-ND	1204.00	LL1608-F5N6K
—	6.8	27	3550	300	TKS2343CT-ND	9.68	86.43	213.00	TKS2343TR-ND	1204.00	LL1608-F6N8K
—	8.2	26	3500	300	TKS2344CT-ND	9.68	86.43	213.00	TKS2344TR-ND	1204.00	LL1608-F8N2K
—	10.0	26	2750	300	TKS2345CT-ND	9.68	86.43	213.00	TKS2345TR-ND	1204.00	LL1608-F10NK
—	12.0	24	2750	300	TKS2346CT-ND	9.68	86.43	213.00	TKS2346TR-ND	1204.00	LL1608-F12NK
—	15.0	24	2300	300	TKS2347CT-ND	9.68	86.43	213.00	TKS2347TR-ND	1204.00	LL1608-F15NK
—	18.0	24	2300	300	TKS2348CT-ND	9.68	86.43	213.00	TKS2348TR-ND	1204.00	LL1608-F18NK
—	22.0	25	2000	300	TKS2349CT-ND	9.68	86.43	213.00	TKS2349TR-ND	1204.00	LL1608-F22NK
—	27.0	25	1750	300	TKS2350CT-ND	9.68	86.43	213.00	TKS2350TR-ND	1204.00	LL1608-F27NK
—	33.0	24	1500	300	TKS2351CT-ND	9.68	86.43	213.00	TKS2351TR-ND	1204.00	LL1608-F33NK
—	39.0	20	1300	300	TKS2352CT-ND	9.68	86.43	213.00	TKS2352TR-ND	1204.00	LL1608-F39NK
—	47.0	18	1200	300	TKS2381CT-ND§	9.68	90.04	225.00	TKS2381TR-ND§	1440.00	LL1608-F47NK
—	56.0	14	1100	300	TKS2382CT-ND§	9.68	90.04	225.00	TKS2382TR-ND§	1440.00	LL1608-F56NK
—	68.0	18	1000	300	TKS2383CT-ND§	9.68	90.04	225.00	TKS2383TR-ND§	1440.00	LL1608-F68NK
—	82.0	18	900	300	TKS2384CT-ND§	9.68	90.04	225.00	TKS2384TR-ND§	1440.00	LL1608-F82NK
—	100.0	3	830	300	TKS2385CT-ND§	9.68	90.30	226.00	TKS2385TR-ND§	1444.00	LL1608-FR10K
TK7-KIT-ND *NEW!* (SPK-LL1608-1993) 0603 Chip Inductor Kit LL Series - 10 ea. of 24 values (1.2nH - 100nH) $71.55											
LL2012F											
0.60	1.8	42	6000	300	TKS2360CT-ND	10.05	89.78	221.00	TKS2360TR-ND	1248.00	LL2012-F1N8S
0.60	2.2	44	6000	300	TKS2361CT-ND	10.05	89.78	221.00	TKS2361TR-ND	1248.00	LL2012-F2N2S
0.60	2.7	32	6000	300	TKS2362CT-ND	10.05	89.78	221.00	TKS2362TR-ND	1248.00	LL2012-F2N7S
0.60	3.3	36	6000	300	TKS2363CT-ND	10.05	89.78	221.00	TKS2363TR-ND	1248.00	LL2012-F3N3K
0.60	3.9	46	5400	300	TKS2364CT-ND	10.05	89.78	221.00	TKS2364TR-ND	1248.00	LL2012-F3N9K
0.60	4.7	45	4500	300	TKS2365CT-ND	10.05	89.78	221.00	TKS2365TR-ND	1248.00	LL2012-F4N7K
0.60	5.6	47	4000	300	TKS2366CT-ND	10.05	89.78	221.00	TKS2366TR-ND	1248.00	LL2012-F5N6K
0.60	6.8	44	3650	300	TKS2367CT-ND	10.05	89.78	221.00	TKS2367TR-ND	1248.00	LL2012-F6N8K
0.60	8.2	46	3000	300	TKS2368CT-ND	10.05	89.78	221.00	TKS2368TR-ND	1248.00	LL2012-F8N2K
0.85	10.0	40	2500	300	TKS2369CT-ND	10.05	89.78	221.00	TKS2369TR-ND	1248.00	LL2012-F10NK
0.85	12.0	40	2450	300	TKS2370CT-ND	10.05	89.78	221.00	TKS2370TR-ND	1248.00	LL2012-F12NK
0.85	15.0	43	2000	300	TKS2371CT-ND	10.05	89.78	221.00	TKS2371TR-ND	1248.00	LL2012-F15NK
0.85	18.0	42	1750	300	TKS2372CT-ND	10.05	89.78	221.00	TKS2372TR-ND	1248.00	LL2012-F18NK
0.85	22.0	42	1700	300	TKS2373CT-ND	10.05	89.78	221.00	TKS2373TR-ND	1248.00	LL2012-F22NK
0.85	27.0	38	1550	300	TKS2374CT-ND	10.05	89.78	221.00	TKS2374TR-ND	1248.00	LL2012-F27NK
0.85	33.0	44	1350	300	TKS2375CT-ND	10.05	89.78	221.00	TKS2375TR-ND	1248.00	LL2012-F33NK
0.85	39.0	39	1300	300	TKS2376CT-ND	10.05	89.78	221.00	TKS2376TR-ND	1248.00	LL2012-F39NK

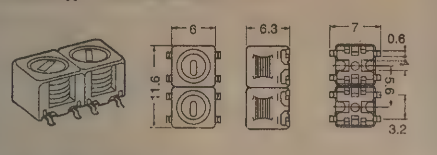
Dim. H (mm)	Lo (nH)	Q (typ)	SRF MHz (typ)	IDC mA (Max)	Digi-Key Part No.	Pricing 10	100	500	Digi-Key Part No.	Tape/Reel Pricing 3000	Toko Part No.
LL2012F §NEW!											
1.00	47.0	36	1200	300	TKS2377CT-ND	10.05	89.78	221.00	TKS2377TR-ND	936.00	LL2012-F47NK
1.00	56.0	36	1150	300	TKS2378CT-ND	10.05	89.78	221.00	TKS2378TR-ND	936.00	LL2012-F56NK
1.00	68.0	35	1000	300	TKS2379CT-ND	10.05	89.78	221.00	TKS2379TR-ND	936.00	LL2012-F68NK
1.00	82.0	25	850	300	TKS2380CT-ND	10.05	89.78	221.00	TKS2380TR-ND	936.00	LL2012-F82NK
1.00	100.0	18	730	300	TKS2386CT-ND§	11.25	105.00	262.50	TKS2386TR-ND§	1260.00	LL2012-FR10K
1.10	120.0	19	650	250	TKS2387CT-ND§	11.25	105.00	262.50	TKS2387TR-ND§	1260.00	LL2012-FR12K
1.10	150.0	20	550	250	TKS2388CT-ND§	11.25	105.00	262.50	TKS2388TR-ND§	1260.00	LL2012-FR15K
1.10	180.0	20	500	250	TKS2389CT-ND§	11.25	105.00	262.50	TKS2389TR-ND§	1260.00	LL2012-FR18K
1.10	220.0	20	450	200	TKS2390CT-ND§	11.25	105.00	262.50	TKS2390TR-ND§	1260.00	LL2012-FR22K
1.10	270.0	20	400	200	TKS2391CT-ND§	11.25	105.00	262.50	TKS2391TR-ND§	1260.00	LL2012-FR27K
1.10	330.0	20	380	150	TKS2392CT-ND§	11.25	105.00	262.50	TKS2392TR-ND§	1260.00	LL2012-FR33K
1.10	390.0	20	330	150	TKS2393CT-ND§	11.25	105.00	262.50	TKS2393TR-ND§	1260.00	LL2012-FR39K
1.10	470.0	19	300	100	TKS2394CT-ND§	11.25	105.00	262.50	TKS2394TR-ND§	1260.00	LL2012-FR47K
TK6-KIT-ND *NEW!* 0805 Chip Inductor Kit LL Series - 10 each of LL2012F Series (300 parts). $71.55											

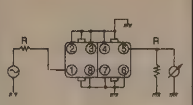
TOKO TOKO AMERICA, INC.

Helical Filters

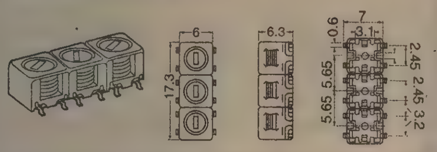
Examples of Connection Diagrams — Bottom View

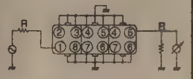
5CHW Type – Surface Mount



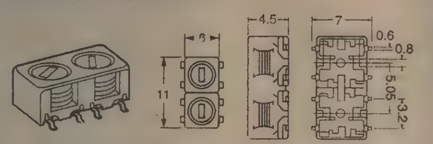


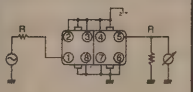
5CHT Type – Surface Mount



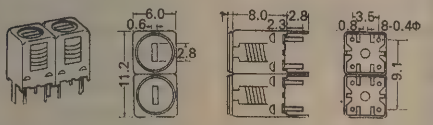


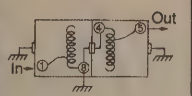
5CHLW Type – Surface Mount



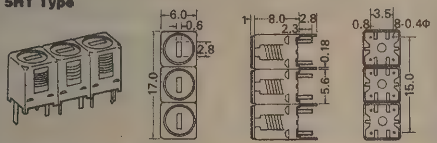


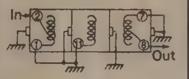
5HW Type



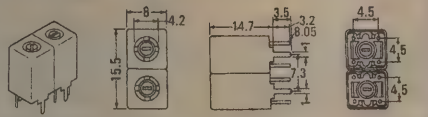


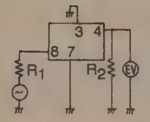
5HT Type



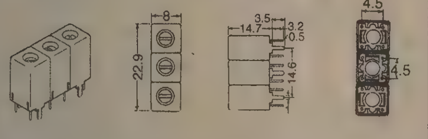


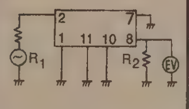
7HW Type



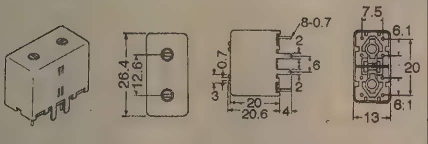


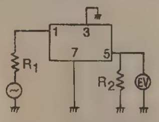
7HT Type



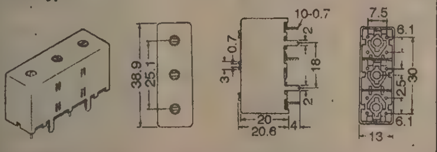


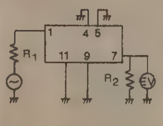
CBW Type





CBT Type





Test Freq. / Bw Min. (MHz) / (MHz)	Selectivity (Min.) dB (MHz) dB (MHz)	Ripple/ Loss dB / dB	Digi-Key Part No.	Pricing 1	Pricing 10	Digi-Key Part No.	Tape & Reel	Toko Part No.
5CHW TYPE – Surface Mount								
420 / 10	20 (+50) 14 (–50)	0.5 / 3.0	TKS5440CT-ND	11.62	89.58	TKS5440TR-ND	3348.75/750	492S-1051A
427 / 10	20 (+50) 14 (–50)	0.5 / 3.0	TKS5441CT-ND	11.62	89.58	TKS5441TR-ND	3348.75/750	492S-1053A
435 / 10	20 (+50) 14 (–50)	0.5 / 3.5	TKS5442CT-ND	11.62	89.58	TKS5442TR-ND	3348.75/750	492S-1055A
450 / 10	17 (+50) 12 (–50)	0.5 / 3.5	TKS5443CT-ND	11.62	89.58	TKS5443TR-ND	3348.75/750	492S-1057A
456 / 10	16 (+50) 12 (–50)	0.5 / 3.5	TKS5444CT-ND	11.62	89.58	TKS5444TR-ND	3348.75/750	492S-1059A
463.5 / 10	16 (+50) 12 (–50)	0.5 / 3.5	TKS5445CT-ND	11.62	89.58	TKS5445TR-ND	3348.75/750	492S-1061A
470 / 10	15 (+50) 12 (–50)	0.5 / 3.5	TKS5446CT-ND	11.62	89.58	TKS5446TR-ND	3348.75/750	492S-1063A
510 / 10	15 (+50) 12 (–50)	0.5 / 3.5	TKS5447CT-ND	11.62	89.58	TKS5447TR-ND	3348.75/750	492S-1065A
5CHT TYPE – Surface Mount								
395 / 10	33 (+50) 33 (–50)	0.5 / 4.5	TKS5448CT-ND	17.16	132.28	TKS5448TR-ND	4946.25/750	493S-1066A
420 / 10	30 (+50) 30 (–50)	0.5 / 4.5	TKS5449CT-ND	17.16	132.28	TKS5449TR-ND	4946.25/750	493S-1067A
425 / 10	30 (+50) 30 (–50)	0.5 / 4.5	TKS5450CT-ND	17.16	132.28	TKS5450TR-ND	4946.25/750	493S-1068A
430 / 10	30 (+50) 30 (–50)	0.5 / 4.5	TKS5451CT-ND	17.16	132.28	TKS5451TR-ND	4946.25/750	493S-1069A
440 / 10	27 (+50) 27 (–50)	0.5 / 4.5	TKS5452CT-ND	17.16	132.28	TKS5452TR-ND	4946.25/750	493S-1071A
452 / 10	27 (+50) 27 (–50)	0.5 / 4.5	TKS5453CT-ND	17.16	132.28	TKS5453TR-ND	4946.25/750	493S-1073A
460 / 10	27 (+50) 27 (–50)	0.5 / 4.5	TKS5454CT-ND	17.16	132.28	TKS5454TR-ND	4946.25/750	493S-1075A
480 / 10	26 (+50) 26 (–50)	0.5 / 4.5	TKS5455CT-ND	17.16	132.28	TKS5455TR-ND	4946.25/750	493S-1078A
510 / 10	25 (+50) 25 (–50)	0.5 / 4.5	TKS5456CT-ND	17.16	132.28	TKS5456TR-ND	4946.25/750	493S-1080A
5CHLW TYPE – Surface Mount								
836 / 23	14 (+100) 22 (–100)	1.5 / 4.0	TKS5432CT-ND	13.17	104.23	TKS5432TR-ND	3801.00/1000	477MS-1093A
850 / 25	17 (+100) 25 (–100)	1.0 / 2.5	TKS5433CT-ND	13.17	104.23	TKS5433TR-ND	3801.00/1000	477MS-1032A
870 / 25	18 (+100) 25 (–100)	1.0 / 2.5	TKS5434CT-ND	13.17	104.23	TKS5434TR-ND	3801.00/1000	477MS-1033A
881 / 23	12 (+100) 19 (–100)	1.0 / 3.5	TKS5435CT-ND	13.17	104.23	TKS5435TR-ND	3801.00/1000	477MS-1094A
902.5 / 25	18 (+100) 24 (–100)	1.0 / 2.5	TKS5436CT-ND	13.17	104.23	TKS5436TR-ND	3801.00/1000	477MS-1034A
915 / 25	18 (+100) 25 (–100)	1.0 / 2.5	TKS5437CT-ND	13.17	104.23	TKS5437TR-ND	3801.00/1000	477MS-1035A
933 / 25	18 (+100) 25 (–100)	1.0 / 2.5	TKS5438CT-ND	13.17	104.23	TKS5438TR-ND	3801.00/1000	477MS-1036A
947.5 / 25	18 (+100) 25 (–100)	1.0 / 2.5	TKS5439CT-ND	13.17	104.23	TKS5439TR-ND	3801.00/1000	477MS-1037A

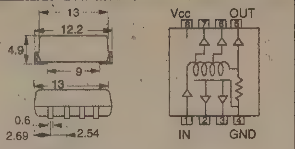
Test Freq. / Bw Min. (MHz) / (MHz)	Selectivity (Min.) dB (MHz) dB (MHz)	Ripple/ Loss dB / dB	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 50	Toko Part No.
5HW TYPE							
365 / 6	20 (–50) 25 (+50)	1.0 / 4.5	TK5414-ND	12.18	96.41	412.26	5HW-35045A-365
475 / 8	18 (–50) 22 (+50)	1.0 / 4.5	TK5415-ND	12.18	96.41	412.26	5HW-44545A-475
530 / 10	16 (–50) 20 (+50)	1.0 / 4.5	TK5416-ND	12.18	96.41	412.26	5HW-51035A-530
625 / 10	15 (–50) 18 (+50)	1.0 / 4.5	TK5417-ND	12.18	96.41	412.26	5HW-58080A-625
670 / 14	23 (–100) 26 (+100)	1.0 / 3.5	TK5418-ND	12.18	96.41	412.26	5HW-68050A-700
820 / 16	22 (–100) 24 (+100)	1.0 / 3.5	TK5419-ND	12.18	96.41	412.26	5HW-78045A-820
914 / 18	19 (–100) 24 (+100)	1.0 / 3.5	TK5420-ND	12.18	96.41	412.26	5HW-88560A-914
1010 / 16	14 (–100) 18 (+100)	1.0 / 3.5	TK5421-ND	12.18	96.41	412.26	5HW-100090A-1010
1195 / 24	18 (–100) 20 (+100)	1.0 / 3.5	TK5422-ND	12.18	96.41	412.26	5HW-115045F-1195
1305 / 25	18 (–100) 20 (+100)	1.0 / 3.5	TK5423-ND	12.18	96.41	412.26	5HW-125055F-1305
425 / 7	20 (–50) 25 (+50)	1.0 / 4.5	TK5424-ND	12.18	96.41	412.26	5HW-39545A-425
5HT TYPE							
360 / 16	33 (+50) 25 (–50)	1.0 / 4.0	TK5401-ND	13.51	106.93	457.28	5HT-36020AS-360
400 / 11	34 (+50) 31 (–50)	1.0 / 4.0	TK5402-ND	13.51	106.93	457.28	5HT-40020AS-400
440 / 14	28 (+50) 25 (–50)	1.0 / 4.0	TK5403-ND	13.51	106.93	457.28	5HT-44020AS-440
480 / 14	26 (+50) 22 (–50)	1.0 / 4.0	TK5404-ND	13.51	106.93	457.28	5HT-48030AS-480
515 / 16	25 (+50) 20 (–50)	1.0 / 4.0	TK5405-ND	13.51	106.93	457.28	5HT-51535AS-515
590 / 12	34 (+50) 25 (–50)	1.0 / 4.0	TK5406-ND	13.51	106.93	457.28	5HT-59065F-590
655 / 12	30 (+50) 26 (–50)	1.0 / 4.0	TK5407-ND	13.51	106.93	457.28	5HT-65550F-655
735 / 15	28 (+50) 24 (–50)	1.0 / 4.0	TK5408-ND	13.51	106.93	457.28	5HT-73565F-735
830 / 15	26 (+50) 22 (–50)	1.0 / 4.0	TK5409-ND	13.51	106.93	457.28	5HT-83050F-830
945 / 15	22 (+50) 18 (–50)	1.0 / 4.0	TK5410-ND	13.51	106.93	457.28	5HT-94535F-945
1010 / 15	18 (+50) 14 (–50)	1.0 / 4.0	TK5411-ND	13.51	106.93	457.28	5HT-101045F-1010
1090 / 15	17 (+50) 15 (–50)	1.0 / 4.0	TK5412-ND	13.51	106.93	457.28	5HT-109065F-1090
1230 / 15	20 (+50) 16 (–50)	1.0 / 4.5	TK5413-ND	13.51	106.93	457.28	5HT-123080C-1230
7HW TYPE							
405 / 9	20 (–10) 15 (+10)	1.5 / 3.5	TK3301-ND	10.30	79.37	348.56	252MXPR-2535A
435 / 10.5	17 (–5) 14 (+15)	1.5 / 3.0	TK3302-ND	10.30	79.37	348.56	252MXPR-2537A
453 / 11.5	16 (–3) 13 (+7)	1.5 / 2.5	TK3303-ND	10.30	79.37	348.56	252MXPR-2767A
462 / 12	14 (–2) 11 (+8)	1.5 / 2.5	TK3304-ND	10.30	79.37	348.56	252MXPR-2689A
480 / 12.5	14 (–10) 11 (+10)	1.5 / 2.5	TK3305-ND	10.30	79.37	348.56	252MXPR-2765A
540 / 14	10 (–10) 7 (+10)	1.5 / 2.5	TK3306-ND	10.30	79.37	348.56	252MNPR-2680A
550 / 7	23 (–10) 20 (+15)	1.5 / 3.5	TK3307-ND	10.30	79.37	348.56	252HXPK-2736F
600 / 8	23 (–5) 21 (+15)	1.5 / 3.5	TK3308-ND	10.30	79.37	348.56	252HXPK-2733F
640 / 9	29 (–25) 27 (+5)	1.5 / 3.5	TK3309-ND	10.30	79.37	348.56	252HXPK-2708F
715 / 11	26 (–25) 24 (+10)	1.5 / 3.0	TK3310-ND	10.30	79.37	348.56	252HXPK-2702F
830 / 13.5	20 (–35) 18 (+10)	1.5 / 3.0	TK3311-ND	10.30	79.37	348.56	252HXPK-2774F
870 / 14	19 (–30) 16 (+15)	1.5 / 3.0	TK3312-ND	10.30	79.37	348.56	252HXPK-2770F
910 / 15	18 (–25) 15 (+10)	1.5 / 3.0	TK3313-ND	10.30	79.37	348.56	252HXPK-2737F
7HT TYPE							
904 / 8	40 (–60) 30 (+60)	1.0 / 5.0	TK3401-ND	12.64	97.42	427.86	302HXPK-1278B
880 / 20	16 (–40) 10 (+40)	2.0 / 3.0	TK3404-ND	12.64	97.42	427.86	302HXPK-1339D1
835 / 23	33 (–75) 10 (+35)	0.5 / 3.0	TK3403-ND	12.64	97.42	427.86	302HXPK-1328D1
510 / 35	10 (–50) 9 (+50)	1.0 / 1.5	TK3405-ND	12.64	97.42	427.86	302MXPR-1225G
1015 / 20	20 (–40) 16 (+40)	2.0 / 4.0	TK3406-ND	12.64	97.42	427.86	302HXPK-1271B
813 / 17	23 (–50) 16 (+50)	0.5 / 3.0	TK3409-ND	12.64	97.42	427.86	302HXPK-1341D1
456 / 4.5	29 (–20) 22 (+20)	0.5 / 5.0	TK3410-ND	12.64	97.42	427.86	302HXPK-1035D
433 / 7.2	23 (–15) 17 (+15)	0.5 / 5.0	TK3411-ND	12.64	97.42	427.86	302HXPK-1354D1
CBW TYPE							
220 / 2.0	20 (–15) 18 (+15)	0.5 / 3.0	TK3601-ND	17.79	137.12	602.23	271MT-1166A
138 / 2.2	20 (–15) 18 (+10)	1.0 / 2.5	TK3606-ND	17.79	137.12	602.23	271MT-1134A
167 / 2.4	19 (–10) 17 (+10)	1.0 / 2.5	TK3605-ND	17.79	137.12	602.23	271MT-1136A
176 / 2.6	16 (–10) 15 (+10)	1.0 / 2.5	TK3604-ND	17.79	137.12	602.23	271MT-1142A
187 / 2.8	15 (–10) 14 (+10)	1.0 / 2.5	TK3603-ND	17.79	137.12	602.23	271MT-1143A
216 / 3.0	15 (–10) 14 (+10)	1.0 / 3.0	TK3602-ND	17.79	137.12	602.23	271MT-1145A
CBT TYPE							
145 / 2.8	25 (–6) 25 (+6)	0.5 / 8.0	TK3506-ND	26.89	207.27	910.33	272MT-1006A
145 / 1.2	30 (–6) 30 (+6)	0.5 / 8.0	TK3504-ND	26.89	207.27	910.33	272MT-1008A
170 / 1.5	25 (–6) 25 (+6)	0.5 / 8.0	TK3502-ND	26.89	207.27	910.33	272MT-1013A
170 / 1.0	25 (–5) 25 (+5)	0.5 / 8.0	TK3505-ND	26.89	207.27	910.33	272MT-1007A
180 / 1.0	31 (–5) 30 (+5)	0.5 / 9.0	TK3503-ND	26.89	207.27	910.33	272MT-1009A
223 / 2.6	28 (–10) 40 (+20)	0.5 / 6.0	TK3501-ND	26.89	207.27	910.33	272MT-1080A

TOKO
TOKO AMERICA, INC.

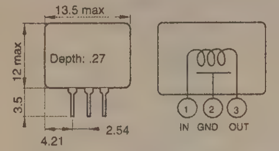
Delay Lines 4NS Rise Time

RMT

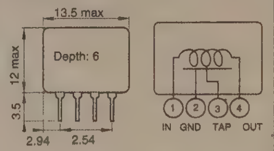
RMT Features:
- Operating Temperature: 0 to +70°C
- Storage Temperature: –55 to +125°C
- Built-in TTL logic element (equivalent to a 74S04)
- Transfer-molded for high reliability
- Surface-mounting
- Low-profile design (under 4.9mm high)



JF



JFT



JF/JFT Features: • Temperature Coefficient: ±200ppm/°C (typ.) • Waveform Distortion: Less than ±15% • Peak Pulse Voltage: 50V • Insulation Resistance: 100MΩ min., at 50V DC: • Compact single-in-line • High impedance, long delay time • Output available from intermediate tap.

Total Delay Time	Tap Delay	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
50ns ± 4ns	10 ± 3	TK5212-ND	22.91	190.66	1595.69	RMT050L
250ns ± 7%	—	TK5310-ND	10.46	83.65	697.05	JF3250C
250ns ± 7%	—	TK5311-ND	10.46	83.65	697.05	JF3250G
300ns ± 7%	—	TK5312-ND	10.46	83.65	697.05	JF3300G
250ns ± 7%	250 ± 20	TK5315-ND	16.80	126.03	667.96	JF4T250C
300ns ± 7%	300 ± 24	TK5316-ND	16.80	126.03	667.96	JF4T300C
300ns ± 7%	150 ± 12	TK5317-ND	16.80	126.03	667.96	JF4T300G
300ns ± 7%	150 ± 12	TK5319-ND	16.80	126.03	667.96	JF4T300H
400ns ± 7%	200 ± 16	TK5320-ND	16.80	126.03	667.96	JF4T400H
300ns ± 7%	150 ± 12	TK5321-ND	16.80	126.03	667.96	JF4T300I

TOKO PARTS TO BE USED WITH APPLICATION NOTES

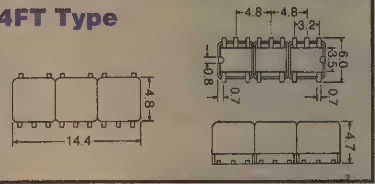
IC Part No.	Type	Toko Part No.	Digi-Key Part No.	Pricing 1	10	100
TDA8708/8709	5VFT	H315LNLS-2722TBD	TK1002-ND	8.96	74.66	597.30
MC1378/13	5VFNP	H321LNP-1436PBAB	TK1001-ND	14.57	115.01	920.10
MC1378/1377	5VUS	H286BAIS-6276DAD	TK4001-ND	2.85	26.44	188.48
MC1378/1377	5VUS	H286BAIS-4963DAD	TK4002-ND	2.85	26.44	188.48
MC1378/1377	10NSF	166NNF-10264AG	TK1603-ND	2.86	26.24	214.65
MC1378	7KL	291CCS-T1185AVF	TK4102-ND	3.81	30.86	255.26
MC1378	7KL	291CC-T1166AVF	TK4101-ND	3.81	30.86	255.26
MC1378	7KL	291CCS-T1186AVF	TK4103-ND	3.81	30.86	255.26
MC1378	10K	BTKXCS-T1278AVF	TK1503-ND	2.50	22.88	187.20
MC1378	10K	BTKXCS-T1279AVF	TK1504-ND	2.50	22.88	187.20
MC1378	CRHF	DCRHF4.03	TK2602-ND	1.17	10.40	65.00
MC3357	7P	A7BRCS-T1117Z	TK2503-ND	2.41	22.11	182.91
MC3359/3361/3362/3335/3363	7P	7MC-8128Z	TK2504-ND	2.41	22.11	182.91
MC3359/3361/3362/3335/3363	10EZ	RMC-2A6597HM	TK1302-ND	2.26	20.74	169.65
LM3361/NESA605/NESA615/ MC3362/3335/3363	CFSK	SK107M1-AO-10	TK2304-ND	.86	7.56	54.00
MC3362/3335/3363	MC120	E526HNSA-P100059	TK2729-ND	1.74	15.19	65.10
NESA605/SA615	MC120	E526HNA-100297	TK2704-ND	1.74	15.19	65.10
MC2833/MC2831A	7KMM	292SNS-T1368Z	TK3138-ND	2.74	25.08	205.20
MC2833/NESA605/SA615	7KMM	292KNS-T1375Z	TK3148-ND	2.74	25.08	205.20
MC44301	10K	TKANAS-T1390ADP	TK1422-ND	2.21	20.30	166.05
LM1893/LM2893	12VXA	719VXA-T1060YUK	TK1901-ND	4.18	38.28	313.20
LM1893/LM2893	12VXA	719VXA-T1061YUK	TK1902-ND	4.18	38.28	313.20
LM1893/LM2893	10EZ	RZNS-T1147YUK	TK1801-ND	1.99	18.26	149.40
NE5050/SN75081	12VXA	719VXA-T1062U	TK1903-ND	4.18	38.28	313.20
MC13041	10EZ	RWOS-6A7894AO	TK1235-ND	1.99	18.26	149.40
MC13041	7P	7TRS-T1098AO	TK2424-ND	2.14	19.58	161.98
MC13041	7P	A7HN-T1253CYJ	TK2425-ND	2.14	19.58	161.98
MC13041	7P	7NRES-T1099AAG	TK2426-ND	2.14	19.58	161.98
MC13041	7P	A7LC-T1153N	TK2501-ND	2.14	19.58	161.98
MC1378	10KC	TKXC-T1262AVF	TK1502-ND	2.50	22.88	187.20

TOKO
TOKO AMERICA, INC.

LC Filters – Surface Mount

• Ultra-miniature LC filters. • Ideal for satellite navigation, camcorders, and communications equipment. Also, bandpassfilters and delay lines. • Q value of 40 nominal. • Plated brass case assures good electrostatic shielding. • Package design is ideal for auto. assembly. • Operating temperature –10°C to +60°C. • Reflows at 235 to 245°C, 5 to 10 seconds maximum. • Withstands freon and chlorothane degreasing.

4FT Type

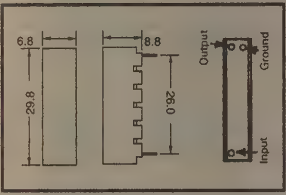


Atten-uation	Group Delay	I/O Impedance (ohm)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel 1000	Toko Part No.
2.5dB	250ns	1K	TK1006CT-ND	8.67	72.26	578.10	TK1006TR-ND	3083.00	TH356LSM-4567
1.5dB	200ns	1K	TK1007CT-ND	8.67	72.26	578.10	—	—	G356ENM-4180TCD

TOKO
TOKO AMERICA, INC.

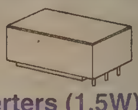
400nsec Delay LC Filter

• Frequency Range:0.1 to 15 MHz • Max. Inductance 700μH (non-adjustable) • No Load Q. Approx. 80 • Internal Capacitor 4 to 750pF • I/O Impedance (Ω) 1,200 • Freq. Response 1dB max at 6MHz,1dB max. at 0.1MHz • Delay Time 400 ± 40nsec. at 0.1MHz



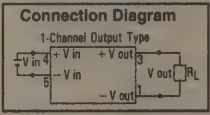
Freq. Response @6 MHz	Pulse Pre-Shoot	Response Over-Shoot	Digi-Key Part No.	Pricing 1	10	100	500	Toko Part No.
5VFNP Type								
4dB	10%	10%	TK1001-ND	14 57	115.01	920.10	3588.50	H321LNP-1436PBAB

TOKO
TOKO AMERICA, INC.



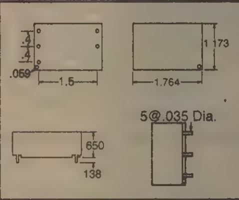
E Series DC-DC Converters (1.5W)

Connection Diagram



Features: • Complete primary and secondary floating • High conversion efficiency • Optimum line and load regulation • Inflammable epoxy case (94V-0) with silicon gum plugs for high reliability • Built-in filters for low ripple and spike noise • Ultra small and light; PC mountable.

General Specifications: **Operating Temp.Range:** –108 to 1608C. **Storage Temp. Range:** –258 to 1858C. **Operating Humidity Range:** 10 to 85% RH. **Storage Humidity Range:** 10 to 90% RH. **Insulation Pressure Tightness:** 1500VAC (1 min.) between input and output sides. **Insulation Resistance:** Over 500MV at 500VDC between input and output sides.



Pin#	
1	-V out
2	NC*
3	+V out
4	+V in
5	-V in

* 1 Channel type Pin No. 2 is not used.

Output Voltage (V)	Output Current (mA)	Output Power (W)	Reg. Line (%)	Ripple & Spike Load (%)	Voltage (mV pp)	Digi-Key Part No.	Pricing 1	5	10	Toko Part No.
5V ±10% Input Voltage										
12 ± 5%	25~125	1.5	61.0	64.5	150	TS2001-ND	51.18	231.23	437.79	12F15E1-A
15 ± 5%	20~100	1.5	61.0	64.0	150	TS2002-ND	51.18	231.23	437.79	15F15E1-A
±12 ± 6%	±12~±63	1.5	61.0	64.5	100	TS2003-ND	61.65	278.53	527.35	2DF15E1-A
±15 ± 6%	±10~ ±50	1.5	61.0	64.5	100	TS2004-ND	61.65	278.53	527.35	15DF15E1-A
12V ±20% Input Voltage										
5 ± 6%	60~ 300	1.5	61.0	68.0	100	TS2005-ND	51.18	231.23	437.79	5F15E2-A
15 ± 5%	20~100	1.5	61.5	64.0	150	TS2006-ND	51.18	231.23	437.79	15F15E2-A
±12 ± 6%	±12~±63	1.5	61.5	64.0	100	TS2007-ND	61.65	278.53	527.35	12DF15E2-A
±15 ± 6%	±10~±50	1.5	61.0	64.0	100	TS2008-ND	61.65	278.53	527.35	15DF15E2-A

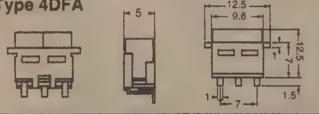
TOKO
TOKO AMERICA, INC.

Dielectric Filters

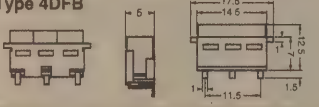
Applications: Cellular - AMPS/TDMA/CDMA, Cordless Phone, Pager, GPS, RF Data, ISM, SMR, Ardis

Temperature Range: -25°C to +85°C

Type 4DFA



Type 4DFB



Center Freq. MHz	Bandwidth (fo ± MHz)	I.L (dB max.)	Selectivity dB min. @ MHz	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Pricing 500	1000	Toko Part No.
Type 4DFA (2 Pole SMD Type)											
836.5	±12.5	2.0	18(fo ± 77.5)	TKS2600CT-ND	24.06	161.63	971.70	TKS2600TR-ND	2785.00	3508.00	4DFA-836E-10
881.5	±12.5	2.0	18(fo ± 77.5)	TKS2601CT-ND	24.06	161.63	971.70	TKS2601TR-ND	2785.00	3508.00	4DFA-881E-10
902.5	±12.5	2.5	18(fo ± 77.5)	TKS2602CT-ND	24.06	161.63	971.70	TKS2602TR-ND	2785.00	3508.00	4DFA-902E-10
947.5	±12.5	2.5	18(fo ± 77.5)	TKS2603CT-ND	24.06	161.63	971.70	TKS2603TR-ND	2785.00	3508.00	4DFA-947E-10
904.0	±1.0	3.8	21,30(fo +21.5, +44)	TKS2604CT-ND	24.06	161.63	971.70	TKS2604TR-ND	2785.00	3508.00	4DFA-904A-10
926.5	±1.0	3.8	21,30(fo -21.5, -44)	TKS2605CT-ND	24.06	161.63	971.70	TKS2605TR-ND	2785.00	3508.00	4DFA-926A-11
915.0	±13.0	2.2	18(fo ±77.5)	TKS2606CT-ND	24.06	161.63	971.70	TKS2606TR-ND	2785.00	3508.00	4DFA-915E-10
1227.0	±5.0	1.2: 0.7 typ	15,20(fo +140, -140)	TKS2607CT-ND	24.06	161.63	971.70	TKS2607TR-ND	2785.00	3508.00	4DFA-1227B-10
1575.4	±5.0	2.0: 1.4 typ	7,30(fo ±35, 140)	TKS2608CT-ND	24.06	161.63	971.70	TKS2608TR-ND	2785.00	3508.00	4DFA-1575B-10
1575.4	±5.0	1.2: 0.7 typ	17,20(fo +140, -140)	TKS2609CT-ND	24.06	161.63	971.70	TKS2609TR-ND	2785.00	3508.00	4DFA-1575B-12
2450.0	±50.0	2.0	22(fo -280)	TKS2610CT-ND	26.77	179.94	1081.20	TKS2610TR-ND	3100.50	3922.00	4DFA-2450T-10
Type 4DFB (3 Pole SMD Type)											
815.5	±10.0	2.5	15,35(fo ±35,80)	TKS2611CT-ND	36.16	243.08	1460.64	TKS2611TR-ND	4188.50	5298.00	4DFB-815D-10
860.5	±10.0	2.5	15,35(fo ±35,80)	TKS2612CT-ND	36.16	243.08	1460.64	TKS2612TR-ND	4188.50	5298.00	4DFB-860D-10
836.5	±12.5	2.5	12(fo ±32.5)	TKS2613CT-ND	36.16	243.08	1460.64	TKS2613TR-ND	4188.50	5298.00	4DFB-836E-10
881.5	±12.5	2.5	12(fo ±32.5)	TKS2614CT-ND	36.16	243.08	1460.64	TKS2614TR-ND	4188.50	5298.00	4DFB-881E-10
899.0	±3.0	4.5	54,62(fo -100, +100)	TKS2615CT-ND	36.16	243.08	1460.64	TKS2615TR-ND	4188.50	5298.00	4DFB-899A-10
938.0	±3.0	4.5	16,48(fo -16,-74)	TKS2616CT-ND	36.16	243.08	1460.64	TKS2616TR-ND	4188.50	5298.00	4DFB-938A-10
915.0	±13.0	2.7	12(fo ±32.5)	TKS2617CT-ND	34.14	229.50	1622.40	TKS2617TR-ND	4188.50	5298.00	4DFB-915E-10
2450.0	±50.0	2.2	28(fo -280)	TKS2618CT-ND	40.18	269.72	1619.94	TKS2618TR-ND	4648.50	5865.00	4DFB-2450T-10

Panasonic®

NEW! SAW Resonators

Capable of fundamental wave oscillation, and it is particularly suited for simplification, size reduction and stabilization of the circuit, compared with conventional LC oscillation and quartz crystal oscillation.

Features:

- Capable of fundamental oscillation
- Superior temperature characteristics.
- Suited for simplification, size reduction and stabilization of the circuit.

Recommended Applications:

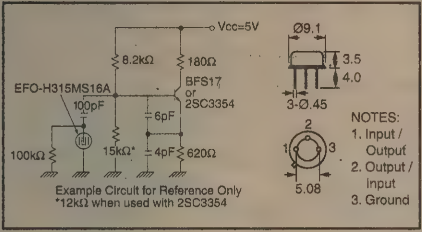
- Oscillation circuit for remote control (Garage door opener, Security system).
- Various kinds of local oscillation circuit.

Characteristics:

- Operating Temperature: -20 to 80° C.
- Maximum Frequency Drift: -150 to 50 ppm/°C (-20 to 80° C).

1 Port Type: • Resonant Resist. (Ω); 30 max. • Cap. (pF); 2.0 ± 0.5.

2 Port Type: • Insertion Loss (dB); 15 max. • Loaded Q; 7000 min. (5000 min. for 418.00 and 433.92 frequency). • Cap. (pF); 1.3 ± 0.3. • Phase Shift; 180°.



Example Circuit for Reference Only
*12kΩ when used with 2SC3354

NOTES:
1. Input / Output
2. Output / Input
3. Ground

Resonant Frequency (MHz)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Panasonic Part No.
1 Port Type					
224.50 ±0.25	PX224S1-ND	5.74	49.21	385.45	EFO-H224MS12
315.00 ±0.25	PX315S1-ND	5.74	49.21	385.45	EFO-H315MS16
418.00 ±0.25	PX418S1-ND	5.74	49.21	385.45	EFO-H418MS12
433.92 ±0.25	PX434S1-ND	5.74	49.21	385.45	EFO-H434MS12

Center Frequency (MHz)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Panasonic Part No.
2 Port Type					
224.50 ±0.25	PX224S2-ND	5.74	49.21	385.45	EFO-H224MS03
310.00 ±0.25	PX310S2-ND	5.74	49.21	385.45	EFO-H310MS03
315.00 ±0.25	PX315S2-ND	5.74	49.21	385.45	EFO-H315MS03
418.00 ±0.25	PX418S2-ND	5.74	49.21	385.45	EFO-H418MS03
433.92 ±0.25	PX434S2-ND	5.74	49.21	385.45	EFO-H434MS03

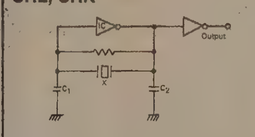
TOKO
TOKO AMERICA, INC.

Ceramic Resonators

TOKO ceramic resonators utilize the piezoelectric principle converting a mechanical force (stress) into an electrical signal or converting an electrical signal into a mechanical force. The ceramic resonator is a thin section of piezoelectric ceramic material, such as quartz, whose sides are metalized into a corresponding pair of electrodes and upon the application of current produce a lengthwise vibration.

CRL, CRK

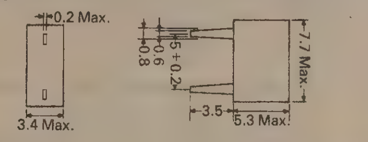
Units in mm.



Output
IC : 1/5μ-PD4069
VDD : + 5V
X : Ceramic Element
C1,C2: External Capacitors

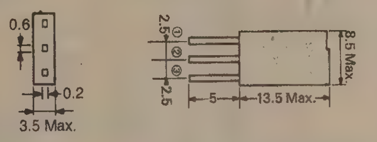
CRK

Units in mm.



CRL

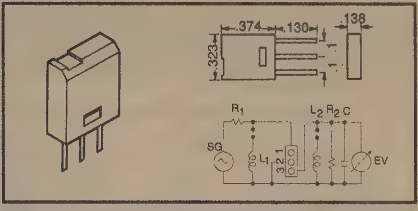
Units in mm.



External Osc. Freq.	Capacitor C1(pF)	Capacitor C2	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Toko Part No.
CRL Type							
220KHz 6 3%	300	300	TK9920-ND	2.84	24.89	177.75	CRL220
262KHz 6 3%	300	300	TK9921-ND	2.84	24.89	177.75	CRL262
CRK Type							
400KHz 6 1%	560	200	TK9940-ND	1.46	12.78	91.25	CRK400
455KHz 6 1%	560	200	TK9942-ND	1.46	12.78	91.25	CRK455
480KHz 6 1%	560	200	TK9943-ND	1.46	12.78	91.25	CRK480
500KHz 6 1%	560	200	TK9944-ND	1.46	12.78	91.25	CRK500

AM Ceramic Filters "455KHz"

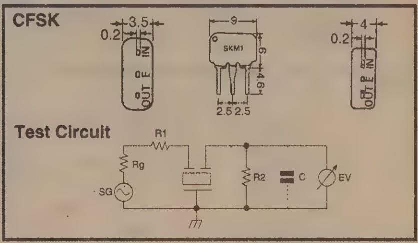
Center Frequency: 455 6 2kHz; **Insertion Loss:** 6dB; **Attn. within 100KHz:** 30dB.



Bw. -6dB (KHz)	Sel. Fo ± -9KHz (dB)	I/O Imp. (Ohms)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Toko Part No.
CFM2 Type							
4	18	1K:1.5K	TK2330-ND	2.65	23.21	165.75	HCFM2-455A
6	16	1.5K:2K	TK2331-ND	2.65	23.21	165.75	HCFM2-455B
8	12	2K:2K	TK2332-ND	2.65	23.21	165.75	HCFM2-455C
10	9	2K:2K	TK2333-ND	2.65	23.21	165.75	HCFM2-455D
12	6	2.5K:2.5K	TK2334-ND	2.65	23.21	165.75	HCFM2-455E

FM Ceramic Filters "10.7MHz"

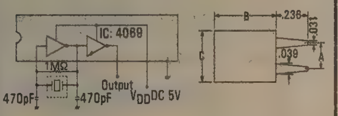
CFSK



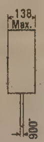
Bw @3dB (KHz)	Ins. Loss (Max.)	Spurious Response (9-12 MHz)	Impedance	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Toko Part No.
CFSK Type §NEW!								
280	6dB	30dB	330Ω	TK2304-ND	.86	7.56	54.00	SK107M1-A0-10
230	6dB	35dB	330Ω	TK2306-ND	.86	7.56	54.00	SK107M2-A0-00
180	7dB	40dB	330Ω	TK2307-ND	.98	8.58	73.50	SK107M3-A0-20
150	10dB	40dB	330Ω	TK2308-ND	.72	6.27	49.23	SK107M4-A0-10
110	10dB	30dB	330Ω	TK2309-ND	.90	7.88	61.88	SK107M5-A0-10
330	6dB	30dB	330Ω	TK2310-ND§	.93	7.02	41.26	SK107M0-A0-10
360	5dB	30dB	330Ω	TK2311-ND§	1.85	14.80	123.58	SK107MA-A0-10

Panasonic® Ceramic Resonators

Case Type: • Frequency drift: ± .3% -20°to 80°C. • Stable against solvent cleaning.

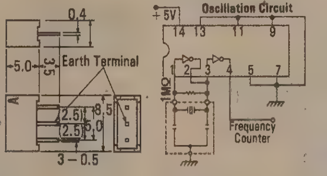


Dimensions	A	B	C
400 – 420KHz	.197	.413	.339
455 – 500KHz	.197	.374	.299
540 – 640KHz	.173	.355	.260
800KHz	.098	.276	.220



Built-In Capacitors Type:

- Includes two capacitors, constructing Colpitts oscillation circuits. High accuracy and stable characteristics will be realized with the selected capacitors encased, small in size due to the new design of construction.



Type EFO-N, EFO-P, EFO-V, EFO-S:

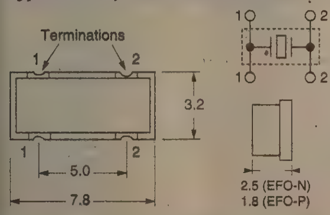
Features:

- Constructed with ceramic package • High reliability against soldering heat and mechanical stress • Moisture-proof sealing • Stable against solvent cleaning • Designed for reflow soldering • Flat-bottom plate for better mountings • Type EFO-V contributes simplification of oscillation circuits and reduces the numbers of circuit parts.

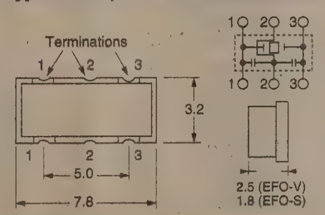
Applications:

- Clock generator for various microprocessers • Carrier between telecommunication equipments (telephone to telephone, personal computer to printer, etc.).

Type EFO-N, EFO-P Surface Mount



Type EFO-V, EFO-S Surface Mount



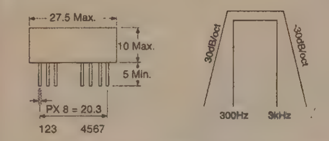
Osc. Freq.	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 1,000	Pricing 5,000	Panasonic Part No.
Case Type Ceramic Resonators							
400KHz	P9940-ND	1.30	11.14	87.25	530.00	495.00/M	EFO-A400K04B
420KHz	P9941-ND	1.02	8.74	68.43	416.00	388.00/M	EFO-A420K04B
455KHz	P9942-ND	1.02	8.74	68.43	416.00	388.00/M	EFO-A455K04B
480KHz	P9943-ND	1.02	8.74	68.43	416.00	388.00/M	EFO-A480K04B
500KHz	P9944-ND	1.02	8.74	68.43	416.00	388.00/M	EFO-A500K04B
540KHz	P9945-ND	1.51	12.92	101.18	615.00	574.00/M	EFO-A540K04B
640KHz	P9946-ND	1.51	12.92	101.18	615.00	574.00/M	EFO-A640K04B
800KHz	P9947-ND	1.51	12.92	101.18	615.00	574.00/M	EFO-A800K04B
Ceramic Resonators With Built-In Capacitor							
2.00MHz	PX200-ND	.96	8.24	64.52	392.00	366.00/M	EFO-GC2004A4
3.00MHz	PX300GC-ND	.80	6.86	53.77	327.00	305.00/M	EFO-GC3004A4
3.00MHz	PX300-ND	.80	6.86	53.77	327.00	305.00/M	EFO-EC3004A4
3.58MHz	PX358-ND	.86	7.35	57.58	350.00	327.00/M	EFO-EC3584A4
4.00MHz	PX400-ND	.86	7.35	57.58	350.00	327.00/M	EFO-EC4004A4
5.00MHz	PX500-ND	.95	8.11	63.56	386.00	361.00/M	EFO-EC5004A4
6.00MHz	PX600-ND	.90	7.74	60.63	369.00	344.00/M	EFO-EC6004A4
8.00MHz	PX800-ND	.90	7.74	60.63	369.00	344.00/M	EFO-EC8004A4

Osc. Freq.	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 500	Digi-Key Part No.	Tape & Reel Pricing 2,500	Tape & Reel Pricing 5,000	Panasonic Part No.
Type N Surface Mount-General Purpose									
3.58MHz	PX358ECT-ND	1.70	14.59	114.32	511.00	—	—	—	EFO-N3584E5
4.00MHz	PX400ECT-ND	1.40	12.00	94.00	420.00	PX400ETR-ND	571.00/M	533.00/M	EFO-N4004E5
4.19MHz	PX419ECT-ND	1.40	12.00	94.00	420.00	PX419ETR-ND	571.00/M	533.00/M	EFO-N4194E5
5.00MHz	PX500ECT-ND	1.40	12.00	94.00	420.00	—	—	—	EFO-N5004E5
6.00MHz	PX600ECT-ND	1.75	15.04	117.83	526.50	PX600ETR-ND	716.00/M	669.00/M	EFO-N6004E5
8.00MHz	PX800ECT-ND	1.75	15.04	117.83	526.50	PX800ETR-ND	716.00/M	669 00/M	EFO-N8004E5
Type P Surface Mount-General Purpose Lo-Profile									
3.58MHz	PX358PCT-ND	1.40	12.00	94.00	420.00	PX358PTR-ND	571.43/M	533.32/M	EFO-P3584E5
4.00MHz	PX400PCT-ND	1.40	12.00	94.00	420.00	PX400PTR-ND	571.43/M	533.32/M	EFO-P4004E5
4.19MHz	PX419PCT-ND	1.40	12.00	94.00	420.00	PX419PTR-ND	571.43/M	533.32/M	EFO-P4194E5
5.00MHz	PX500PCT-ND	1.40	12.00	94.00	420.00	PX500PTR-ND	571.43/M	533.32/M	EFO-P5004E5
6.00MHz	PX600PCT-ND	1.43	12.24	95.88	428.40	PX600PTR-ND	582.86/M	543.99/M	EFO-P6004E5
8.00MHz	PX800PCT-ND	1.43	12.24	95.88	428.40	PX800PTR-ND	582.86/M	543.99/M	EFO-P8004E5
Type V Surface Mount With Built-In Capacitor									
3.58MHZ	PX358NCT-ND	1.75	15.04	117.83	526.50	PX358NTR-ND	716.00/M	669.00/M	EFO-V3584E5
4.19MHz	PX419NCT-ND	1.43	12.24	95.88	428.50	PX419NTR-ND	583.00/M	544.00/M	EFO-V4194E5
5.00MHz	PX500NCT-ND	1.75	15.04	117.83	526.50	—	—	—	EFO-V5004E5
6.00MHz	PX600NCT-ND	1.46	12.51	98.00	438.00	PX600NTR-ND	596.00/M	556.00/M	EFO-V6004E5
8.00MHz	PX800NCT-ND	1.46	12.51	98.00	438.00	PX800NTR-ND	596.00/M	556.00/M	EFO-V8004E5
Type S Surface Mount With Built-In Capacitor Lo-Profile									
3.58MHZ	PX358SCT-ND	1 43	12.24	95.88	428.40	PX358STR-ND	582.86/M	543.99/M	EFO-S3584E5
4.00MHz	PX400SCT-ND	1.43	12.24	95.88	428.40	PX400STR-ND	582.86/M	543.99/M	EFO-S4004E5
4.19MHz	PX419SCT-ND	1.43	12.24	95.88	428.40	PX419STR-ND	582.86/M	543.99/M	EFO-S4194E5
5.00MHz	PX500SCT-ND	1.46	12.51	98.00	437.85	PX500STR-ND	595.72/M	555.99/M	EFO-S5004E5
6.00MHz	PX600SCT-ND	1.46	12.51	98.00	437.85	PX600STR-ND	595.72/M	555.99/M	EFO-S6004E5
8.00MHz	PX800SCT-ND	1.46	12.51	98.00	437.85	PX800STR-ND	595.72/M	555.99/M	EFO-S8004E5

TOKO AMERICA, INC. Active Filters

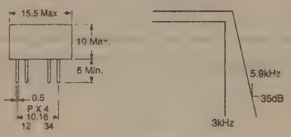
Toko's OpAmp based Hybrid Active Filters for Low Distortion/Low Noise performance and high reliability. Toko offers 3KHz and 20KHz Low pass filters and 300Hz to 3KHz Band Pass Filter. The THB127A, THB128A, and THB227 are most suited for analog audio applications while the THB 290, 291, and 292 are 7th order filters most suited for Digital Audio Applications.

Fig. 1



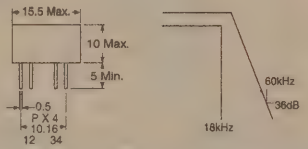
Pin No.
1 Vc
2 OUTPUT
3 GND
4 GND
5 GND
6 GND
7 INPUT

Fig. 2



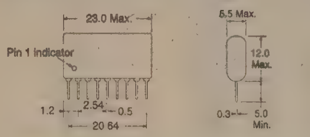
Pin No.
1 INPUT
2 GND
3 OUTPUT
4 Vc

Fig. 3



Pin No.
1 INPUT
2 GND
3 OUTPUT
4 Vc

Fig. 4

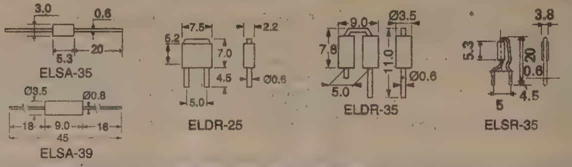


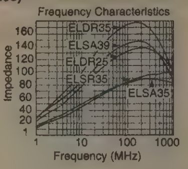
Pin No.
1 BPF OUTPUT
2 Vc
3 BPF INPUT
4 OP AMP + INPUT
5 OP AMP - INPUT
6 OP AMP OUTPUT
7 LPF OUTPUT
8 LPF INPUT
9 GND

Fig.	Band Pass Frequency	Description	Digi-Key Part No.	Pricing 1	10	50	Toko Part No.
1	300Hz - 3KHz	Band Pass Filter	TK5425-ND	16.16	120.02	519.30	THB111A
2	3.0KHz	Low Pass Filter	TK5426-ND	13.71	101.82	440.55	THB127B
3	20KHz	Low Pass Filter	TK5427-ND	12.73	94.54	409.05	THB128A
4	300Hz - 3KHz	Combination Filter	TK5428-ND	24.48	181.87	786.94	THB227

Panasonic. EMI Bead Cores (For Electromagnetic Interference)

Specifications: • **DC Resistance:** 10MΩ maximum • **Insulation Resistance:** 10MΩ min.





Description	Imped.*	Digi-Key Part No.	Pricing 10	100	1,000	2,000	Panasonic Part No.
Radial Dual Type (Tape & Box)	140 min.	P9817TB-ND	—	—	92.00	—	EXC-ELDR35V
Radial Dual Type (Bulk)	140 min.	P9817BK-ND	1.86	15.16	—	—	EXC-ELDR35C
Axial Single Type (Tape & Box)	110 min.	P9818TB-ND	—	—	61.00	—	EXC-ELSA39V
Axial Single Type (Bulk)	110 min.	P9818BK-ND	1.32	10.79	—	—	EXC-ELSA39
Radial Dual Type (Tape & Box)	100 min.	P9819TB-ND	—	—	—	85.00/M	EXC-ELDR25V
Radial Dual Type (Bulk)	100 min.	P9819BK-ND	1.86	15.16	123.00	—	EXC-ELDR25C
Axial Single Type (Tape & Box)	60 min.	P9820TB-ND	—	—	61.00	—	EXC-ELSA35V
Axial Lead Type (Bulk)	60 min.	P9820BK-ND	1.32	9.16	—	—	EXC-ELSA35
Radial Single Type (Tape & Box)	60 min.	P9821TB-ND	—	—	61.00	—	EXC-ELSR35T
Radial Form Type (Bulk)	60 min.	P9821BK-ND	1.32	9.16	—	—	EXC-ELSR35S

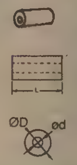
*Ω at 100MHz.

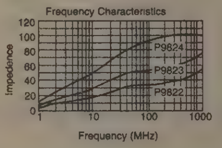
Panasonic. Leadless Bead Cores

(For Electromagnetic Interference)

FEATURES: • Noise filter for electromagnetic interference caused by various digital equipment • Noise is eliminated by slipping bead core over leads of electronic components.

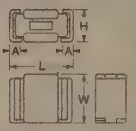
APPLICATIONS: • Digital equipment such as personal computers, word processors, printers, HDD, PPC, ECR, and electronic typewriters. • Communication equipment, Cordless phones, Automobile phones. • Digital audio and video equipment. • Electronic automotive equipment as engine controls, panels and audio systems. • Electric musical instrument, and other digital devices.

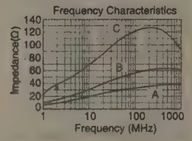




Dimensions L	øD	ød	Imped. Z,Ω at 100 MHz	Insul. Resis. MΩ	Digi-Key Part No.	Pricing 10	100	1,000	5,000	Panasonic Part No.
3.0	3.5	1.3	25 min	10 min	P9822-ND	.89	7.59	42.00	38.00/M	EXC-L351330
5.0	3.5	1.3	45 min	10 min	P9823-ND	1.12	9.57	53.00	48.00/M	EXC-L351350
9.0	3.5	1.3	80 min	10 min	P9824-ND	1.35	11.55	64.00	58.00/M	EXC-L351390

Panasonic. Surface Mount Bead Cores





SPECIFICATIONS:
• **Tolerance:** ±25% • **Test Frequency:** 100MHz • **Rated Current:** 2 (A) • Flow/ Reflow Soldering

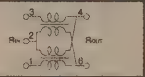
Dia.	Imp. (ohm)	Dimensions (mm) L	W	H	A	Digi-Key Part No.	Pricing 10	100	Digi-Key Part No.	Tape & Reel Pricing 2,000	10,000	Panasonic Part No.
A	25	3.2	1.6	1.6	0.5	P9810CT-ND	4.19	34.19	P9810TR-ND	193.00/M	168.00/M	EXC-CL3216U
B	45	3.2	2.5	1.6	0.5	P9811CT-ND	5.33	43.46	P9811TR-ND	245.00/M	213.00/M	EXC-CL3225U
C	115	4.5	3.2	1.8	0.5	P9812CT-ND	6.27	51.15	P9812TR-ND	—	251.00/M	EXC-CL4532U

TOKO AMERICA, INC. Balun Transformers

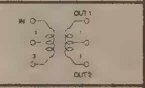
9178B-ND	Toko Application Notes for 458PS-456PS	$1.95
9179B-ND	Toko Application Notes for 458DB-456DB	$1.95
9180B-ND	Toko Application Notes for 458DS-456DS	$1.95

Toko's high quality balun (balanced/unbalanced) transformers are precisely wound round a double ferrite core. Toko's baluns are ideally suited for designing double balanced mixers, directional couplers, signal splitters, signal distributors, and impedance matching circuits.

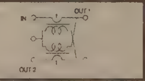
A



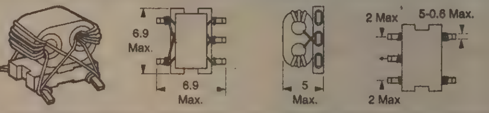
B



C



Type B5F
Surface Mount



Type B7T
Leaded

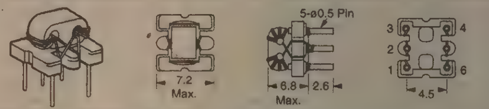


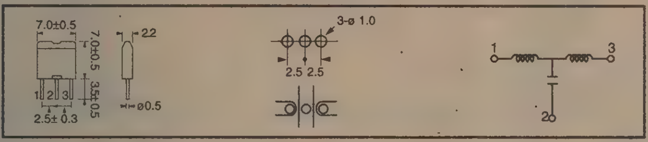
Fig.	Winding	Operating Frequency Range	Insertion Loss	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 1,000	Toko Part No.
			Type B5F – Surface Mount							
A	n = 1	50MHz~400MHz	10dB max.	TKS2514CT-ND	2.82	25.12	181.66	TKS2514TR-ND	1036.00	458DB-1012
A	n = 2	10MHz~1.0GHz	6dB max.	TKS2515CT-ND	2.82	25.12	181.66	TKS2515TR-ND	1036.00	458DB-1013
A	n = 3	8MHz~800MHz	3.5dB max.	TKS2510CT-ND	2.82	25.12	181.66	TKS2510TR-ND	1036.00	458DB-1003
A	n = 4	6MHz~600MHz	2.5dB max.	TKS2512CT-ND	2.82	25.12	181.66	TKS2512TR-ND	1036.00	458DB-1008
A	n = 5	5MHz~500MHz	2dB max.	TKS2513CT-ND	2.82	25.12	181.66	TKS2513TR-ND	1036.00	458DB-1011
A	n = 2	400MHz~1.3GHz	4dB max.	TKS2511CT-ND	2.82	25.12	181.66	TKS2511TR-ND	1036.00	458DB-1005
B	—	20MHz~600MHz	IN to OUT-1,2 4.5dB max; OUT-1 to OUT-2 (ISOLATION) 10dBN min.	TKS2518CT-ND	2.82	25.12	181.66	TKS2518TR-ND	1036.00	458DS-1014
C	n = 4	6MHz~600MHz	IN to OUT-1 1.3dB max.; IN to OUT-2 11dB ~ 14dB	TKS2519CT-ND	2.82	25.12	181.66	TKS2519TR-ND	1036.00	458PS-1015
C	n = 5	6MHz~600MHz	IN to OUT-1 0.9dB max; IN to OUT-2 13dB ~ 16dB	TKS2516CT-ND	2.82	25.12	181.66	TKS2516TR-ND	1036.00	458PS-1006
C	n = 6	6MHz~600MHz	IN to OUT-1 0.8dB max; IN to OUT-2 15db ~ 17dB	TKS2517CT-ND	2.82	25.12	181.66	TKS2517TR-ND	1036.00	458PS-1007
			Type B7T – Leaded							
A	n = 1	50MHz~400MHz	10dB max.	TK2514-ND	2.94	23.21	136.18	—	—	456DB-1013
A	n = 2	10MHz~1.0GHz	6dB max.	TK2515-ND	2.94	23.21	136.18	—	—	456DB-1014
A	n = 3	8MHz~800MHz	3.5dB max.	TK2510-ND	2.94	23.21	136.18	—	—	456DB-1005
A	n = 4	6MHz~600MHz	2.5dB max.	TK2512-ND	2.94	23.21	136.18	—	—	456DB-1006
A	n = 5	5MHz~500 MHz	2dB max.	TK2513-ND	2.94	23.21	136.18	—	—	456DB-1007
A	n = 2	400MHz~1.3GHz	4dB max.	TK2511-ND	2.94	23.21	136.18	—	—	456DB-1009
B	—	20MHz~600MHz	IN to OUT-1,2 4.5dB max; OUT-1 to OUT-2 (ISOLATION) 10dBN min.	TK2518-ND	2.94	23.21	136.18	—	—	456DS-1012
C	n = 4	6MHz~600MHz	IN to OUT-1 1.3dB max.; IN to OUT-2 11dB ~ 14dB	TK2519-ND	2.94	23.21	136.18	—	—	456PS-1015
C	n = 5	6MHz~600MHz	IN to OUT-1 0.9dB max; IN to OUT-2 13dB ~ 16dB	TK2517-ND	2.94	23.21	136.18	—	—	456PS-1016
C	n = 6	6MHz~600MHz	IN to OUT-1 0.8dB max; IN to OUT-2 15db ~ 17dB	TK2516-ND	2.94	23.21	136.18	—	—	456PS-1011

Panasonic® Digital Noise Filters

These filters are used to suppress spurious noise generated by digital equipment and to prevent external noise from being mixed in with the signal.

FEATURES: • In case of type ELKA, thin design with terminal pitch of 2.5 mm can allow being automatically mounted (product thickness 2.2 mm) • Has wide attenuation bands in high freq. • Minimal rounding of waveforms for the required signal • Optimum pulse response can be established for digital circuit • Effective in preventing noise interference generated in TV broadcast bands.

APPLICATIONS: • OA equip., personal computers, printers • AV equip. such as digital TV's and VCR's • Digital devices for telephones, measuring equip., medical equip. & electronic musical instruments.



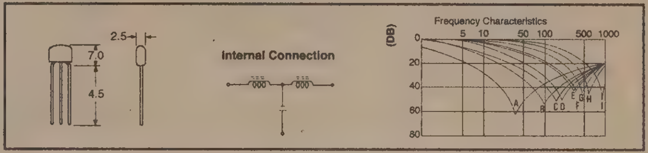
Cut-off Freq.	Imped. Zo(Ω)	Rated Curr.	Digi-Key Part No.	Pricing				Panasonic Part No.
				1	10	100	1000	
2 MHz	15	100mA	P9850-ND	1.06	9.17	74.73	421.00	ELK-AH103EB
15 MHz	200	55mA	P9852-ND	1.06	9.17	74.73	421.00	ELK-AH101GB
16 MHz	50	120mA	P9853-ND	1.06	9.17	74.73	421.00	ELK-AH391CB
22 MHz	300	55mA	P9854-ND	1.06	9.17	74.73	421.00	ELK-AH470GB
24 MHz	75	120mA	P9855-ND	1.06	9.17	74.73	421.00	ELK-AH181CB
30 MHz	90	120mA	P9856-ND	1.06	9.17	74.73	421.00	ELK-AH121CB
32 MHz	50	150mA	P9857-ND	1.06	9.17	74.73	421.00	ELK-AH221AB
39 MHz	550	55mA	P9858-ND	1.06	9.17	74.73	421.00	ELK-AH150GB
43 MHz	50	150mA	P9859-ND	1.06	9.17	74.73	421.00	ELK-AH181WB
52 MHz	100	130mA	P9860-ND	1.06	9.17	74.73	421.00	ELK-AH560BB
64 MHz	50	150mA	P9861-ND	1.06	9.17	74.73	421.00	ELK-AH121ZB
164 MHz	50	150mA	P9862-ND	1.06	9.17	74.73	421.00	ELK-AH470ZB

Panasonic® EMI Filters

(For Electromagnetic Interference)

APPLICATIONS: • Communication equipment, cordless phones, auto. phones. • Digital audio & video equip.. • Electronic auto. equip. such as engine controls, panels & audio systems. • Electric musical instruments, and other digital devices.

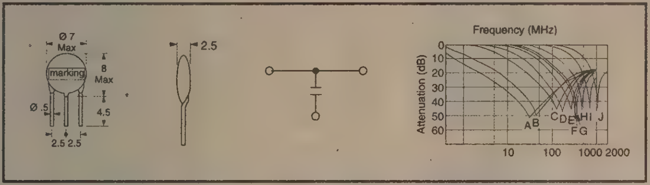
SPECIFICATIONS: • Rated Voltage (Max): P9801-P9807: 50; P9808-P9809: 16 • Tolerance: ±10% (+20% to -30% on P9808 & P9809) • Characteristic: P9801-P9807: Y5P; P9808-P9809: Y5S • Rated Current (Max.): 5A



Dia.	Cap. (pF)	25dB AH. Freq. (MHz)	15dB AH. Freq. (MHz)	Digi-Key Part No.	Pricing		Digi-Key Part No.	Tape & Bulk Pricing	Panasonic Part No.
					10	100		2,000	
I	22	800~1000	600~1000	P9801CT-ND	2.83	23.06	P9801TB-ND	130.00/M	EXC-EMT220BT
H	47	450~700	400~1000	P9802CT-ND	2.83	23.06	P9802TB-ND	130.00/M	EXC-EMT470BT
G	100	350~550	250~900	P9803CT-ND	2.83	23.06	P9803TB-ND	130.00/M	EXC-EMT101BT
F	220	250~400	150~500	P9804CT-ND	2.83	23.06	P9804TB-ND	130.00/M	EXC-EMT221BT
E	270	250~400	150~500	P9805CT-ND	2.83	23.06	P9805TB-ND	130.00/M	EXC-EMT271BT
D	470	150~350	70~500	P9806CT-ND	2.83	23.06	P9806TB-ND	130.00/M	EXC-EMT471BT
C	1000	100~250	50~400	P9807CT-ND	2.83	23.06	P9807TB-ND	130.00/M	EXC-EMT102BT
B	2200	50~200	30~400	P9808CT-ND	2.83	23.06	P9808TB-ND	130.00/M	EXC-EMT222DT
A	10,000	25~120	15~400	P9809CT-ND	2.83	23.06	P9809TB-ND	130.00/M	EXC-EMT103DT

Panasonic® EMI Filters (EXC-ECT Type)

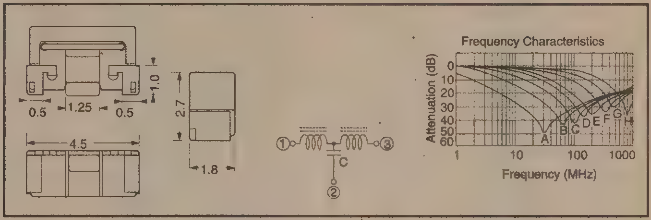
APPLICATIONS: • Digital equipment • Communication equipment. **FEATURES:** • EMI 3 Lead Capacitors are connected as T circuit and have good noise filtering characteristic for high frequency. **SPECIFICATIONS:** • **Dielectric Withstanding Voltage:** P9833-P9841: 125; P9842: 62.5 • **Tolerance:** P9833-P9840: ±20; P9841-P9842; ± 80/20 • **Character-istic:** P9833-P9840: YB; P9841: YF; P9842: V.



Dia.	Cap. (pF)	Voltage (DC)	Digi-Key Part No.	Pricing		Digi-Key Part No.	Tape & Box Pricing	Panasonic Part No.
				10	100		2000	
J	22	50	P9833CT-ND	1.63	13.25	P9833TB-ND	75.00/M	EXC-ECT220MBT
I	47	50	P9834CT-ND	1.63	13.25	P9834TB-ND	75.00/M	EXC-ECT470MBT
H	100	50	P9835CT-ND	1.63	13.25	P9835TB-ND	75.00/M	EXC-ECT101MBT
G	220	50	P9836CT-ND	1.63	13.25	P9836TB-ND	75.00/M	EXC-ECT221MBT
F	270	50	P9837CT-ND	1.63	13.25	P9837TB-ND	75.00/M	EXC-ECT271MBT
E	470	50	P9838CT-ND	1.63	13.25	P9838TB-ND	75.00/M	EXC-ECT471MBT
D	1000	50	P9839CT-ND	1.63	13.25	P9839TB-ND	75.00/M	EXC-ECT102MBT
C	2200	50	P9840CT-ND	1.63	13.25	P9840TB-ND	75.00/M	EXC-ECT222MBT
B	10000	50	P9841CT-ND	1.63	13.25	P9841TB-ND	75.00/M	EXC-ECT103ZFT
A	22000	25	P9842CT-ND	1.63	13.25	P9842TB-ND	75.00/M	EXC-ECT223ZVT

Panasonic® SMT EMI Filters

SPECIFICATIONS: • 50 Volts (DC) • 2A Max



Dia.	Cap. (pF)	25dB Freq. (MHz)	15dB Freq. (MHz)	Digi-Key Part No.	Pricing		Digi-Key Part No.	Tape & Reel Pricing	Panasonic Part No.
					10	100		1000	
H	22	800~1000	600~1000	P9825CT-ND	6.92	56.45	P9825TR-ND	317.91	EXC-CET220U
G	47	450~550	350~1000	P9826CT-ND	6.92	56.45	P9826TR-ND	317.91	EXC-CET470U
F	100	300~450	200~900	P9827CT-ND	6.92	56.45	P9827TR-ND	317.91	EXC-CET101U
E	270	200~300	80~700	P9828CT-ND	6.92	56.45	P9828TR-ND	317.91	EXC-CET271U
D	470	100~220	50~700	P9829CT-ND	6.92	56.45	P9829TR-ND	317.91	EXC-CET471U
C	1000	65~200	30~700	P9830CT-ND	6.92	56.45	P9830TR-ND	317.91	EXC-CET102U
B	2200	35~180	15~700	P9831CT-ND	6.92	56.45	P9831TR-ND	317.91	EXC-CET222U
A	10000	15~120	5~700	P9832CT-ND	6.92	56.45	P9832TR-ND	317.91	EXC-CET103U

Panasonic®

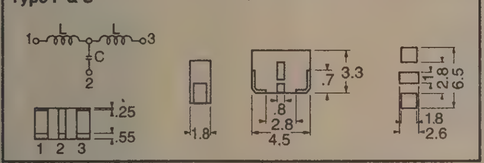
SMT Digital Noise Filters

Series K: Type F, E & S

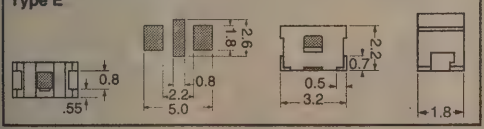
High performance noise filter for digital signal processing circuits. Wide attenuation band by low pass "T" filter constitution.

Features: • Wide attenuation band in noise signal. • Minimal rounding of waveforms of the signal. • High rated DC current ELKF, ELKE: 2.0A and ELKS: 0.3A.• Rated Voltage VDC (V): 50. • DCR (DC Resistance Ω): ELKF: 0.04, ELKS: 0.8 and ELKE: 0.02. • High magnetic shielding characteristics. •Selection for; ELKF: High current specifications, ELKS: high attenuation specifications and ELKE: high current in small size. **Recommended Applications:** • Office auto. equip. • TVs, VTRs. • Communication equip.

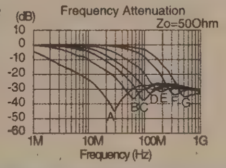
Type F & S



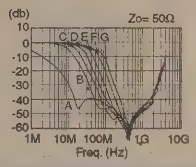
Type E



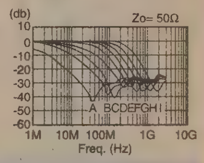
Type F



Type S



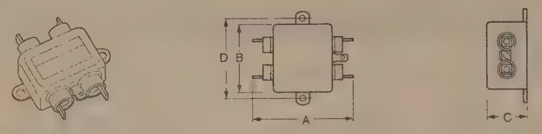
Type E



Dia.	Cut-off Freq.	Imped. ZO.(Ω)	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing				Panasonic Part No.
				1	10	100		1000	2000	5000	6,000	
Type F												
G	140	48	P9863CT-ND	1.20	10.37	84.59	P9863TR-ND	476.00	—	456.00/M	—	ELK-F470FA
F	96	33	P9864CT-ND	1.20	10.37	84.59	P9864TR-ND	476.00	—	456.00/M	—	ELK-F101FA
E	53	18	P9865CT-ND	1.20	10.37	84.59	P9865TR-ND	476.00	—	456.00/M	—	ELK-F331FA
D	37	13	P9866CT-ND	1.20	10.37	84.59	P9866TR-ND	476.00	—	456.00/M	—	ELK-F681FA
C	30	10	P9867CT-ND	1.20	10.37	84.59	P9867TR-ND	476.00	—	456.00/M	—	ELK-F102FA
B	20	7	P9868CT-ND	1.20	10.37	84.59	P9868TR-ND	476.00	—	456.00/M	—	ELK-F222FA
A	10	3	P9869CT-ND	1.20	10.37	84.59	P9869TR-ND	476.00	—	456.00/M	—	ELK-F103FA
Type S												
G	65	220	P9879CT-ND	1.63	14.12	115.16	P9879TR-ND	649.00	—	621.00/M	—	ELK-S220FA
F	44	150	P9880CT-ND	1.63	14.12	115.16	P9880TR-ND	649.00	—	621.00/M	—	ELK-S470FA
E	30	105	P9881CT-ND	1.63	14.12	115.16	P9881TR-ND	649.00	—	621.00/M	—	ELK-S101FA
D	20	70	P9882CT-ND	1.63	14.12	115.16	P9882TR-ND	649.00	—	621.00/M	—	ELK-S221FA
C	14	48	P9883CT-ND	1.63	14.12	115.16	P9883TR-ND	649.00	—	621.00/M	—	ELK-S471FA
B	10	33	P9884CT-ND	1.63	14.12	115.16	P9884TR-ND	649.00	—	621.00/M	—	ELK-S102FA
A	3	10	P9885CT-ND	1.63	14.12	115.16	P9885TR-ND	649.00	—	621.00/M	—	ELK-S103FA
Type E												
I	380	84	P9870CT-ND	1.48	12.85	104.77	P9870TR-ND	—	590.00/M	—	565.00/M	ELK-E100FA
H	257	56	P9871CT-ND	1.48	12.85	104.77	P9871TR-ND	—	590.00/M	—	565.00/M	ELK-E220FA
G	175	39	P9872CT-ND	1.48	12.85	104.77	P9872TR-ND	—	590.00/M	—	565.00/M	ELK-E470FA
F	120	26	P9873CT-ND	1.48	12.85	104.77	P9873TR-ND	—	590.00/M	—	565.00/M	ELK-E101FA
E	81	18	P9874CT-ND	1.48	12.85	104.77	P9874TR-ND	—	590.00/M	—	565.00/M	ELK-E221FA
D	55	12	P9875CT-ND	1.48	12.85	104.77	P9875TR-ND	—	590.00/M	—	565.00/M	ELK-E471FA
C	38	8	P9876CT-ND	1.48	12.85	104.77	P9876TR-ND	—	590.00/M	—	565.00/M	ELK-E102FA
B	26	6	P9877CT-ND	1.48	12.85	104.77	P9877TR-ND	—	590.00/M	—	565.00/M	ELK-E222FA
A	12	3	P9878CT-ND	1.48	12.85	104.77	P9878TR-ND	—	590.00/M	—	565.00/M	ELK-E103FA

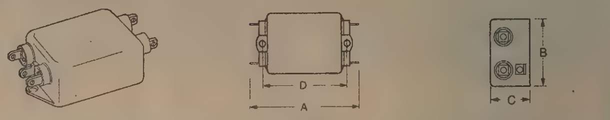
corcom RF Line Filters & Power Entry Modules

Fig. 1



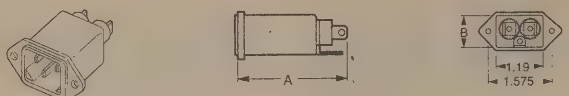
B Series: General purpose RFI power line filters.
General purpose for high impedence.
Loads at lowest cost.

Fig. 2



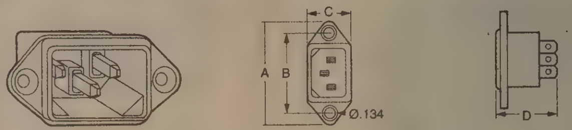
R Series: Two-stage general purpose.
RFI power line filter.
Provides premium performance at a moderate cost.

Fig. 3



ED Series: Highest performance compact.
RFI power line filters with IEC connectors.
EF Series: Compact RFI filter with IEC connectors.
(EF Series Only)

Fig.4



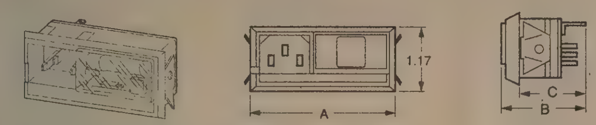
SR Series: AC connectors.

Fig. No.	Description	Rated Curr. 120 VAC (Amps)	Termination	Dimensions (Inches)				Digi-Key Part No.	Pricing				Corcom Part No.
				A	B	C	D		1	25	50	100	
Series B													
1	Line Filter	1	Fastron	2.25	1.82	0.66	2.125	CCM1300-ND	12.26	214.50	389.96	712.14	1VB1
	Line Filter	2	Fastron	2.25	1.82	0.66	2.125	CCM1301-ND	11.03	193.00	350.87	640.76	2VB1
	Line Filter	3	Fastron	2.61	1.82	0.78	2.125	CCM1302-ND	12.74	223.00	405.41	740.36	3VB1
	Line Filter	5	Fastron	2.61	1.82	0.78	2.125	CCM1303-ND	11.80	206.50	375.42	685.58	5VB1
	Line Filter	10	Fastron	2.61	1.82	1.16	2.125	CCM1304-ND	13.29	232.50	422.69	771.90	10VB1
	Line Filter	20	Fastron	3.36	2.07	1.16	2.375	CCM1305-ND	21.43	375.00	681.75	1245.00	20VB1
	Line Filter	1	Wire Lead	0.96	1.82	0.66	2.125	CCM1310-ND	13.31	233.00	423.59	773.56	1VB3
	Line Filter	2	Wire Lead	0.96	1.82	0.66	2.125	CCM1311-ND	12.11	212.00	385.42	703.84	2VB3
	Line Filter	3	Wire Lead	1.32	1.82	0.78	2.125	CCM1312-ND	13.83	242.00	439.96	803.44	3VB3
	Line Filter	5	Wire Lead	1.32	1.82	0.78	2.125	CCM1313-ND	12.74	223.00	405.41	740.36	5VB3
	Line Filter	10	Wire Lead	1.32	1.82	1.16	2.125	CCM1314-ND	14.06	246.00	447.23	816.72	10VB3
	Line Filter	10	Screw	2.72	1.82	1.16	2.125	CCM1320-ND	16.83	294.50	535.40	977.74	10VB6
	Line Filter	20	Screw	3.46	2.07	1.16	2.375	CCM1321-ND	25.26	442.00	803.56	1467.44	20VB6
	Line Filter	30	Screw	5.34	3.38	1.53	3.750	CCM1322-ND	48.23	844.00	1534.39	2802.08	30VB6
Series R													
2	Line Filter, 2 Stage	1	Fastron	3.35	1.81	1.16	2.375	CCM1330-ND	23.48	411.00	747.20	1364.52	1VR1
	Line Filter, 2 Stage	2	Fastron	3.35	1.81	1.16	2.375	CCM1331-ND	21.28	372.50	677.21	1236.70	2VR1
	Line Filter, 2 Stage	3	Fastron	3.85	2.07	1.16	2.938	CCM1332-ND	22.83	399.50	726.29	1326.34	3VR1
	Line Filter, 2 Stage	5	Fastron	3.85	2.07	1.16	2.938	CCM1333-ND	21.46	375.50	682.66	1246.66	5VR1
	Line Filter, 2 Stage	10	Fastron	3.85	2.07	1.53	2.938	CCM1334-ND	22.51	394.00	716.29	1308.08	10VR1
	Line Filter, 2 Stage	20	Fastron	5.23	3.37	1.53	3.750	CCM1335-ND	54.65	956.50	1738.92	3175.58	20VR1
	Line Filter, 2 Stage	1	Wire Lead	2.07	1.81	1.16	2.375	CCM1340-ND	24.80	434.00	789.01	1440.88	1VR3
	Line Filter, 2 Stage	2	Wire Lead	2.07	1.81	1.16	2.375	CCM1341-ND	23.51	411.50	748.11	1366.18	2VR3
	Line Filter, 2 Stage	3	Wire Lead	2.56	2.07	1.16	2.938	CCM1342-ND	24.34	426.00	774.47	1414.32	3VR3
	Line Filter, 2 Stage	5	Wire Lead	2.56	2.07	1.16	2.938	CCM1343-ND	23.71	415.00	754.47	1377.80	5VR3
	Line Filter, 2 Stage	10	Wire Lead	2.56	2.07	1.53	2.938	CCM1344-ND	23.31	408.00	741.74	1354.56	10VR3
	Line Filter, 2 Stage	3	Panel Mount	4.33	2.25	1.28	1.575	CCM1350-ND	26.34	461.00	838.10	1530.52	3VR7
	Line Filter, 2 Stage	5	Panel Mount	4.33	2.25	1.28	1.575	CCM1351-ND	24.86	435.00	790.83	1444.20	5VR7
	Line Filter, 2 Stage	10	Panel Mount	4.33	2.25	1.53	1.575	CCM1352-ND	26.74	468.00	850.82	1553.76	10VR7
	Line Filter, 2 Stage	10	Screw Lug	3.96	2.07	1.53	2.938	CCM1360-ND	26.71	467.50	849.92	1552.10	10VR6
	Line Filter, 2 Stage	20	Screw Lug	5.34	3.37	1.53	3.750	CCM1361-ND	56.08	981.50	1784.37	3258.58	20VR6
Series ED													
3	Power Entry Mod.	1	Fastron, Straight	2.20	0.81	—	—	CCM1203-ND	14.97	262.00	476.32	869.84	1ED1
	Power Entry Mod.	3	Fastron, Straight	2.20	0.81	—	—	CCM1204-ND	14.97	262.00	476.32	869.84	3ED1
	Power Entry Mod.	6	Fastron, Straight	2.20	0.81	—	—	CCM1205-ND	14.97	262.00	476.32	869.84	6ED1
	Power Entry Mod.	10	Fastron, Straight	2.62	0.81	—	—	CCM1206-ND	15.40	269.50	489.95	894.74	10ED1
	Power Entry Mod.	1	Fastron, Rt. Angle	1.55	0.85	—	—	CCM1207-ND	14.97	262.00	476.32	869.84	1ED2
	Power Entry Mod.	3	Fastron, Rt. Angle	1.55	0.85	—	—	CCM1208-ND	14.97	262.00	476.32	869.84	3ED2
	Power Entry Mod.	6	Fastron, Rt. Angle	1.55	0.85	—	—	CCM1209-ND	14.97	262.00	476.32	869.84	6ED2
	Power Entry Mod.	1	Wire Lead, Rt. Angle	1.55	0.85	—	—	CCM1210-ND	14.97	262.00	476.32	869.84	1ED4
	Power Entry Mod.	3	Wire Lead, Rt. Angle	1.55	0.85	—	—	CCM1211-ND	14.97	262.00	476.32	869.84	3ED4
	Power Entry Mod.	6	Wire Lead, Rt. Angle	1.55	0.85	—	—	CCM1212-ND	14.97	262.00	476.32	869.84	6ED4
	Power Entry Mod.	1	Wire Lead, Straight	1.55	0.81	—	—	CCM1213-ND	14.97	262.00	476.32	869.84	1ED8
	Power Entry Mod.	3	Wire Lead, Straight	1.55	0.81	—	—	CCM1214-ND	14.97	262.00	476.32	869.84	3ED8
	Power Entry Mod.	6	Wire Lead, Straight	1.55	0.81	—	—	CCM1215-ND	14.97	262.00	476.32	869.84	6ED8
	Power Entry Mod.	6	Fastron, Straight	2.62	0.81	—	—	CCM1216-ND	19.00	332.50	604.49	1103.90	6ED1C
	Power Entry Mod.	6	Wire Lead, Rt. Angle	1.55	0.85	—	—	CCM1217-ND	19.00	332.50	604.49	1103.90	6ED4C
	Power Entry Mod.	6	Wire Lead, Straight	1.55	0.81	—	—	CCM1218-ND	19.00	332.50	604.49	1103.90	6ED8C
	Power Entry Mod.	10	Fastron, Straight	2.62	0.81	—	—	CCM1219-ND	20.40	357.00	649.03	1185.24	10ED1C
Series EF													
3	Power Entry Mod.	1	Fastron, Straight	2.20	0.81	—	—	CCM1100-ND	12.46	218.00	396.32	723.76	1EF1F
	Power Entry Mod.	3	Fastron, Straight	2.20	0.81	—	—	CCM1101-ND	12.46	218.00	396.32	723.76	3EF1F
	Power Entry Mod.	6	Fastron, Straight	2.20	0.81	—	—	CCM1102-ND	12.46	218.00	396.32	723.76	6EF1F
	Power Entry Mod.	10	Fastron, Straight	2.62	0.81	—	—	CCM1103-ND	12.77	223.50	406.32	742.02	10EF1F
	Power Entry Mod.	1	Fastron, Rt. Angle	1.55	0.85	—	—	CCM1104-ND	12.46	218.00	396.32	723.76	1EF2F
	Power Entry Mod.	3	Fastron, Rt. Angle	1.55	0.85	—	—	CCM1105-ND	12.46	218.00	396.32	723.76	3EF2F
	Power Entry Mod.	6	Fastron, Rt. Angle	1.55	0.85	—	—	CCM1106-ND	12.46	218.00	396.32	723.76	6EF2F

Fig. No.	Description	Current Rating (Amps)	Output Terminals	Mounting Style	Input Config.	Dimensions (Inches)				Digi-Key Part No.	Pricing				Corcom Part No.
						A	B	C	D		1	25	50	100	
Series SR															
4	AC Connector	6@125V	PC Terminals	Flange	Male	1.969	1.575	1.11	1.051	CCM1400-ND	2.86	50.00	90.90	166.00	6ESRM-P
	AC Connector	6@125V	Quick Disconnect	Flange	Male	1.977	1.575	0.896	1.224	CCM1401-ND	2.09	36.50	66.36	121.18	6ESRM-3
	AC Connector	6@125V	Quick Disconnect	Snap-In	Male	1.197	—	0.892	1.205	CCM1402-ND	2.20	38.50	69.99	127.82	6ESRMC2
	AC Connector	15@125V	Quick Disconnect	Snap-In	Female	1.39	—	1.11	1.406	CCM1403-ND	2.51	44.00	79.99	146.08	6ESRFC3
	AC Connector	15@125V	Quick Disconnect	Flange	Female	1.969	1.575	1.154	1.406	CCM1404-ND	2.51	44.00	79.99	146.08	6ESRF-3

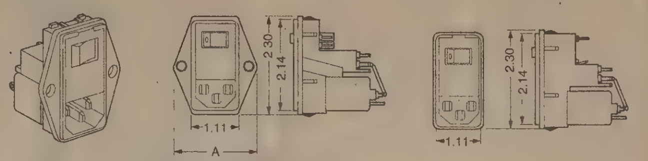
corcom RF Line Filters & Power Entry Modules

Fig. 5



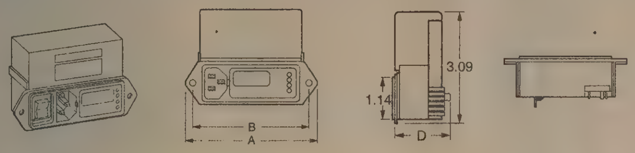
J Series: Voltage selecting and fused connector with optional RFI power line filter.

Fig. 6



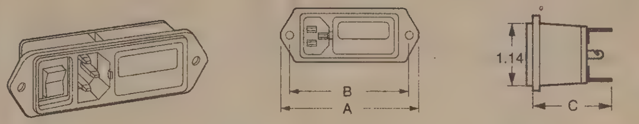
L Series: Power entry modules with RFI power line filters. For general or medical applications.

Fig. 7



M Series-Filtered: Power entry modules with optional RFI power line filters.

Fig. 8



M Series-Unfiltered: Power entry modules with optional RFI power line filters.

Fig. No.	Description	Curr. Rating (120V) Amps	RFI Filter Type	Avail. Voltage Select. Pos.	DPST On/Off Switch	Mounting Style	Dimensions (Inches)				Digi-Key Part No.	Pricing				Corcom Part No.
							A	B	C	D		1	25	50	100	
	Series J															
5	Power Entry Mod.	6	Unfiltered	4	—	—	2.68	1.52	1.17	1.23	CCM1200-ND	14.20	248.50	451.77	825.02	6VJ1
	Power Entry Mod.	6	Gen. Purpose	4	—	—	2.75	1.87	1.17	1.58	CCM1201-ND	25.66	449.00	816.28	1490.68	6J4
	Power Entry Mod.	6	Medical	4	—	—	2.75	1.87	1.17	1.58	CCM1202-ND	27.00	472.50	859.01	1568.70	6HJ4-4
	Series L															
6	Power Entry Mod.	2	—	1	yes	Flange	1.98	—	—	—	CCM1107-ND	37.94	664.00	1207.15	2204.48	2EDL1S
	Power Entry Mod.	2	—	1	yes	Snap-In	1.28	—	—	—	CCM1108-ND	38.20	668.50	1215.33	2219.42	2EDL1SC
	Power Entry Mod.	2	—	1	yes	Flange	1.98	—	—	—	CCM1050-ND	39.71	695.00	1263.51	2307.40	2EDL1SM
	Power Entry Mod.	2	—	1	yes	Snap-In	1.28	—	—	—	CCM1051-ND	39.46	690.50	1255.33	2292.46	2EDL1SCM
	Power Entry Mod.	2	—	4	no	Flange	1.98	—	—	—	CCM1109-ND	37.94	664.00	1207.15	2204.48	2EDL4
	Power Entry Mod.	2	—	4	no	Snap-In	1.28	—	—	—	CCM1110-ND	38.20	668.50	1215.33	2219.42	2EDL4C
	Power Entry Mod.	2	—	4	no	Flange	1.98	—	—	—	CCM1052-ND	39.71	695.00	1263.51	2307.40	2EDL4M
	Power Entry Mod.	2	—	4	no	Snap-In	1.28	—	—	—	CCM1053-ND	39.46	690.50	1255.33	2292.46	2EDL4CM
	Power Entry Mod.	4	—	1	yes	Flange	1.98	—	—	—	CCM1111-ND	37.94	664.00	1207.15	2204.48	4EDL1S
	Power Entry Mod.	4	—	1	yes	Snap-In	1.28	—	—	—	CCM1112-ND	38.20	668.50	1215.33	2219.42	4EDL1SC
	Power Entry Mod.	4	—	1	yes	Flange	1.98	—	—	—	CCM1054-ND	39.71	695.00	1263.51	2307.40	4EDL1SM
	Power Entry Mod.	4	—	1	yes	Snap-In	1.28	—	—	—	CCM1055-ND	39.46	690.50	1255.33	2292.46	4EDL1SCM
	Power Entry Mod.	4	—	4	no	Flange	1.98	—	—	—	CCM1113-ND	37.94	664.00	1207.15	2204.48	4EDL4
	Power Entry Mod.	4	—	4	no	Snap-In	1.28	—	—	—	CCM1114-ND	38.20	668.50	1215.33	2219.42	4EDL4C
	Power Entry Mod.	4	—	4	no	Flange	1.98	—	—	—	CCM1056-ND	39.71	695.00	1263.51	2307.40	4EDL4M
	Power Entry Mod.	4	—	4	no	Snap-In	1.28	—	—	—	CCM1057-ND	39.46	690.50	1255.33	2292.46	4EDL4CM
	Power Entry Mod.	6	—	1	yes	Flange	1.98	—	—	—	CCM1115-ND	37.94	664.00	1207.15	2204.48	6EDL1S
	Power Entry Mod.	6	—	1	yes	Snap-In	1.28	—	—	—	CCM1116-ND	38.20	668.50	1215.33	2219.42	6EDL1SC
	Power Entry Mod.	6	—	1	yes	Flange	1.98	—	—	—	CCM1058-ND	39.71	695.00	1263.51	2307.40	6EDL1SM
	Power Entry Mod.	6	—	1	yes	Snap-In	1.28	—	—	—	CCM1059-ND	39.46	690.50	1255.33	2292.46	6EDL1SCM
	Power Entry Mod.	6	—	4	no	Flange	1.98	—	—	—	CCM1117-ND	37.94	664.00	1207.15	2204.48	6EDL4
	Power Entry Mod.	6	—	4	no	Snap-In	1.28	—	—	—	CCM1118-ND	38.20	668.50	1215.33	2219.42	6EDL4C
	Power Entry Mod.	6	—	4	no	Flange	1.98	—	—	—	CCM1060-ND	39.71	695.00	1263.51	2307.40	6EDL4M
	Power Entry Mod.	6	—	4	no	Snap-In	1.28	—	—	—	CCM1061-ND	39.46	690.50	1255.33	2292.46	6EDL4CM
	Power Entry Mod.	6	—	1	yes	Flange	1.98	—	—	—	CCM1119-ND	37.94	664.00	1207.15	2204.48	6EHL1S
	Power Entry Mod.	6	—	1	yes	Snap-In	1.28	—	—	—	CCM1120-ND	38.20	668.50	1215.33	2219.42	6EHL1SC
	Power Entry Mod.	6	—	1	yes	Flange	1.98	—	—	—	CCM1062-ND	39.71	695.00	1263.51	2307.40	6EHL1SM
	Power Entry Mod.	6	—	1	yes	Snap-In	1.28	—	—	—	CCM1063-ND	39.46	690.50	1255.33	2292.46	6EHL1SCM
	Power Entry Mod.	6	—	4	no	Flange	1.98	—	—	—	CCM1121-ND	37.94	664.00	1207.15	2204.48	6EHL4
	Power Entry Mod.	6	—	4	no	Snap-In	1.28	—	—	—	CCM1122-ND	38.20	668.50	1215.33	2219.42	6EHL4C
	Power Entry Mod.	6	—	4	no	Flange	1.98	—	—	—	CCM1064-ND	39.71	695.00	1263.51	2307.40	6EHL4M
	Power Entry Mod.	6	—	4	no	Snap-In	1.28	—	—	—	CCM1065-ND	39.46	690.50	1255.33	2292.46	6EHL4CM
	Series M															
7	Power Entry Mod.	3	SMPS FCC-B	4	no	—	3.88	3.32	1.72	—	CCM1030-ND	39.08	684.00	1243.51	2270.88	3EXM4
	Power Entry Mod.	3	SMPS FCC-B	4	yes	—	4.65	4.10	1.72	—	CCM1031-ND	43.00	752.50	1368.05	2498.30	3EXM4S
	Power Entry Mod.	3	SMPS VDE-B	4	no	—	3.88	3.32	1.72	—	CCM1032-ND	44.65	781.50	1420.77	2594.58	3EZM4
	Power Entry Mod.	3	SMPS VDE-B	4	yes	—	4.65	4.10	1.72	—	CCM1033-ND	48.68	852.00	1548.94	2828.64	3EZM4S
8	Power Entry Mod.	6	Unfiltered	1	no	—	3.39	2.84	1.45	—	CCM1000-ND	14.86	260.00	472.68	863.20	6VM1
	Power Entry Mod.	6	Unfiltered	1	yes	—	4.17	3.62	1.45	—	CCM1001-ND	18.74	328.00	596.30	1088.96	6VM1S
	Power Entry Mod.	6	Unfiltered	2	no	—	3.88	3.32	1.45	—	CCM1002-ND	17.97	314.50	571.76	1044.14	6VM2
	Power Entry Mod.	6	Unfiltered	2	yes	—	4.65	4.10	1.45	—	CCM1003-ND	21.86	382.50	695.39	1269.90	6VM2S
	Power Entry Mod.	6	Unfiltered	4	no	—	3.88	3.32	1.45	—	CCM1004-ND	17.97	314.50	571.76	1044.14	6VM4
	Power Entry Mod.	6	Unfiltered	4	yes	—	4.65	4.10	1.45	—	CCM1005-ND	21.86	382.50	695.39	1269.90	6VM4S
	Power Entry Mod.	5	Medical	1	no	—	3.39	2.84	2.19	—	CCM1010-ND	23.88	418.00	759.92	1387.76	5EHM1
	Power Entry Mod.	5	Medical	1	yes	—	4.17	3.62	2.19	—	CCM1011-ND	27.80	486.50	884.46	1615.18	5EHM1S
	Power Entry Mod.	5	Medical	4	no	—	3.88	3.32	2.19	—	CCM1012-ND	27.00	472.50	859.01	1568.70	5EHM4
	Power Entry Mod.	5	Medical	4	yes	—	4.65	4.10	2.19	—	CCM1013-ND	30.91	541.00	983.54	1796.12	5EHM4S
	Power Entry Mod.	5	Gen. Purpose	1	no	—	3.39	2.84	2.19	—	CCM1020-ND	23.43	410.00	745.38	1361.20	5EFM1
	Power Entry Mod.	5	Gen. Purpose	1	yes	—	4.17	3.62	2.19	—	CCM1021-ND	27.31	478.00	869.00	1586.96	5EFM1S
	Power Entry Mod.	5	Gen. Purpose	4	no	—	3.88	3.32	2.19	—	CCM1022-ND	26.54	464.50	844.46	1542.14	5EFM4
	Power Entry Mod.	5	Gen. Purpose	4	yes	—	4.65	4.10	2.19	—	CCM1023-ND	30.46	533.00	968.99	1769.56	5EFM4S

Panasonic. Line Filters

V SERIES (290, 450, 650, 850 Types)
H SERIES (200, 270, 400, 600 Types)
F SERIES (23F, 25F Types)

These line filters can suppress conductive noise ranging from low to high frequencies generated at power supply circuits various electronic equipment.

General Features: • These line filters are excellent in high frequency characteristics due to low stray capacitance realized by section windings. • Comply with all safety standards

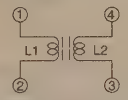
Applications: • Video and audio equipment, office equipment, other electronic devices.

Specifications: • Operating Temperature: -20°C ~ 105°C • F-series Operating Temperature: -20°C ~ 115°C • Rated Voltage: Less than AC250Vrms • Rated Current: Less than AC5Arms • F-series Rated Current: Less than AC3 Arms • Dielectric Strength: AC2KV 1 min.

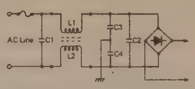
V & H Series Features: • By using an unseparated closed magnetic circuit core, high inductance is obtained despite small size and distribution of inductance is reduced. • Leakage flux is greatly decreased.

F Series Features: • F-series line filters are low profile 14mm for 23F, 15mm for 25F • Suitable for reducing both common mode and normal mode noise.

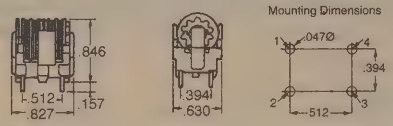
Standard Circuit Diagram



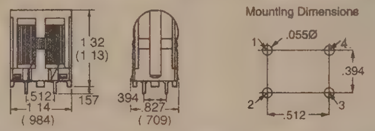
Circuit Example



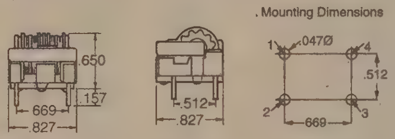
290 Type



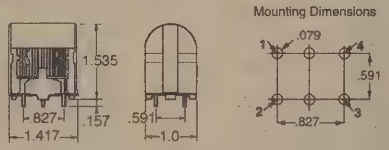
450, 650 Type Dimensions shown in ( ) are for 450 type.



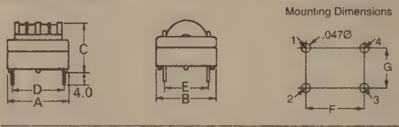
270 Type



850 Type

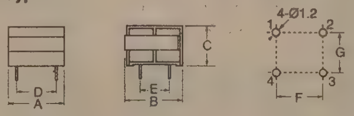


200, 400, 600 Type



Type	A	B	C	D	E	F	G
200	.787	.827	.787	.512	.394	.512	.394
400	.945	.984	.768	.827	.591	.827	.591
600	1.122	1.142	.886	.945	.787	.945	.787

23F, 25F Types



Type	A Max.	B Max.	C Max.	D	E	F	G
23F	24	23	14	16±0.5	10±0.5	16±0.1	10±0.1
25F	28	25	15	21±0.5	11±0.5	21±0.1	11±0.1

Type	Induct-ance mH min.	Rated Current A rms	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	Panasonic Part Number
V Series									
290	0.82	2.0	PLK1000-ND	2.69	23.04	192.00	1146.00	1067.00/M	ELF-18D290B
	2.2	1.3	PLK1001-ND	2.69	23.04	192.00	1146.00	1067.00/M	ELF-18D290T
	3.3	1.1	PLK1002-ND	2.69	23.04	192.00	1146.00	1067.00/M	ELF-18D290S
	10.0	0.6	PLK1003-ND	2.69	23.04	192.00	1146.00	1067.00/M	ELF-18D290G
	22.0	0.4	PLK1004-ND	2.69	23.04	192.00	1146.00	1067.00/M	ELF-18D290C
	33.0	0.3	PLK1005-ND	2.69	23.04	192.00	1146.00	1067.00/M	ELF-18D290H
450	2.7	2.0	PLK1006-ND	4.68	40.14	334.50	1997.00	1858.00/M	ELF-18D450A
	18.0	0.8	PLK1007-ND	4.76	40.77	339.75	2028.00	1887.00/M	ELF-18D450B
650	1.5	3.1	PLK1008-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D650M
	3.3	2.4	PLK1009-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D650B
	8.2	1.7	PLK1010-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D650C
	22.0	1.0	PLK1011-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D650L
	47.0	0.7	PLK1012-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D650U
	2.2	2.8	PLK1037-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D656A
	12.0	1.6	PLK1038-ND	5.52	47.28	394.00	2352.00	2189.00/M	ELF-18D656J
850	1.5	5.0	PLK1013-ND	8.20	70.26	585.50	3496.00	3253.00/M	ELF-18D850M
	3.3	4.2	PLK1014-ND	8.20	70.26	585.50	3496.00	3253.00/M	ELF-18D850B
	4.7	3.5	PLK1015-ND	8.20	70.26	585.50	3496.00	3253.00/M	ELF-18D850Y
	10.0	2.5	PLK1016-ND	8.20	70.26	585.50	3496.00	3253.00/M	ELF-18D850W
	22.0	1.8	PLK1018-ND	8.20	70.26	585.50	3496.00	3253.00/M	ELF-18D860C
	56.0	1.1	PLK1017-ND	8.20	70.26	585.50	3496.00	3253.00/M	ELF-18D850T
H Series									
200	1.5	1.6	PLK1019-ND	3.20	27.39	228.25	1363.00	1268.00/M	ELF-18D217
	3.9	1.0	PLK1020-ND	3.20	27.39	228.25	1363.00	1268.00/M	ELF-18D216
	22.0	0.4	PLK1021-ND	3.20	27.39	228.25	1363.00	1268.00/M	ELF-18D218
	1.0	2.1	PLK1022-ND	3.20	27.39	228.25	1363.00	1268.00/M	ELF-18D212F
	2.2	1.5	PLK1023-ND	3.20	27.39	228.25	1363.00	1268.00/M	ELF-18D228F
	33.0	0.4	PLK1024-ND	3.20	27.39	228.25	1363.00	1268.00/M	ELF-18D221F
270	6.8	0.7	PLK1025-ND	2.80	23.97	199.75	1193.00	1110.00/M	ELF-18D270A
400	1.5	2.4	PLK1026-ND	3.79	32.52	271.00	1618.00	1506.00/M	ELF-18D419
	2.2	2.0	PLK1027-ND	3.79	32.52	271.00	1618.00	1506.00/M	ELF-18D416
	12.0	0.9	PLK1028-ND	3.79	32.52	271.00	1618.00	1506.00/M	ELF-18D430
	33.0	0.5	PLK1029-ND	3.79	32.52	271.00	1618.00	1506.00/M	ELF-18D428
	2.2	2.2	PLK1030-ND	3.79	32.52	271.00	1618.00	1506.00/M	ELF-18D435F
	10.0	1.0	PLK1031-ND	3.79	32.52	271.00	1618.00	1506.00/M	ELF-18D431F
600	1.0	3.4	PLK1032-ND	5.99	51.33	427.75	2554.00	2376.00/M	ELF-18D608
	3.3	2.5	PLK1033-ND	4.79	41.04	342.00	2042.00	1900.00/M	ELF-18D605
	22.0	1.0	PLK1034-ND	4.79	41.04	342.00	2042.00	1900.00/M	ELF-18D612
	2.2	2.8	PLK1035-ND	4.79	41.04	342.00	2042.00	1900.00/M	ELF-18D617F
	33.0	0.8	PLK1036-ND	4.79	41.04	342.00	2042.00	1900.00/M	ELF-18D624F
F Series									
23F	50.0	0.3	PLK1039-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F003A
	30.0	0.4	PLK1040-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F004A
	20.0	0.5	PLK1041-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F005A
	14.0	0.6	PLK1042-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F906A
	10.0	0.7	PLK1043-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F007A
	8.0	0.8	PLK1044-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F008A
	6.0	0.9	PLK1045-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F009A
	5.0	1.0	PLK1046-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F010A
	3.5	1.2	PLK1047-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F012A
	2.0	1.6	PLK1048-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F016A
	1.5	1.8	PLK1049-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F018A
	1.2	2.0	PLK1050-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F020A
	1.0	2.2	PLK1051-ND	8.29	71.06	592.20	3536.00	3290.00/M	ELF-23F022A
25F	28.0	0.6	PLK1052-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F106A
	20.0	0.7	PLK1053-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F107A
	15.0	0.8	PLK1054-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F108A
	12.0	0.9	PLK1055-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F109A
	10.0	1.0	PLK1056-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F110A
	7.0	1.2	PLK1057-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F112A
	5.0	1.4	PLK1058-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F114A
	4.0	1.6	PLK1059-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F116A
	3.0	1.8	PLK1060-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F118A
	2.0	2.0	PLK1061-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F020A
	1.6	2.2	PLK1062-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F022A
	1.3	2.5	PLK1063-ND	9.67	82.92	691.04	4126.00	3839.00/M	ELF-25F025A

Digi-Key Parts Kits

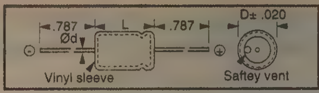
Description	Digi-Key Part No.	Price
Potentiometers		
Panasonic 5mm Sq. Single-Turn, Top Adjust – 10 ea. (140 total pcs.)	MAG-KIT-ND	129.95
Panasonic 5mm Sq. Single-Turn, Side Adjust – 10 ea. (140 total pcs.)	MBG-KIT-ND	129.95
Panasonic 5mm Sq. Single-Turn, Top Adjust – 10 ea. (140 total pcs.)	MSG-KIT-ND	129.95
Panasonic 6mm Carbon Trimmer, Laydown and Standup Version 10 ea. of 14 popular values (140 total pcs.)	DXA-KIT-ND	29.95
Panasonic 6mm Cermet Dust-Proof, Both Sides Adjust – 10 ea. (130 pcs.)	31G-KIT-ND	52.95
Panasonic 6mm Cermet Dust-Proof, Top/Bottom Adjust – 10 ea. (130 pcs.)	36C-KIT-ND	52.95
Panasonic 5/16" Preset Variable Trimmer – 10 ea. of 18 values (180 total pcs.)	K-KIT-ND	42.95
NEW! **Panasonic Series P1S SMT Trimmer** - 10 ea. of 12 values (120 total pcs)	P1S-KIT-ND	43.95
NEW! **Panasonic Series P1G SMT Trimmer** - 10 ea. of 13 values (130 total pcs)	P1G-KIT-ND	43.95
NEW! **Panasonic Series P1D SMT Trimmer** - 10 ea. of 13 values (130 total pcs)	P1D-KIT-ND	43.95
NEW! **Panasonic Series P1E SMT Trimmer** - 10 ea. of 13 values (130 total pcs)	P1E-KIT-ND	43.95
NEW! **Panasonic Series P7J SMT Trimmer** - 10 ea. of 15 values (150 total pcs)	P7J-KIT-ND	59.95
Bourns 3/4" Rectangular 15-Turn – 10 ea. of 15 values (150 total pcs.)	3006P-KIT-ND	159.00
Bourns 3/8" Sq. 25-Turn – 5 ea. of values denoted in 3296P series (75 pcs.)	3296P-KIT-ND	139.00
Bourns 3/8" Sq. 25-Turn – 5 ea. of values denoted in 3296W series (75 pcs.)	3296W-KIT-ND	139.00
Bourns 3/8" Sq. 25-Turn – 5 ea. of values denoted in 3296X series (75 pcs.)	3296X-KIT-ND	139.00
Bourns 3/8" Sq. 25-Turn – 5 ea. of values denoted in 3296Y series (75 pcs.)	3296Y-KIT-ND	139.00
Bourns 3/8" Sq. 25-Turn – 5 ea. of values denoted in 3296Z series (75 pcs.)	3296Z-KIT-ND	139.00
Bourns 3/8" Sq. Single-Turn – 5 ea. of values denoted in 3386C series (75 pcs.)	3386C-KIT-ND	64.95
Bourns 3/8" Sq. Single-Turn – 5 ea. of values denoted in 3386F series (75 pcs.)	3386F-KIT-ND	64.95
Bourns 3/8" Sq. Single-Turn – 5 ea. of values denoted in 3386P series (75 pcs.)	3386P-KIT-ND	64.95
Bourns 3/8" Sq. Single-Turn – 5 ea. of values denoted in 3386R series (75 pcs.)	3386R-KIT-ND	64.95
Bourns 3/8" Sq. Single-Turn – 5 ea. of values denoted in 3386X ser. (75 pcs.)	3386X-KIT-ND	64.95
Bourns 1/2" Sq. 25-Turn – 5 ea. of 18 popular values (90 pcs.)	3252-KIT-ND	569.00
Bourns 1/4" Sq. Cermet 12-Turn – 5 ea. of values denoted in 3266W ser. (85 pcs.)	3266W-KIT-ND	189.00
Bourns 1/4" Sq. Cermet 12-Turn – 5 ea. of values denoted in 3266X ser. (85 pcs.)	3266X-KIT-ND	189.00
Bourns 1/4" Sq. Cermet Single-Turn – 10 ea. of values in 3362H ser. (140 pcs.)	3362H-KIT-ND	89.95
Bourns 1/4" Square Cermet Single-Turn – 10 ea. of values in 3362M series (140 total pcs.)	3362M-KIT-ND	89.95
Bourns 1/4" Square Cermet Single-Turn – 10 ea. of values in 3362R series (140 total pcs.)	3362R-KIT-ND	89.95
Bourns 1/4" Square Cermet Single-Turn – 10 ea. of values in 3362U series (140 total pcs.)	3362U-KIT-ND	89.95
Bourns 1/4" Square Cermet Single-Turn – 10 ea. of values in 3362X series (140 total pcs.)	3362X-KIT-ND	89.95
Bourns 9mm Round Cermet Single-Turn – 10 ea. of all values denoted (180 total pcs.)	3309-KIT-ND	89.95
Bourns 6mm Round Cermet Single-Turn – 10 ea. of values in 3316F series (130 total pcs.)	3316F-KIT-ND	59.95
Bourns 6mm Round Cermet Single-Turn – 10 ea. of values in 3316K series (130 total pcs.)	3316K-KIT-ND	59.95
Bourns 6mm Round Cermet Single-Turn – 10 ea. of values in 3316P series (130 total pcs.)	3316P-KIT-ND	59.95
Bourns 6mm Round Cermet Single-Turn – 10 ea. of values in 3316W series (130 total pcs.)	3316W-KIT-ND	59.95
Bourns 1/4" Round Cermet Single-Turn – 5 ea. of all values in 3329H series (70 total pcs.)	3329H-KIT-ND	119.95
Bourns 1/4" Round Cermet Single-Turn – 5 ea. of all values in 3329P series (70 total pcs.)	3329P-KIT-ND	119.95
Bourns 1/4" Round Cermet Single-Turn – 5 ea. of all values in 3329S series (70 total pcs.)	3329S-KIT-ND	119.95
Bourns 1/4" Round Cermet Single-Turn – 5 ea. of all values in 3329W series (70 total pcs.)	3329W-KIT-ND	119.95
Bourns 1/4" Round Cermet Single-Turn – 5 ea. of all values in 3329X series (70 total pcs.)	3329X-KIT-ND	119.95
Bourns 5/16" Round Cermet 4-Turn – 5 ea. of all values in 3339P series (70 total pcs.)	3339P-KIT-ND	259.00
Bourns 5/16" Round Cermet 4-Turn – 5 ea. of all values in 3339W series (70 total pcs.)	3339W-KIT-ND	259.00
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3359P series (65 total pcs.)	3359P-KIT-ND	49.95
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3359W series (65 total pcs.)	3359W-KIT-ND	49.95
Bourns 1/2" Round Wirewound Single-Turn – 5 ea. of 9 values (45 total pcs.)	3345P-KIT-ND	169.95
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3352E series (75 total pcs.)	3352E-KIT-ND	46.95
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3352H series (75 total pcs.)	3352H-KIT-ND	46.95
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3352P series (75 total pcs.)	3352P-KIT-ND	46.95
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3352T series (75 total pcs.)	3352T-KIT-ND	46.95
Bourns 3/8" Round Cermet Single-Turn – 5 ea. of all values in 3352W series (75 total pcs.)	3352W-KIT-ND	46.95
Bourns 4mm Sq. Cermet Single-Turn Sealed – 5 ea. of values denoted (150 total pcs.)	3314A-KIT-ND	159.00
Bourns 5mm Sq. Cermet Single-Turn Sealed – 5 ea. of values denoted (150 total pcs.)	3335A-KIT-ND	249.00
Bourns SMD 4mm Sq. Cermet Single-Turn Open Frame – 5 ea. of values denoted (55 total pcs.)	3364W-KIT-ND	39.95
Thermistors		
Keystone Inrush Current Limiters – 2 ea. of values denoted (30 total pcs.)	KCINR-KIT-ND	49.95
Keystone PTC Thermistors – 2 ea.(20 total pcs.)	KCPTC1-KIT-ND	37.95
Keystone NTC Thermistors – 2 ea. of values denoted (30 total pcs.)	KCNTC-KIT-ND	39.95
Resistors		
Yageo 5% Carbon Film, 1/8 Watt		
5 ea. of values 1.0, 1.2, 1.5, 1.8, 2.2, etc. thru 1.0 megohm (365 total pcs.)	RS112-ND	16.96
5 ea. of values 1.1, 1.3, 1.6, 2.0, 2.4, etc. thru 910 kilohm (360 total pcs.)	RS212-ND	16.99
200 ea. of all 161 standard values 1.0 - 4.7 megohms (32,200 total pcs.)	RSE200-ND	399.00
Yageo 5% Carbon Film, 1/4 Watt		
5 ea. of values 1.0, 1.2, 1.5, 1.8, 2.2, etc. thru 1.0 megohm (365 total pcs.)	RS125-ND	14.95
5 ea. of values 1.1, 1.3, 1.6, 2.0, 2.4, etc. thru 910 kilohm (360 total pcs.)	RS225-ND	14.95
200 ea. of all 161 standard values 1.0 - 4.7 megohms (32,200 total pcs.)	RSQ200-ND	219.00
Yageo 5% Carbon Film, 1/2 Watt		
5 ea. of values 1.0, 1.2, 1.5, 1.8, 2.2, etc. thru 1.0 megohm (365 total pcs.)	RS150-ND	16.95
5 ea. of values 1.1, 1.3, 1.6, 2.0, 2.4, etc. thru 910 kilohm (360 total pcs.)	RS250-ND	16.95
200 ea. of all 161 standard values 1.0 - 4.7 megohms (32,200 total pcs.)	RSH200-ND	297.00
Panasonic 1206 5% Chip Resistor Assortments, 1/8 Watt		
200 ea .of every other value from 10, 12, 15, etc. 1.0M (12,200 pcs.)	CR1-KIT-ND	329.00
200 ea.of every other value for 11, 13, 16, etc. 910K (12,200 pcs.)	CR2-KIT-ND	329.00
Panasonic 0805 5% Chip Resistor Assortments, 1/10 Watt		
200 ea. of every other value from 10, 12, 15, etc. 1.0M (12,200 pcs.)	CR3-KIT-ND	349.00
200 ea. of every other value for 11, 13, 16, etc. 910K (12,200 pcs.)	CR4-KIT-ND	349.00
Panasonic 0603 5% Chip Resistor Assortments, 1/16 Watt		
200 ea. of every other value for 10, 12, 15, etc 1.0M (12,200 pcs)	CR5-KIT-ND	379.00
200 ea. of every other value for 11, 13, 16, etc. 910K (12,200 pcs.)	CR6-KIT-ND	379.00
Panasonic 0402 5% Chip Resistor Assortments, 1/16 Watt		
200 ea. of every other value for 10, 12, 15, etc 1.0M (12,200 pcs)	CR7-KIT-ND	399.00
200 ea. of every other value for 11, 13, 16, etc. 910K (12,200 pcs.)	CR8-KIT-ND	399.00
Panasonic 0805 1% Chip Resistor Assortments, 1/10 Watt		
200 ea. of values 10ohm to 97.6ohm (19,200 pcs.)	RSM1C-ND	495.00
200 ea. of values 100ohm to 976ohm (19,200 pcs.)	RSM2C-ND	495.00
200 ea. of values 1.00K to 9.76K (19,200 pcs.)	RSM3C-ND	495.00
200 ea. of values 10.0K to 97.6K (19,200 pcs.)	RSM4C-ND	495.00
200 ea. of values 100K to 1.00M (19,200 pcs.)	RSM5C-ND	495.00
Panasonic 1206 1% Chip Resistor Assortments, 1/8 Watt		
200 ea. of values 10.0ohm to 97.6ohm (19,200 pcs.)	RSM1F-ND	495.00
200 ea. of values 100ohm to 976ohm (19,200 pcs.)	RSM2F-ND	495.00
200 ea. of values 1.00K to 9.76K (19,200 pcs.)	RSM3F-ND	495.00
200 ea. of values 10.0K to 97.6K (19,200 pcs.)	RSM4F-ND	495.00
200 ea. of values 100K to 1.00M (19,200 pcs.)	RSM5F-ND	495.00
Yageo 1% Metal Film, 1/4 Watt – 5 ea. of values 10ohm to 97.6ohm (480 total pcs.)	RS1X-ND	29.95
Yageo 1% Metal Film, 1/4 Watt – 5 ea. of values 100ohm to 976ohm (480 total pcs.)	RS2X-ND	29.95
Yageo 1% Metal Film, 1/4 Watt – 5 ea. of values 1.00K to 9.76K (480 total pcs.)	RS3X-ND	29.95
Yageo 1% Metal Film, 1/4 Watt – 5 ea. of values 10.0K to 97.6K (480 total pcs.)	RS4X-ND	29.95
Yageo 1% Metal Film, 1/4 Watt – 5 ea. of values 100K to 1.00M (480 total pcs.)	RS5X-ND	29.95
Yageo 5% Metal Oxide, 1 Watt – 5 ea. of values 0.47ohm to 56ohm (255 total pcs.)	RS101-ND	26.95
Yageo 5% Metal Oxide, 1 Watt – 5 ea. of values 62ohm to 7.5K (255 total pcs.)	RS201-ND	26.95
Yageo 5% Metal Oxide, 1 Watt – 5 ea. of values 8.2K to 1.0M (255 total pcs.)	RS301-ND	26.95
Yageo 5% Metal Oxide, 2 Watt – 5 ea. of values 0.47ohm to 56ohm (255 total pcs.)	RS102-ND	29.95
Yageo 5% Metal Oxide, 2 Watt – 5 ea. of values 62ohm to 7.5K (255 total pcs.)	RS202-ND	29.95
Yageo 5% Metal Oxide, 2 Watt – 5 ea. of values 8.2K to 1.0M (255 total pcs.)	RS302-ND	29.95
Yageo 5% Wirewound Rect., 5 Watt – 5 ea. of values 0.30ohm - 0.91ohm (60 pcs.)	RS105-ND	23.95
Yageo 5% Wirewound Rect., 5 Watt – 4 ea. of values 1.0ohm - 9.1ohm (96 pcs.)	RS205-ND	32.95
Yageo 5% Wirewound Rect., 5 Watt – 4 ea. of values 10ohm - 91ohm (96 pcs.)	RS305-ND	32.95
Yageo 5% Wirewound Rect., 5 Watt – 3 ea. of values 100ohm - 2.0K (96 pcs.)	RS405-ND	32.95
Yageo 5% Wirewound Rect., 10 Watt – 2 ea. (168 total pcs.)	R110-ND	72.95
Capacitors		
Panasonic Min. Aluminum Electrolytic (KG-Series) – 10 ea. of 18 values (180 pcs.)	P900-KIT-ND	34.95
Panasonic Min. Radial Lead Electrolytic (SU-Series) – 10 ea. of 15 values (150 pcs.)	P6198-KIT-ND	49.95
Panasonic Min. Radial Lead Electrolytic (NHE-Series) 10 ea. of 15 values (150 pieces)	P5198-KIT-ND	69.95
Panasonic Min. High Freq. Radial Lead Electrolytic (HF-Series) 10 ea. of 13 popular values (130 total pcs.)	P6700-KIT-ND	129.95
Panasonic Miniature Radial Lead Electrolytic (Z-Series) 10 ea. of 15 popular values (150 total pcs.)	Z-KIT-ND	42.95
Panasonic Min. Radial Lead Electrolytic Tantalum Sub. (K-Series) 10 ea. of 16 popular values (160 total pieces)	P835-KIT-ND	29.95
Panasonic Tantalum (EF-Series) – 10 each of 15 popular values (180 total pcs.)	F-KIT-ND	39.95
Panasonic Stacked Metal Film, 50 Volt (V-Series) – 10 ea. of 18 values (180 pcs.)	P4542-KIT-ND	49.95
Panasonic Stacked Metal Film, 100 Volt (V-Series) – 10 ea. of 18 values (180 pcs.)	P4700-KIT-ND	49.95
Panasonic Metal Film (Interference Suppressors) (X-Y Series) – 10 ea. (100 pcs.)	P4650-KIT-ND	59.95
Panasonic Metalized Polyester (E-Series) 10 each of all values denoted (except #E2104 which has 30 pcs.) - 170 total pcs.	E-KIT-ND	59.95
Panasonic Polyester (B-Series) – Various quantities of all values (300 pcs.)	P4550-KIT-ND	29.95
Panasonic Polyester-Foil, 200 Volt (M-Series) – 10 ea. of 15 values (150 pcs.)	M200-KIT-ND	29.95
Panasonic Polyester-Foil, 400 Volt (M-Series) – 10 ea. of 15 values (150 pcs.)	M400-KIT-ND	29.95
Panasonic Polypropylene (P-Series) – 10 ea. of 15 values (150 pcs.)	P3100-KIT-ND	69.95
Panasonic Bi-Polar Capacitor – 10 ea. of 14 values (140 pcs.)	P1141-KIT-ND	89.95
Panasonic SMD Electrolytic (VA-Series) – 10 ea. of 16 values (160 pcs.)	PCE2-KIT-ND	49.95
Panasonic Tantalum Electrolytic (TE-Series) – 10 ea. of 18 values (180 pcs.)	PCS1-KIT-ND	89.95
Panasonic Tantalum Electrolytic (TE-Series) – 10 ea. of 18 values (180 pcs.)	PCS2-KIT-ND	89.95
Panasonic Tantalum Electrolytic (TES-Series) – 10 ea. of 18 values (180 pcs.)	PCS3-KIT-ND	89.95
Panasonic Chip Tantalum - 6.3, 10, 16VDC (TEH Series) 10 ea. of 19 popular values (190 total pcs.)	PCT1-KIT-ND	129.95
Panasonic Chip Tantalum - 25, 35VDC (TEH Series) 10 ea. of 17 popular values (170 total pcs.)	PCT2-KIT-ND	119.95
NEW! **Panasonic SMT Film (ECH-U Series)** – 10 ea. of 18 values (180 pcs.)	PCF1-KIT-ND	59.95
NEW! **Panasonic SMT Film (ECW-U Series)** – 10 ea. of 18 values (180 pcs.)	PCF2-KIT-ND	59.95
Panasonic 1206 Chip Ceramic - NPO– 10 ea. of 30 values (300 pcs.)	PCC5-KIT-ND	34.95
Panasonic 1206 Chip Ceramic - X7R – 10 ea. of 30 values (300 pcs.)	PCC6-KIT-ND	49.95
Panasonic 0805 Chip Ceramic - NPO – 10 ea. of 30 values (300 pcs.)	PCC7-KIT-ND	29.95
Panasonic 0805 Chip Ceramic - X7R – 10 ea. of 26 values (260 pcs.)	PCC8-KIT-ND	29.95
Panasonic 0603 Chip Ceramic - NPO– 10 ea. of 30 values (300 pcs.)	PCC9-KIT-ND	29.95
Panasonic 0603 Chip Ceramic - X7R – 10 ea. of 25 values (250 pcs.)	PCC10-KIT-ND	29.95
Panasonic 0402 Chip Ceramic - NPO – 10 ea. of 30 values (300 pcs.)	PCC11-KIT-ND	64.95
Panasonic 0402 Chip Ceramic - X7R & Y5V – 10 ea. of 23 values (230 pcs.)	PCC12-KIT-ND	49.95
Panasonic Ceramic Disc - 20 ea. of 18 values (360 pcs.)	PDC1-KIT-ND	25.95
Philips Components Ceramic Disc -N750 - 20 ea. of 18 values (360 pcs.)	PHD1-KIT-ND	21.95
Miscellaneous		
Panasonic LED's – 10 ea. of 18 popular LED's (180 total pcs.)	LED-KIT-ND	36.95
Capital Advanced Technologies Inc. – Master Assort. Kit for Discretes 2 ea. of all 23 models in the 6000 series of surfboards for discrete components	MK-6000CA-ND	99.00
Capital Advanced Technologies Inc. – Master Assort. Kit for IC's, 5 ea. of models 9081, 9082, 9161, 9162, and 2 ea. of models 9163, 9164, 9165, 9210, 9301, and 9302 (32 pcs.)	MK-9000CA-ND	99.00
Capital Advanced Technologies Inc. – Master Assort. Kit for UNI-SIP, 2 ea. of all 26 type in the UNI-SIP Series, packaged in reclosable bags grouped by series number	MK260CA-ND	79.00
CW Industries Switches – Various quantities of 15 switches (130 pcs.)	SW-KIT-ND	89.95
Hamlin Magnetic Switches - Various quantities of 18 switches (22 pcs.)	HE1-KIT-ND	69.95
Hamlin Magnetic Switches - One each of 18 switches (18 pcs.)	HE2-KIT-ND	49.95
Johnson Plugs and Jacks – 10 ea. of 15 plugs and jacks (150 pcs.)	J100-KIT-ND	76.95
Johnson Spacers – 10 ea. of 15 spacers (150 total pcs.)	J200-KIT-ND	29.95
Hardware – 100 ea. of - machine screws, hex nuts, lock washers (1600 pcs.)Slotted	1600-KIT-ND	17.95
Hardware – 100 ea. of - machine screws, hex nuts, lock washers (1600 pcs.)Slotted	1601-KIT-ND	27.95
Hardware – 100 ea. of - machine screws, hex nuts, lock washers (1600 pcs.)Phillips	1602-KIT-ND	17.95
Hardware – 100 ea. of - machine screws, hex nuts, lock washers (1600 pcs.)Phillips	1603-KIT-ND	27.78
Hardware – 100 ea. of - machine screws, hex nuts, lock washers (1500 pcs.)Nylon	1604-KIT-ND	53.94
NEW! **MagneTek E-Core Inductors** -1 each of series CME375 (9 total pieces)	10532-ND	55.56
NEW! **MagneTek E-Core Inductors** -1 each of series CME2425 (9 total pieces)	10542-ND	51.11
NEW! **MagneTek Common Mode Encapsulated Toroidal Inductors** - 1 each (8 pieces)	10551-ND	33.33
NEW! **MagneTek Toroidal Inductors** - 1 each (30 pieces)	10589-ND	83.33
NEW! **MagneTek High Current Rod Core Inductors** - 1 each (6 pieces)	10596-ND	11.11
NEW! **MagneTek Rod Core Inductors** - 1 each (11 total pieces)	10608-ND	27.78
NEW! **Toko Leaded Fixed Inductors** - 2 each of 8RBS & 8RHB Series (116 total pieces)	TK5-KIT-ND	59.40
NEW! **Toko 0805 Chip LL2012 Series Inductors** - 10 each (300 total pieces)	TK6-KIT-ND	71.55
NEW! **Toko 0603 Chip LL Series Inductors** - 10 each of 24 values (1.2nH - 100nH)	TK7-KIT-ND	71.55
NEW! **Toko 5MM SMD Coil Ind.** - 2 ea. of 54 values (68nH - 2200nH & 1.8µH - 1000µH)	TK8-KIT-ND	97.20
NEW! **Toko D7 Fixed Series Inductors** - 2 each of 43 values (1µH - 470µH)	TK9-KIT-ND	97.20
3M Insulated Terminals – 650 asst. terminals (14 sizes), 200 cable ties, wire marker dispenser, crimp tool, metal box	923000-I-ND	108.10
ECS, Inc. Crystals – 3 each of 27 popular values (81 total pcs.)	XC-KIT-ND	169.00
NEW! **MagneTek Current Sense Transformers** - 1 of each series CST206 (6 total pcs.)	10514-ND	33.30
NEW! **MagneTek Current Sense Transformers** - 1 of each series CST306 (6 total pcs,)	10522-ND	22.22
NEW! **MagneTek Gate Drive Transformers** - 1 each (6 total pieces)	10558-ND	88.89
Epson Surface Mount Crystals, (MA-505 Series – 3 each (51 total pcs.)	SE1-KIT-ND	99.00
Epson Surface Mount Crystals, (MA-506 Series) – 3 each (51 total pcs.)	SE2-KIT-ND	99.00
Epson Surface Mount Crystals, (SG-615P Series) – 2 each (32 total pcs.)	SE3-KIT-ND	169.00
3M Heatshrink Precut Lengths (CP-221 Series) 50 each of 5 sizes, & 100 each of 1 sizes (350 total pcs.)	CP-KIT-ND	9.95
3M Heatshrink Precut Lengths (FP-301 Series) 50 each of 5 sizes, & 100 of 1 size (350 total pcs.)	FP-KIT-ND	10.94
3M Heatshrink Precut Lengths (VFP-876 Series) 50 each of 5 sizes, & 100 of 1 size (350 total pcs.)	VFP-KIT-ND	11.95
Daburn Shrinkable Tubing, Polyolefin: Black 5 feet of 6 popular sizes (30 total ft. of tubing)	STA-KIT-ND	10.95
LittelFuse Pico SMD and Nano² SMF Fuses 5 Each of Indicated fuses (150 total pieces)	SMF-KIT-ND	99.95
Toko 5mm Standard Coil Kit (Assortment of various 5mm coils)	TK4-KIT-ND	108.00
Toko 7mm Standard Coil Kit (Assortment of various 7mm coils)	TK1-KIT-ND	59.40
Toko 10mm Standard Coil Kit (Assortment of various 10mm coils)	TK2-KIT-ND	59.40
Zetex SOT-23 SMD Zener Diode Kit- 10 each of various values (180 total pieces)	BZX1-KIT-ND	49.95
Diode SOT-23 SMD Zener Diode Kit -10 each of various values (180 total pieces)	BZX2-KIT-ND	29.95
Alpha Hook-Up Wire 3050 Series - 5 100ft spools (Black, White, Red, Green & Blue) w/ dispenser& wire cutter	HU-KIT-40-ND	57.00
Alpha Hook-Up Wire 3051 Series - 5 100ft spools (Black, White, Red, Green & Blue) w/ dispenser& wire cutter	HU-KIT-20-ND	57.00

Panasonic. SU Series

Miniature Axial Lead Aluminum Electrolytic Capacitors

FEATURES:
• Miniaturized case size. • Improved life (2,000 hours at +85°C). • Wide capacitance range (0.47µF – 22,000µF). • Increased range for auto insertion due to smaller case size. • Tolerance: ±20%.

PANASONIC SU CROSS REFERENCES
Elna: RE2; IC; RAR; **Marcon**: SEM; **Nichicon**: LB/VX; **Rubycon**: TWSS; **Sprague**: 501D/513D; UCC: SME.
SU AXIAL
L < 15 (0.630): L + 1 (.040) max.
L > 20 (0.787): L + 2 (.079) max.



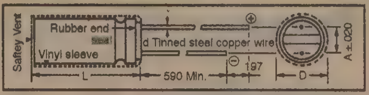
WV (VDC)	Cap. (µF)	Current. Leakage (µA)	Tan ∂	Ripple Current (mA)rms	Dimensions (Inches)			Digi-Key Part No.	Pricing						Panasonic Part No.
					L	D	d		1	10	100	1,000	5,000	10,000	
6.3	47	3.0	0.22	70	.413	.177	0.20	P5961-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B0JU470S
	100	6.3	0.22	100	.413	.177	.019	P5962-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B0JU101S
	220	13.8	0.22	240	.630	.315	.024	P5963-ND	.49	4.17	32.67	207.00	196.00/M	181.00/M	ECE-B0JU221Y
	330	20.7	0.22	300	.630	.315	.024	P5964-ND	.50	4.29	33.61	213.00	201.00/M	186.00/M	ECE-B0JU331
	470	29.6	0.22	380	.630	.315	.024	P6305-ND	.72	6.21	48.65	309.00	292.00/M	269.00/M	ECE-B0JU471
	1,000	63.0	0.22	580	.787	.315	.024	P5965-ND	.83	7.11	55.70	354.00	334.00/M	308.00/M	ECE-B0JU102S
	2,200	138	0.24	890	.984	.492	.031	P6307-ND	1.31	11.25	88.13	560.00	528.00/M	487.00/M	ECE-B0JU222
	3,300	207	0.26	1020	.984	.492	.031	P6308-ND	1.48	12.72	99.64	633.00	597.00/M	551.00/M	ECE-B0JU332
	4,700	296	0.28	1170	1.240	.492	.031	P6309-ND	1.76	15.06	117.97	749.00	707.00/M	652.00/M	ECE-B0JU472
	6,800	428	0.30	1270	1.240	.630	.031	P6310-ND	2.40	20.58	161.21	1024.00	966.00/M	891.00/M	ECE-B0JU682
	10,000	630	0.32	1450	1.575	.630	.031	P6311-ND	3.00	25.74	201.63	1281.00	1208.00/M	1114.00/M	ECE-B0JU103
	15,000	945	0.40	1700	1.575	.709	.031	P6312-ND	4.00	34.29	268.61	1706.00	1610.00/M	1484.00/M	ECE-B0JU153
	22,000	1386	0.50	1850	1.575	.882	.031	P6313-ND	5.89	50.50	395.59	2512.00	2371.00/M	2186.00/M	ECE-B0JU223
10	22	3.0	0.19	40	.413	.197	.024	P5966-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1AU220
	33	3.3	0.19	60	.413	.177	.019	P5967-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1AU330S
	47	4.7	0.19	90	.413	.177	.019	P5968-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1AU470S
	100	10.0	0.19	150	.413	.248	.024	P5969-ND	.48	4.14	32.43	206.00	194.00/M	179.00/M	ECE-B1AU101Y
	220	22.0	0.19	250	.630	.248	.024	P5970-ND	.52	4.44	34.78	221.00	208.00/M	192.00/M	ECE-B1AU221
	330	33.0	0.19	330	.630	.315	.024	P6319-ND	.72	6.15	48.18	306.00	289.00/M	266.00/M	ECE-B1AU331
	470	47.0	0.19	400	.630	.315	.024	P6320-ND	.75	6.45	50.53	321.00	303.00/M	279.00/M	ECE-B1AU471
	1,000	100	0.19	630	.787	.394	.024	P6321-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECE-B1AU102
	2,200	220	0.21	920	.984	.492	.031	P6322-ND	1.43	12.27	96.12	610.00	576.00/M	531.00/M	ECE-B1AU222
	3,300	330	0.23	1090	1.240	.492	.031	P6323-ND	1.71	14.67	114.92	730.00	689.00/M	635.00/M	ECE-B1AU332
	4,700	470	0.25	1200	.984	.630	.031	P6324-ND	2.25	19.29	151.11	960.00	906.00/M	835.00/M	ECE-B1AU472
	6,800	680	0.29	1400	1.240	.630	.031	P6325-ND	2.75	23.55	184.48	1172.00	1106.00/M	1019.00/M	ECE-B1AU682
	10.000	1000	0.37	1600	1.575	.709	.031	P6326-ND	3.74	32.04	250.98	1594.00	1504.00/M	1387.00/M	ECE-B1AU103
	15,000	1500	0.47	1800	1.575	.882	.031	P6327-ND	5.55	47.58	372.69	2367.00	2234.00/M	2060.00/M	ECE-B1AU153
16	22	3.5	0.16	50	.413	.177	.019	P5971-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1CU220
	47	7.5	0.16	110	.413	.177	.019	P5972-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1CU470S
	100	16.0	0.16	180	.413	.248	.024	P5973-ND	.49	4.17	32.67	207.00	196.00/M	181.00/M	ECE-B1CU101Y
	220	35.2	0.16	280	.630	.315	.024	P6333-ND	.72	6.21	48.65	309.00	292.00/M	269.00/M	ECE-B1CU221
	330	52.8	0.16	350	.630	.315	.024	P6334-ND	.74	6.36	49.82	316.00	299.00/M	275.00/M	ECE-B1CU331
	470	75.2	0.16	440	.787	.315	.024	P6335-ND	.82	7.05	55.23	351.00	331.00/M	305.00/M	ECE-B1CU471
	1,000	160	0.16	680	.984	.394	.024	P6336-ND	1.20	10.29	80.61	512.00	483.00/M	445.00/M	ECE-B1CU102
	2,200	352	0.18	990	1.240	.492	.031	P6337-ND	1.67	14.34	112.33	713.00	673.00/M	621.00/M	ECE-B1CU222
	3,300	528	0.20	1100	.984	.630	.031	P6338-ND	2.23	19.08	149.46	949.00	896.00/M	826.00/M	ECE-B1CU332
	4.700	752	0.22	1360	1.240	.630	.031	P6339-ND	2.71	23.25	182.13	1157.00	1092.00/M	1006.00/M	ECE-B1CU472
	6,800	1088	0.26	1600	1.575	.630	.031	P6340-ND	3.45	29.58	231.71	1472.00	1389.00/M	1281.00/M	ECE-B1CU682
	10,000	1600	0.34	1750	1.575	.882	.031	P6341-ND	5.30	45.43	355.85	2260.00	2133.00/M	1967.00/M	ECE-B1CU103
	15,000	2400	0.44	1900	1.969	.882	.031	P6342-ND	7.13	61.08	478.50	3039.00	2868.00/M	2644.00/M	ECE-B1CU153
25	10	3.0	0.14	50	.413	.197	.024	P6343-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1EU100S
	22	5.5	0.14	60	.413	.177	.019	P5974-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1EU220S
	33	8.2	0.14	90	.413	.177	.020	P5975-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1EU330S
	47	11.7	0.14	130	.413	.248	.024	P5976-ND	.48	4.08	31.96	203.00	192.00/M	177.00/M	ECE-B1EU470Y
	100	25.0	0.14	180	.413	.248	.024	P5977-ND	.49	4.23	33.14	210.00	199.00/M	183.00/M	ECE-B1EU101Y
	220	55.0	0.14	290	.630	.315	.024	P6348-ND	.76	6.48	50.76	322.00	304.00/M	281.00/M	ECE-B1EU221
	330	82.5	0.14	390	.787	.315	.024	P6349-ND	.83	7.08	55.46	352.00	332.00/M	306.00/M	ECE-B1EU331
	470	117	0.14	480	.787	.394	.024	P6350-ND	1.10	9.42	73.79	469.00	442.00/M	408.00/M	ECE-B1EU471
	1,000	250	0.14	750	.984	.492	.031	P6351-ND	1.40	12.00	94.00	597.00	563.00/M	519.00/M	ECE-B1EU102
	2,200	550	0.16	1100	.984	.630	.031	P6352-ND	2.23	19.11	149.70	951.00	897.00/M	827.00/M	ECE-B1EU222
	3,300	825	0.18	1300	1.240	.630	.031	P6353-ND	2.78	23.79	186.36	1184.00	1117.00/M	1030.00/M	ECE-B1EU332
	4,700	1175	0.20	1500	1.575	.709	.031	P6354-ND	3.71	31.80	249.10	1582.00	1493.00/M	1377.00/M	ECE-B1EU472
	6,800	1700	0.22	1700	1.575	.882	.031	P6355-ND	5.88	50.37	394.54	2506.00	2365.00/M	2180.00/M	ECE-B1EU682
	10,000	2500	0.24	1800	1.969	.882	.031	P6356-ND	7.92	67.87	531.66	3377.00	3186.00/M	2938.00/M	ECE-B1EU103
35	4.7	3.0	0.17	20	.276	.138	.018	P5978-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B1VU4R7S
	10	3.5	0.12	45	.413	.177	.019	P5979-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1VU100S
	22	7.7	0.12	95	.413	.177	.019	P5980-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1VU220S
	33	11.5	0.12	110	.413	.248	.024	P5981-ND	.49	4.17	32.67	207.00	196.00/M	181.00/M	ECE-B1VU330Y
	47	16.4	0.12	130	.630	.248	.024	P5982-ND	.49	4.17	32.67	207.00	196.00/M	181.00/M	ECE-B1VU470
	100	35.0	0.12	200	.630	.315	.024	P6362-ND	.72	6.15	48.18	306.00	289.00/M	266.00/M	ECE-B1VU101
	220	77.0	0.12	320	.787	.315	.024	P6363-ND	.83	7.11	55.70	354.00	334.00/M	308.00/M	ECE-B1VU221
	330	115	0.12	400	.787	.394	.024	P6364-ND	1.11	9.54	74.73	475.00	448.00/M	413.00/M	ECE-B1VU331
	470	164	0.12	490	.984	.394	.024	P6365-ND	1.20	10.29	80.61	512.00	483.00/M	445.00/M	ECE-B1VU471
	1,000	350	0.12	770	1.240	.492	.031	P6366-ND	1.67	14.31	112.10	712.00	672.00/M	619.00/M	ECE-B1VU102
	2,200	770	0.14	1250	1.240	.630	.031	P6367-ND	2.76	23.67	185.42	1178.00	1111.00/M	1025.00/M	ECE-B1VU222
	3,300	1155	0.16	1400	1.575	.630	.031	P6368-ND	3.59	30.81	241.35	1533.00	1446.00/M	1334.00/M	ECE-B1VU332
	4,700	1645	0.18	1600	1.575	.882	.031	P6369-ND	5.47	46.87	367.16	2332.00	2201.00/M	2029.00/M	ECE-B1VU472
	6,800	2380	0.22	1800	1.969	.882	.031	P6370-ND	7.19	61.59	482.45	3064.00	2891.00/M	2666.00/M	ECE-B1VU682
50	3.3	3.0	0.15	35	.413	.138	.018	P5983-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B1HU3R3S
	4.7	3.0	0.10	30	.413	.177	.020	P5984-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1HU4R7S
	10	5.0	0.10	66	.630	.248	.024	P6373-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1HU100
	22	11.0	0.10	100	.413	.248	.024	P5985-ND	.51	4.41	34.55	219.00	207.00/M	191.00/M	ECE-B1HU220
	33	16.5	0.10	110	.413	.248	.024	P5986-ND	.51	4.41	34.55	219.00	207.00/M	191.00/M	ECE-B1HU330Y
	47	23.5	0.10	130	.413	.248	.024	P5987-ND	.51	4.41	34.55	219.00	207.00/M	191.00/M	ECE-B1HU470Y
	100	50.0	0.10	210	.630	.315	.024	P6377-ND	.76	6.48	50.76	322.00	304.00/M	281.00/M	ECE-B1HU101
	220	110	0.10	340	.787	.394	.024	P6378-ND	1.16	9.93	77.79	494.00	466.00/M	430.00/M	ECE-B1HU221
	330	165	0.10	420	.984	.394	.024	P6379-ND	1.25	10.71	83.90	533.00	503.00/M	464.00/M	ECE-B1HU331
	470	235	0.10	540	.984	.492	.031	P6380-ND	1.45	12.42	97.29	618.00	583.00/M	538.00/M	ECE-B1HU471
	1,000	500	0.10	790	.984	.630	.031	P6381-ND	2.30	19.68	154.16	979.00	924.00/M	852.00/M	ECE-B1HU102
	2,200	1100	0.12	1270	1.575	.709	.031	P6382-ND	3.92	33.63	263.44	1673.00	1579.00/M	1456.00/M	ECE-B1HU222
	3,300	1650	0.14	1500	1.575	.882	.031	P6383-ND	5.83	50.00	391.64	2487.00	2347.00/M	2164.00/M	ECE-B1HU332
	4,700	2350	0.16	1700	1.969	.882	.031	P6384-ND	7.66	65.69	514.56	3268.00	3084.00/M	2844.00/M	ECE-B1HU472
63	1.0	3.0	0.09	16	.413	.197	.024	P5988-ND	.34	2.92	22.90	145.00	137.00/M	127.00/M	ECE-B1JU010S
	3.3	3.0	0.09	31	.413	.177	.019	P5989-ND	.34	2.92	22.90	145.00	137.00/M	127.00/M	ECE-B1JU3R3
	4.7	3.0	0.09	30	.413	.177	.019	P5990-ND	.34	2.92	22.90	145.00	137.00/M	127.00/M	ECE-B1JU4R7S
	10	6.3	0.09	55	.413	.177	.020	P5991-ND	.32	2.73	21.39	136.00	128.00/M	118.00/M	ECE-B1JU100S
	22	13.8	0.09	105	.413	.248	.024	P5992-ND	.52	4.44	34.78	221.00	208.00/M	192.00/M	ECE-B1JU220
	33	20.7	0.09	130	.413	.248	.024	P5993-ND	.52	4.44	34.78	221.00	208.00/M	192.00/M	ECE-B1JU330Y
	47	29.6	0.09	160	.630	.315	.024	P6393-ND	.74	6.30	49.35	313.00	296.00/M	273.00/M	ECE-B1JU470
	100	63.0	0.09	250	.787	.315	.024	P6394-ND	.84	7.20	56.40	358.00	338.00/M	312.00/M	ECE-B1JU101
	220	138	0.09	390	.984	.394	.024	P6395-ND	1.23	10.56	82.72	525.00	496.00/M	457.00/M	ECE-B1JU221
	330	207	0.09	490	.984	.492	.031	P6396-ND	1.48	12.72	99.64	633.00	597.00/M	551.00/M	ECE-B1JU331
	470	296	0.09	600	1.240	.492	.031	P6397-ND	1.73	14.82	116.09	737.00	696.00/M	642.00/M	ECE-B1JU471
	1,000	630	0.09	950	1.240	.630	.031	P6398-ND	2.85	24.39	191.06	1213.00	1145.00/M	1056.00/M	ECE-B1JU102
	2,200	1386	0.11	1400	1.575	.882	.031	P6399-ND	5.68	48.65	381.11	2421.00	2284.00/M	2106.00/M	ECE-B1JU222
	3,300	2079	0.13	1600	1.969	.882	.031	P6400-ND	7.65	65.59	513.77	3263.00	3079.00/M	2839.00/M	ECE-B1JU332
100	0.47	3.0	0.08	10	.413	.197	.024	P5994-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B2AUR47S
	1.0	3.0	0.08	16	.413	.177	.019	P5995-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B2AU010S
	2.2	3.0	0.08	24	.413	.177	.020	P5996-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B2AU2R2S
	3.3	3.3	0.08	32	.413	.177	.020	P5997-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B2AU3R3S
	4.7	4.7	0.08	40	.413	.177	.019	P5998-ND	.31	2.64	20.68	131.00	124.00/M	114.00/M	ECE-B2AU4R7
	10	10	0.08	70	.413	.248	.024	P5999-ND	.50	4.26	33.37	212.00	200.00/M	184.00/M	ECE-B2AU100Y
	22	22.2	0.08	115	.630	.315	.024	P6407-ND	.76	6.48	50.76	322.00	304.00/M	281.00/M	ECE-B2AU220
	33	33.0	0.08	145	.787	.315	.024	P6408-ND	.76	6.48	50.76	322.00	304.00/M	281.00/M	ECE-B2AU330
	47	47.0	0.08	180	.787	.315	.024	P6409-ND	.85	7.26	56.87	361.00	341.00/M	314.00/M	ECE-B2AU470
	100	100	0.08	280	.984	.394	.024	P6410-ND	1.28	11.01	86.25	548.00	517.00/M	477.00/M	ECE-B2AU101
	220	220	0.08	420	1.240	.492	.031	P6411-ND	1.86	15.96	125.02	794.00	749.00/M	691.00/M	ECE-B2AU221
	330	330	0.08	520	1.570	.630	.031	P6412-ND	2.53	21.72	170.14	1081.00	1020.00/M	940.00/M	ECE-B2AU331
	470	470	0.08	670	1.575	.630	.031	P6413-ND	3.20	27.45	215.03	1366.00	1289.00/M	1188.00/M	ECE-B2AU471
	1,000	1000	0.08	1050	1.575	.882	.031	P6414-ND	6.21	53.22	416.91	2648.00	2499.00/M	2304.00/M	ECE-B2AU102

Panasonic. SU Series

Miniature Radial Lead Aluminum Electrolytic Capacitors

FEATURES:
- Operating Temperature Range: -40 ~ +85°C.
- Capacitance Tolerance: ±20%.
- Tolerance: ±20%.

PANASONIC SU CROSS REFERENCES
Elna: RE2; **IC**: RAR; **Marcon**: SEM;
Nichicon: LB/VX; **Rubycon**: TWSS;
Sprague: 501D/513D; UCC: SME.

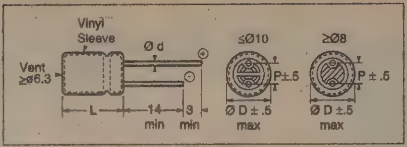


WV (VDC)	Cap. (µF)	Current Leakage (µA)	E.S.R. (Ω)	Tan ∂	Ripple Current (mA)rms	Dimensions (Inches)				Digi-Key Part No.	Pricing						Panasonic Part No.
						L	D	A	d		1	10	100	1,000	5,000	10,000	
6.3	100	6.3	3.65	0.22	130	.433	.197	.079	.020	P6201-ND	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A0JU101
	220	13.8	1.66	0.22	240	.441	.248	.098	.020	P6202-ND	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A0JU221
	330	20.7	1.11	0.22	300	.441	.248	.098	.020	P6203-ND	.15	1.29	10.11	64.00	61.00/M	56.00/M	ECE-A0JU331
	470	29.6	0.78	0.22	380	.453	.315	.138	.024	P6204-ND	.18	1.50	11.75	75.00	70.00/M	65.00/M	ECE-A0JU471
	1,000	63.0	0.37	0.22	580	.492	.394	.197	.024	P6205-ND	.26	2.22	17.39	110.00	104.00/M	96.00/M	ECE-A0JU102
	2,200	138	0.18	0.24	890	.787	.492	.197	.024	P6206-ND	.66	5.64	44.18	281.00	265.00/M	244.00/M	ECE-A0JU222
	3,300	207	0.13	0.26	1020	.787	.492	.197	.024	P6207-ND	.87	7.44	58.28	370.00	349.00/M	322.00/M	ECE-A0JU332
	4,700	296	0.10	0.28	1170	.984	.630	.295	.031	P6208-ND	1.07	9.21	72.15	458.00	432.00/M	399.00/M	ECE-A0JU472
	6,800	428	0.08	0.32	1270	.984	.630	.295	.031	P6209-ND	1.30	11.13	87.19	554.00	523.00/M	482.00/M	ECE-A0JU682
	10.000	630	0.07	0.40	1450	1.240	.630	.295	.031	P6210-ND	1.72	14.73	115.39	733.00	692.00/M	638.00/M	ECE-A0JU103
	15,000	945	0.06	0.50	1700	1.398	.709	.295	.031	P6211-ND	2.81	24.09	188.71	1199.00	1131.00/M	1043.00/M	ECE-A0JU153
10	33	3.3	9.55	0.19	60	.433	.197	.079	.020	P6212-ND	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1AU330
	47	4.7	6.71	0.19	90	.433	.197	.079	.020	P6213-ND	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1AU470
	100	10.0	3.16	0.19	180	.433	.197	.079	.020	P6214-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1AU101
	220	22.0	1.44	0.19	250	.441	.248	.098	.020	P6215-ND	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A1AU221
	330	33.0	0.96	0.19	330	.453	.315	.138	.024	P6216-ND	.18	1.50	11.75	75.00	70.00/M	65.00/M	ECE-A1AU331
	470	47.0	0.67	0.19	400	.492	.315	.138	.024	P6217-ND	.21	1.80	14.10	90.00	85.00/M	78.00/M	ECE-A1AU471
	1,000	100	0.32	0.19	630	.630	.394	.197	.024	P6218-ND	.33	2.79	21.86	139.00	131.00/M	121.00/M	ECE-A1AU102
	2,200	220	0.16	0.21	920	.787	.492	.197	.024	P6219-ND	.80	6.87	53.82	342.00	323.00/M	297.00/M	ECE-A1AU222
	3,300	330	0.12	0.23	1090	.984	.492	.197	.024	P6220-ND	.93	7.95	62.28	396.00	373.00/M	344.00/M	ECE-A1AU332
	4,700	470	0.09	0.25	1200	.984	.630	.295	.031	P6221-ND	1.27	10.92	85.54	543.00	513.00/M	473.00/M	ECE-A1AU472
	6,800	680	0.08	0.29	1400	1.240	.630	.295	.031	P6222-ND	1.72	14.76	115.62	734.00	693.00/M	639.00/M	ECE-A1AU682
	10,000	1000	0.07	0.37	1600	1.398	.709	.295	.031	P6223-ND	2.57	22.02	172.49	1096.00	1034.00/M	953 00/M	ECE-A1AU103
16	22	3.5	12.1	0.16	75	.433	.197	.079	.020	P6224-ND	.09	.75	5.88	37.00	35.00/M	32 00/M	ECE-A1CU220
	33	5.2	8.05	0.16	110	.433	.197	.079	.020	P6225-ND	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A1CU330
	47	7.5	5.65	0.16	130	.433	.197	.079	.020	P6226-ND	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A1CU470
	100	16.0	2.66	0.16	180	.441	.248	.098	.020	P6227-ND	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A1CU101
	220	35.2	1.21	0.16	280	.453	.315	.138	.024	P6228-ND	.18	1.50	11.75	75.00	70.00/M	65.00/M	ECE-A1CU221
	330	52.8	0.81	0.16	350	.492	.315	.138	.024	P6229-ND	.21	1.80	14.10	90.00	85.00/M	78.00/M	ECE-A1CU331
	470	75.2	0.57	0.16	440	.492	.394	.197	.024	P6230-ND	.26	2.22	17.39	110.00	104.00/M	96.00/M	ECE-A1CU471
	1,000	160	0.27	0.16	680	.787	.394	.197	.024	P6231-ND	.40	3.42	26.79	170.00	161.00/M	148.00/M	ECE-A1CU102
	2,200	352	0.14	0.18	990	.984	.492	.197	.024	P6232-ND	1.01	8.64	67.68	430.00	406.00/M	374.00/M	ECE-A1CU222
	3,300	528	0.10	0.20	1100	.984	.630	.295	.031	P6233-ND	1.31	11.25	88.13	560.00	528.00/M	487.00/M	ECE-A1CU332
	4,700	752	0.08	0.22	1360	1.240	.630	.295	.031	P6234-ND	1.72	14.73	115.39	733.00	692.00/M	638 00/M	ECE-A1CU472
	6,800	1088	0.07	0.26	1600	1.398	.709	.295	.031	P6235-ND	2.46	21.06	164.97	1048.00	989.00/M	912.00/M	ECE-A1CU682
25	22	5.5	10.6	0.14	90	.433	.197	.079	.020	P6236-ND	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A1EU220
	33	8.2	7.04	0.14	110	.433	.197	.079	.020	P6237-ND	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A1EU330
	47	11.7	5.94	0.14	135	.433	.197	.079	.020	P6238-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1EU470
	100	25.0	2.32	0.14	185	.441	.248	.098	.020	P6239-ND	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A1EU101
	220	55.0	1.06	0.14	290	.492	.315	.138	.024	P6240-ND	.21	1.80	14.10	90.00	85.00/M	78.00/M	ECE-A1EU221
	330	82.5	0.71	0.14	390	.492	.394	.197	.024	P6241-ND	.26	2.22	17.39	110.00	104.00/M	96.00/M	ECE-A1EU331
	470	117	0.50	0.14	480	.630	.394	.197	.024	P6242-ND	.34	2.94	23.03	146.00	138.00/M	127.00/M	ECE-A1EU471
	1,000	250	0.24	0.14	750	.787	.492	.197	.024	P6243-ND	.84	7.17	56.17	357 00	337.00/M	310.00/M	ECE-A1EU102
	2,200	550	0.12	0.16	1100	.984	.630	.295	.031	P6244-ND	1.31	11.25	88.13	560.00	528.00/M	487.00/M	ECE-A1EU222
	3,300	825	0.09	0.18	1300	1.240	.630	.295	.031	P6245-ND	1.85	15.87	124.32	790.00	745.00/M	687.00/M	ECE-A1EU332
	4,700	1175	0.07	0.20	1500	1.398	.709	.295	.031	P6246-ND	2.63	22.53	176.49	1121.00	1058.00/M	975.00/M	ECE-A1EU472
35	4.7	3.0	42.4	0.12	35	.433	.197	.079	.020	P6247-ND	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1VU4R7
	10	3.5	19.9	0.12	60	.433	.197	.079	.020	P6248-ND	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1VU100
	22	7.7	9.05	0.12	95	.433	.197	.079	.020	P6249-ND	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A1VU220
	33	11.5	6.04	0.12	115	.433	.197	.079	.020	P6250-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1VU330
	47	16.4	4.24	0.12	130	.441	.249	.098	.020	P6251-ND	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A1VU470
	100	35.0	1.99	0.12	200	.453	.315	.138	.024	P6252-ND	.18	1.50	11.75	75.00	70.00/M	65.00/M	ECE-A1VU101
	220	77.0	0.91	0.12	320	.492	.394	.197	.024	P6253-ND	.26	2.22	17.39	110.00	104.00/M	96.00/M	ECE-A1VU221
	330	115	0.61	0.12	400	.630	.394	.197	.024	P6254-ND	.34	2.94	23.03	146.00	138.00/M	127.00/M	ECE-A1VU331
	470	164	0.43	0.12	770	.787	.394	.197	.024	P6255-ND	.47	4.02	31.49	200.00	189.00/M	174.00/M	ECE-A1VU471
	1,000	350	0.20	0.12	770	.984	.492	.197	.024	P6256-ND	1.03	8.85	69.33	440.00	415.00/M	383.00/M	ECE-A1VU102
	2,200	770	0.11	0.14	1250	1.240	.630	.295	.031	P6257-ND	1.85	15.87	124.32	790.00	745.00/M	687.00/M	ECE-A1VU222
	3,300	1155	0.08	0.16	1400	1.398	.709	.295	.031	P6258-ND	2.63	22.56	176.72	1122.00	1059.00/M	977.00/M	ECE-A1VU332
50	0.47	3.0	353	0.10	5	.433	.197	.079	.020	P6259-ND*	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1HUR47
	1.0	3.0	166	0.10	10	.433	.197	.079	.020	P6260-ND*	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1HU010
	2.2	3.0	50.3	0.10	20	.433	.197	.079	.020	P6261-ND*	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1HU2R2
	3.3	3.0	50.3	0.10	35	.433	.197	.079	.020	P6262-ND*	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1HU3R3
	4.7	3.0	35.3	0.10	45	.433	.197	.079	.020	P6263-ND*	.09	.75	5.88	37.00	35.00/M	32.00/M	ECE-A1HU4R7
	10	5.0	16.6	0.10	66	.433	.197	.079	.020	P6264-ND*	.09	.78	6.11	39.00	37.00/M	34.00/M	ECE-A1HU100
	22	11.0	7.54	0.10	100	.433	.197	.079	.020	P6265-ND*	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1HU220
	33	16.5	5.03	0.10	110	.441	.248	.098	.020	P6266-ND*	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A1HU330
	47	23.5	3.53	0.10	130	.441	.248	.098	.020	P6267-ND*	.14	1.20	9.40	60.00	56.00/M	52.00/M	ECE-A1HU470
	100	50.0	1.66	0.10	210	.492	.315	.138	.024	P6268-ND*	.21	1.80	14.10	90.00	85.00/M	78.00/M	ECE-A1HU101
	220	110	0.76	0.10	340	.630	.394	.197	.024	P6269-ND*	.34	2.94	23.03	146.00	138.00/M	127.00/M	ECE-A1HU221
	330	165	0.51	0.10	420	.787	.394	.197	.024	P6270-ND*	.46	3.96	31.02	197.00	186.00/M	171.00/M	ECE-A1HU331
	470	235	0.35	0.60	540	.787	.492	.197	.024	P6271-ND*	.95	8.16	63.92	406.00	383.00/M	353.00/M	ECE-A1HU471
	1,000	500	0.17	0.10	790	.984	.630	.295	.031	P6272-ND*	1.43	12.24	95.88	609.00	575.00/M	530 00/M	ECE-A1HU102
	2,200	1100	0.09	0.12	1270	1.398	.709	.295	.031	P6273-ND*	2.53	21.69	169.91	1079.00	1018.00/M	939.00/M	ECE-A1HU222
63	0.47	3.0	318	0.09	5	.433	.197	.079	.020	P6274-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1JUR47
	1.0	3.0	150	0.09	10	.433	.197	.079	.020	P6275-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1JU010
	2.2	3.0	67.9	0.09	29	.433	.197	.079	.020	P6276-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1JU2R2
	3.3	3.0	45.3	0.09	40	.433	.197	.079	.020	P6277-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1JU3R3
	4.7	3.0	31.8	0.09	45	.433	.197	.079	.020	P6278-ND	.09	.81	6.35	40.00	38.00/M	35.00/M	ECE-A1JU4R7
	10	6.3	15.0	0.09	70	.433	.197	.079	.020	P6279-ND	.10	.87	6.82	43.00	41.00/M	38.00/M	ECE-A1JU100
	22	13.8	6.79	0.09	105	.441	.248	.098	.020	P6280-ND	.13	1.11	8.70	55.00	52.00/M	48.00/M	ECE-A1JU220
	33	20.7	4.53	0.09	130	.441	.248	.098	.020	P6281-ND	.15	1.26	9.87	63.00	59.00/M	55.00/M	ECE-A1JU330
	47	29.6	3.18	0.09	160	.453	.315	.138	.024	P6282-ND	.21	1.80	14.10	90.00	85.00/M	78.00/M	ECE-A1JU470
	100	63.0	1.50	0.09	250	.492	.394	.197	.024	P6283-ND	.27	2.31	18.10	115.00	108.00/M	100.00/M	ECE-A1JU101
	220	138	0.68	0.09	390	.787	.394	.197	.024	P6284-ND	.45	3.84	30.08	191.00	180.00/M	166.00/M	ECE-A1JU221
	330	207	0.46	0.09	490	.787	.492	.197	.024	P6285-ND	1.03	8.79	68.86	437.00	413.00/M	381.00/M	ECE-A1JU331
	470	296	0.32	0.09	600	.984	.492	.197	.024	P6286-ND	1.21	10.35	81.08	515.00	486.00/M	448.00/M	ECE-A1JU471
	1,000	630	0.15	0.09	950	1.240	.630	.295	.031	P6287-ND	1.85	15.87	124.32	790.00	745.00/M	687.00/M	ECE-A1JU102
100	0.47	3.0	283	0.08	10	.433	.197	.079	.020	P6288-ND	.10	.84	6.58	42.00	39.00/M	36.00/M	ECE-A2AUR47
	1.0	3.0	133	0.08	20	.433	.197	.079	.020	P6289-ND	.10	.84	6.58	42.00	39.00/M	36.00/M	ECE-A2AU010
	2.2	3.0	60.4	0.08	30	.433	.197	.079	.020	P6290-ND	.11	.91	7.11	45.00	43.00/M	39.00/M	ECE-A2AU2R2
	3.3	3.3	40.3	0.08	40	.433	.197	.079	.020	P6291-ND	.11	.90	7.05	45.00	42.00/M	39.00/M	ECE-A2AU3R3
	4.7	4.7	28.3	0.08	50	.433	.197	.079	.020	P6292-ND	.11	.90	7.05	45.00	42.00/M	39.00/M	ECE-A2AU4R7
	10	10.0	13.3	0.08	70	.441	.248	.098	.020	P6293-ND	.14	1.23	9.64	61.00	58.00/M	53.00/M	ECE-A2AU100
	22	22.0	6.04	0.08	115	.453	.315	.138	.024	P6294-ND	.21	1.77	13.87	88.00	83.00/M	77.00/M	ECE-A2AU220
	33	33.0	4.03	0.08	145	.492	.394	.197	.024	P6295-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECE-A2AU330
	47	47.0	2.83	0.08	180	.630	.394	.197	.024	P6296-ND	.31	2.67	20.92	133.00	125.00/M	116.00/M	ECE-A2AU470
	100	100	1.33	0.08	280	.787	.492	.197	.024	P6297-ND	.87	7.44	58.28	370.00	349.00/M	322.00/M	ECE-A2AU101
	220	220	0.61	0.08	420	.984	.630	.295	.031	P6298-ND	1.16	9.93	77.79	494.00	466.00/M	430.00/M	ECE-A2AU221
	330	330	0.41	0.08	520	.984	.630	.295	.031	P6299-ND	1.40	12.00	94.00	597.00	563.00/M	519.00/M	ECE-A2AU331
	470	470	0,29	0.08	670	1.240	.630	.295	.031	P6300-ND	2.01	17.25	135.13	858.00	810.00/M	747.00/M	ECE-A2AU471
160	.47	14.5	564	0.16	9.5	.433	.197	.079	.020	P6415-ND	.26	2.22	17.39	110.00	104.00/M	96.00/M	ECE-A2CUR47
	1	19.6	265	0.16	13	.440	.248	.098	.020	P6416-ND	.28	2.40	18.80	119.00	113.00/M	104.00/M	ECE-A2CU010
	2.2	31.1	121	0.16	22	.440	.248	.098	.020	P6417-ND	.31	2.67	20.92	133.00	125.00/M	116.00/M	ECE-A2CU2R2
	3.3	41.7	80.4	0.16	31	.440	.248	.098	.020	P6418-ND	.42	3.63	28.44	181.00	170.00/M	157.00/M	ECE-A2CU3R3W
	4.7	55.1	55.6	0.16	40	.453	.314	.138	.024	P6419-ND	.43	3.69	28.91	184.00	173.00/M	160.00/M	ECE-A2CU4R7
	10	106.0	26.5	0.16	66	.492	.394	.197	.024	P6178-ND	.54	4.59	35.96	228.00	215.00/M	199.00/M	ECE-A2CU100
	22	221.2	12.1	0.16	110	.630	.394	.197	.024	P6179-ND	.75	6.42	50.29	319.00	301.00/M	278.00/M	ECE-A2CU220W
	33	326.8	8.04	0.16	144	.787	.394	.197	.024	P6180-ND	.99	8.46	66.27	421.00	397.00/M	366.00/M	ECE-A2CU330W
	47	461.2	5.64	0.16	180	.787	.492	.197	.024	P6181-ND	1.31	11.25	88.13	560.00	528.00/M	487.00/M	ECE-A2CU470W
	100	970.0	2.65	0.16	300	.984	.630	.295	.031	P6182-ND	1.50	12.84	100.58	639.00	603.00/M	556.00/M	ECE-A2CU101
	220	2122.0	1.21	0.16	510	1.240	.709	.295	.031	P6183-ND	2.51	21.48	168.26	1069.00	1008.00/M	930.00/M	ECE-A2CU221W
250	1	3.0	298	0.18	18	.440	.248	.098	.020	P6184-ND	.47	4.02	31.49	200.00	189.00/M	174.00/M	ECE-A2EU010
	2.2	3.5	136	0.18	31	.453	.314	.138	.024	P6185-ND	.49	4.17	32.67	207.00	196.00/M	181.00/M	ECE-A2EU2R2
	3.3	5.3	90.4	0.18	40	.492	.394	.197	.024	P6186-ND	.50	4.26	33.37	212.00	200.00/M	184.00/M	ECE-A2EU3R3
	4.7	7.5	62.5	0.18	49	.492	.394	.197	.024	P6187-ND	.57	4.92	38.54	245.00	231.00/M	213.00/M	ECE-A2EU4R7
	10	16	29.8	0.18	81	.630	.394	.197	.024	P6188-ND	.71	6.12	47.94	304.00	287.00/M	265.00/M	ECE-A2EU100W
	22	35	13.6	0.18	144	.787	.492	.197	.024	P6189-ND	1.01	8.64	67.68	430.00	406.00/M	374.00/M	ECE-A2EU220W
	33	52.8	9.04	0.18	171	.984	.492	.197	.024	P6190-ND	1.14	9.78	76.61	487.00	459.00/M	423.00/M	ECE-A2EU330
	47	75.2	6.35	0.18	210	.984	.630	.295	.031	P6191-ND	1.48	12.69	99.41	631.00	596.00/M	549.00/M	ECE-A2EU470
	100	160	2.98	0.18	320	1.240	.709	.295	.031	P6192-ND	2.55	21.84	171.08	1087.00	1025.00/M	945.00/M	ECE-A2EU101W
450	1	4.4	332	0.20	19	.492	.394	.197	.024	P6193-ND	.55	4.71	36.90	234.00	221.00/M	204.00/M	ECE-A2WU010
	2.2	9.9	151	0.20	29	.630	.394	.197	.024	P6194-ND	.64	5.49	43.01	273.00	258.00/M	238.00/M	ECE-A2WU2R2
	3.3	14.6	100	0.20	35	.787	.394	.197	.024	P6195-ND	.85	7.26	56.87	361.00	341.00/M	314.00/M	ECE-A2WU3R3
	4.7	21.2	69.4	0.20	50	.787	.492	.197	.024	P6196-ND	.92	7.89	61.81	393.00	370.00/M	342.00/M	ECE-A2WU4R7
	10	45	33.2	0.20	75	.984	.492	.197	.024	P6197-ND	1.14	9.75	76.38	485.00	458.00/M	422.00/M	ECE-A2WU100
	22	99	15.1	0.20	110	1.240	.630	.295	.031	P6198-ND	1.82	15.60	122.20	776.00	732.00/M	675.00/M	ECE-A2WU220
	33	148.5	10.0	0.20	150	1.240	.709	.295	.031	P6199-ND	2.37	20.34	159.33	1012.00	955.00/M	881.00/M	ECE-A2WU330

* **P6198-KIT-ND** 10 each of values denoted. 150 total pieces. Included notebook style storage case & bin storage guide $49.95

Panasonic. *NEW!* M Series Radial Lead Aluminum Electrolytic Capacitors

PANASONIC M SERIES CROSS REFERENCES
Nichicon: VR; **Chemicon:** SMG;
Marcon: DSM; **Rubycon:** YK;
Elna: RE3; **Nitsuko:** MK;
Sanyo: HC/HPC



FEATURES:
- Miniaturized size version for general purpose use
- Life: 2000 hours at +85°C
- Vent construction for ≥ϕ6.3 mm products

SPECIFICATIONS:

Operating Temperature Range	-40 to +85°C	-25 to +85°C
Rated Working Voltage Range	6.3 to 100 V DC	160 to 450 V DC
Nominal Capacitance Range	0.47 to 22000 µF	1 to 470 µF

Capacitance Tolerance: ±20% (120 Hz, +20°C)

Leakage Current	1≤ 0.03 CV or 4 (µA) after 1 minute 1≤ 0.01 CV or 3 (µA) after 2 minutes Whichever is greater measured with rated working voltage at +20°C.	1≤ 0.06 CV + 10 (µA) after 2 minutes application of rated working voltage at +20°C.

tan δ: (at 120 Hz, +20°C)

W.V.	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
tan δ	0.28	0.24	0.20	0.16	0.14	0.12	0.11	0.10	0.16	0.18	0.18	0.20	0.20	0.20

For capacitance value > 1000 µF, add 0.02 per every 1000 µF.

Low Temperature Characteristics: Impedance ratio max. at 120 Hz

W.V.	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
-25°C/+20°C	5	4	3	2	2	2	2	2	2	2	3	5	6	6
-40°C/+20°C	12	10	8	5	4	3	3	3	—	—	—	—	—	—

For capacitance value >1000 µF, add 0.5 per every 1000 µF for -25°C/+20°C.
add 1.0 per every 1000 µF for -40°C/+20°C.

Ripple Current: 120 Hz, +85°C

Frequency (Hz)	50/60	120	1k	10k
Correction Factor (Multiplier)	0.7	1	1.3	1.7

Endurance:

Test Conditions		Post Test Requirements at +20°C	
Duration	2000 Hours	Leakage Current	≤ initial specified value
Ambient Temperature	+85°C	Capacitance Change	±20% of initial measured value
Applied Voltage	Rated DC Working Voltage	tan δ	≤ 150% initial specified value

Shelf Life:

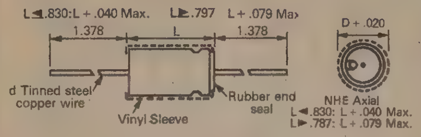
Test Conditions		Post Test Requirements at +20°C	
Duration	1000 Hours	Leakage Current	≤ initial specified value
Ambient Temperature	+85°C	Capacitance Change	±20% of initial measured value
Applied Voltage	—	tan δ	≤ 150% initial specified value

WV (VDC)	Cap µF	Leakage Current (µA)	tan δ max.	Ripple Current (mA) rms	Dimensions (mm)				Digi-Key Part No.	Pricing						Panasonic Part No.
					ϕD	L	P	ϕd		1	10	100	1,000	5,000	10,000	
6.3	100	6.3	0.28	130	5	11	2.0	0.5	P5111-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-0JM101
	220	13.8	0.28	240	5	11	2.0	0.5	P5112-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-0JM221
	330	20.7	0.28	300	6.3	11.2	2.5	0.5	P5113-ND	.35	1.31	10.26	65.00	62.00/M	57.00/M	ECA-0JM331
	470	29.6	0.28	380	6.3	11.2	2.5	0.5	P5114-ND	.41	1.55	12.11	77.00	73.00/M	67.00/M	ECA-0JM471
	1000	63.0	0.28	580	8	11.5	3.5	0.6	P5115-ND	.45	2.25	17.63	112.00	106.00/M	97.00/M	ECA-0JM102
	2200	138.6	0.30	890	10	16	5.0	0.6	P5116-ND	.59	4.44	34.74	221.00	208.00/M	192.00/M	ECA-0JM222
	3300	207.9	0.32	1020	10	20	5.0	0.6	P5117-ND	.66	5.68	44.48	283.00	267.00/M	246.00/M	ECA-0JM332
	4700	296.1	0.34	1170	12.5	20	5.0	0.6	P5118-ND	1.03	8.80	68.96	438.00	413.00/M	381.00/M	ECA-0JM472
	6800	428.4	0.38	1270	12.5	25	5.0	0.6	P5119-ND	1.25	10.68	83.70	532.00	502.00/M	463.00/M	ECA-0JM682
	10000	630.0	0.46	1450	16	25	7.5	0.8	P5120-ND	1.75	14.99	117.39	746.00	704.00/M	649.00/M	ECA-0JM103
	15000	945.0	0.56	1700	16	31.5	7.5	0.8	P5121-ND	2.40	20.53	160.82	1021.00	964.00/M	889.00/M	ECA-0JM153
	22000	1386.0	0.70	1900	18	35.5	7.5	0.8	P5122-ND	3.55	30.41	238.20	1513.00	1428.00/M	1316.00/M	ECA-0JM223
10	100	10.0	0.24	150	5	11	2.0	0.5	P5123-ND	.24	.84	6.58	42.00	39.00/M	36.00/M	ECA-1AM101
	220	22.0	0.24	250	6.3	11.2	2.5	0.5	P5124-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-1AM221
	330	33.0	0.24	330	6.3	11.2	2.5	0.5	P5125-ND	.41	1.55	12.11	77.00	73.00/M	67.00/M	ECA-1AM331
	470	47.0	0.24	400	8	11.5	3.5	0.6	P5126-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1AM471
	1000	100.0	0.24	630	10	12.5	5.0	0.6	P5127-ND	.48	2.86	22.37	142.00	134.00/M	124.00/M	ECA-1AM102
	2200	220.0	0.26	920	10	20	5.0	0.6	P5128-ND	.66	5.68	44.48	283.00	267.00/M	246.00/M	ECA-1AM222
	3300	330.0	0.28	1090	12.5	20	5.0	0.6	P5129-ND	1.00	8.53	66.85	425.00	401.00/M	369.00/M	ECA-1AM332
	4700	470.0	0.30	1200	12.5	25	5.0	0.6	P5130-ND	1.13	9.71	76.06	483.00	456.00/M	420.00/M	ECA-1AM472
	6800	680.0	0.34	1400	16	25	7.5	0.8	P5131-ND	1.65	14.15	110.81	704.00	664.00/M	612.00/M	ECA-1AM682
	10000	1000.0	0.42	1600	16	31.5	7.5	0.8	P5132-ND	2.30	19.76	154.76	983.00	928.00/M	855.00/M	ECA-1AM103
	15000	1500.0	0.52	1850	18	35.5	7.5	0.8	P5133-ND	3.55	30.41	238.20	1513.00	1428.00/M	1316.00/M	ECA-1AM153
16	10	3.0	0.20	30	5	11	2.0	0.5	P5134-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1CM100
	22	3.5	0.20	75	5	11	2.0	0.5	P5135-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1CM220
	33	5.2	0.20	110	5	11	2.0	0.5	P5136-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1CM330
	47	7.5	0.20	130	5	11	2.0	0.5	P5137-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1CM470
	100	16.0	0.20	180	5	11	2.0	0.5	P5138-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-1CM101
	220	35.2	0.20	280	6.3	11.2	2.5	0.5	P5139-ND	.41	1.55	12.11	77.00	73.00/M	67.00/M	ECA-1CM221
	330	52.8	0.20	350	8	11.5	3.5	0.6	P5140-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1CM331
	470	75.2	0.20	440	8	11.5	3.5	0.6	P5141-ND	.53	2.25	17.63	112.00	106.00/M	97.00/M	ECA-1CM471
	1000	160.0	0.20	680	10	16	5.0	0.6	P5142-ND	.58	3.49	27.37	174.00	164.00/M	151.00/M	ECA-1CM102
	2200	352.0	0.22	1000	12.5	20	5.0	0.6	P5143-ND	.98	8.40	65.80	418.00	394.00/M	364.00/M	ECA-1CM222
	3300	528.0	0.24	1200	12.5	25	5.0	0.6	P5144-ND	1.21	10.35	81.07	515.00	486.00/M	448.00/M	ECA-1CM332
	4700	752.0	0.26	1360	16	25	7.5	0.8	P5145-ND	1.66	14.21	111.33	707.00	667.00/M	615.00/M	ECA-1CM472
	6800	1088.0	0.30	1600	16	31.5	7.5	0.8	P5146-ND	2.13	18.28	143.18	909.00	858.00/M	791.00/M	ECA-1CM682
	10000	1600.0	0.38	1800	18	35.5	7.5	0.8	P5147-ND	3.42	29.33	229.77	1459.00	1377.00/M	1270.00/M	ECA-1CM103
25	10	3.0	0.16	50	5	11	2.0	0.5	P5148-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1EM100
	22	5.5	0.16	90	5	11	2.0	0.5	P5149-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1EM220
	33	8.2	0.16	110	5	11	2.0	0.5	P5150-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1EM330
	47	11.7	0.16	130	5	11	2.0	0.5	P5151-ND	.24	.84	6.58	42.00	39.00/M	36.00/M	ECA-1EM470
	100	25.0	0.16	180	6.3	11.2	2.5	0.5	P5152-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-1EM101
	220	55.0	0.16	310	8	11.5	3.5	0.6	P5153-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1EM221
	330	82.5	0.16	390	8	11.5	3.5	0.6	P5154-ND	.53	2.25	17.63	112.00	106.00/M	97.00/M	ECA-1EM331
	470	117.5	0.16	480	10	12.5	5.0	0.6	P5155-ND	.60	2.99	23.42	149.00	140.00/M	129.00/M	ECA-1EM471
	1000	250.0	0.16	850	10	20	5.0	0.6	P5156-ND	.66	5.68	44.48	283.00	267.00/M	246.00/M	ECA-1EM102
	2200	550.0	0.18	1200	12.5	25	5.0	0.6	P5157-ND	1.26	10.79	84.49	537.00	506.00/M	467.00/M	ECA-1EM222
	3300	825.0	0.20	1300	16	25	7.5	0.8	P5158-ND	1.74	14.95	117.12	744.00	702.00/M	647.00/M	ECA-1EM332
	4700	1175.0	0.22	1500	16	31.5	7.5	0.8	P5159-ND	2.24	19.22	150.55	956.00	902.00/M	832.00/M	ECA-1EM472
	6800	1700.0	0.26	1750	18	35.5	7.5	0.8	P5160-ND	3.42	29.33	229.77	1459.00	1377.00/M	1270.00/M	ECA-1EM682

WV (VDC)	Cap µF	Leakage Current (µA)	tan δ max.	Ripple Current (mA) rms	Dimensions (mm) ϕD	L	P	ϕd	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
35	10	3.5	0.14	60	5	11	2.0	0.5	P5161-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1VM100
	22	7.7	0.14	95	5	11	2.0	0.5	P5162-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1VM220
	33	11.5	0.14	110	5	11	2.0	0.5	P5163-ND	.24	.84	6.58	42.00	39.00/M	36.00/M	ECA-1VM330
	47	16.4	0.14	130	5	11	2.0	0.5	P5164-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-1VM470
	100	35.0	0.14	210	6.3	11.2	2.5	0.5	P5165-ND	.41	1.55	12.11	77.00	73.00/M	67.00/M	ECA-1VM101
	220	77.0	0.14	350	8	11.5	3.5	0.6	P5166-ND	.53	2.25	17.63	112.00	106.00/M	97.00/M	ECA-1VM221
	330	115.5	0.14	440	10	12.5	5.0	0.6	P5167-ND	.50	2.99	23.42	149.00	140.00/M	129.00/M	ECA-1VM331
	470	164.5	0.14	550	10	16	5.0	0.6	P5168-ND	.62	3.73	29.22	186.00	175.00/M	161.00/M	ECA-1VM471
	1000	350.0	0.14	900	12.5	20	5.0	0.6	P5169-ND	1.06	9.11	71.33	453.00	427.00/M	394.00/M	ECA-1VM102
	2200	770.0	0.16	1250	16	25	7.5	0.8	P5170-ND	1.77	15.19	118.97	756.00	713.00/M	657.00/M	ECA-1VM222
	3300	1155.0	0.18	1400	16	31.5	7.5	0.8	P5171-ND	2.40	20.53	160.82	1021.00	964.00/M	889.00/M	ECA-1VM332
	4700	1645.0	0.20	1600	18	35.5	7.5	0.8	P5172-ND	3.42	29.33	229.77	1459.00	1377.00/M	1270.00/M	ECA-1VM472
50	0.47	3.0	0.12	5	5	11	2.0	0.5	P5173-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1HMR47
	1.0	3.0	0.12	10	5	11	2.0	0.5	P5174-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1HM010
	2.2	3.0	0.12	20	5	11	2.0	0.5	P5175-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1HM2R2
	3.3	3.0	0.12	35	5	11	2.0	0.5	P5176-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1HM3R3
	4.7	3.0	0.12	45	5	11	2.0	0.5	P5177-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1HM4R7
	10	5.0	0.12	65	5	11	2.0	0.5	P5178-ND	.22	.77	6.05	38.00	36.00/M	33.00/M	ECA-1HM100
	22	11.0	0.12	100	5	11	2.0	0.5	P5179-ND	.24	.84	6.58	42.00	39.00/M	36.00/M	ECA-1HM220
	33	16.5	0.12	110	5	11	2.0	0.5	P5180-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-1HM330
	47	23.5	0.12	130	6.3	11.2	2.5	0.5	P5181-ND	.34	1.21	9.48	60.00	57.00/M	52.00/M	ECA-1HM470
	100	50.0	0.12	250	8	11.5	3.5	0.6	P5182-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1HM101
	220	110.0	0.12	400	10	12.5	5.0	0.6	P5183-ND	.50	2.99	23.42	149.00	140.00/M	129.00/M	ECA-1HM221
	330	165.0	0.12	500	10	16	5.0	0.6	P5184-ND	.54	4.03	31.58	201.00	189.00/M	175.00/M	ECA-1HM331
	470	235.0	0.12	650	10	20	5.0	0.6	P5185-ND	.60	5.17	40.53	257.00	243.00/M	224.00/M	ECA-1HM471
	1000	500.0	0.12	1050	12.5	25	5.0	0.6	P5186-ND	1.23	10.58	82.91	527.00	497.00/M	458.00/M	ECA-1HM102
	2200	1100.0	0.14	1300	16	31.5	7.5	0.8	P5187-ND	2.32	19.86	155.55	988.00	932.00/M	860.00/M	ECA-1HM222
	3300	1650.0	0.16	1500	18	35.5	7.5	0.8	P5188-ND	3.50	30.00	235.04	1493.00	1409.00/M	1299.00/M	ECA-1HM332
63	10	6.3	0.11	70	5	11	2.0	0.5	P5189-ND	.25	.87	6.84	43.00	41.00/M	38.00/M	ECA-1JM100
	22	13.8	0.11	105	5	11	2.0	0.5	P5190-ND	.32	1.14	8.95	57.00	54.00/M	49.00/M	ECA-1JM220
	33	20.7	0.11	130	6.3	11.2	2.5	0.5	P5191-ND	.34	1.28	10.00	64.00	60.00/M	55.00/M	ECA-1JM330
	47	29.6	0.11	160	6.3	11.2	2.5	0.5	P5192-ND	.45	1.68	13.16	84.00	79.00/M	73.00/M	ECA-1JM470
	100	63.0	0.11	270	8	11.5	3.5	0.6	P5193-ND	.55	2.35	18.42	117.00	110.00/M	102.00/M	ECA-1JM101
	220	138.6	0.11	450	10	16	5.0	0.6	P5194-ND	.56	3.93	30.79	196.00	185.00/M	170.00/M	ECA-1JM221
	330	207.9	0.11	550	10	20	5.0	0.6	P5195-ND	.60	5.17	40.53	257.00	243.00/M	224.00/M	ECA-1JM331
	470	296.1	0.11	750	12.5	20	5.0	0.6	P5196-ND	1.08	9.24	72.38	460.00	434.00/M	400.00/M	ECA-1JM471
	1000	630.0	0.11	1100	16	25	7.5	0.8	P5197-ND	1.87	16.03	125.55	797.00	752.00/M	694.00/M	ECA-1JM102
	2200	1386.0	0.13	1400	18	35.5	7.5	0.8	P5198-ND	3.56	30.54	239.25	1520.00	1434.00/M	1322.00/M	ECA-1JM222
100	0.47	3.0	0.10	10	5	11	2.0	0.5	P5199-ND	.25	.87	6.84	43.00	41.00/M	38.00/M	ECA-2AMR47
	1.0	3.0	0.10	20	5	11	2.0	0.5	P5305-ND	.25	.87	6.84	43.00	41.00/M	38.00/M	ECA-2AM010
	2.2	3.0	0.10	30	5	11	2.0	0.5	P5306-ND	.26	.91	7.11	45.00	43.00/M	39.00/M	ECA-2AM2R2
	3.3	3.3	0.10	40	5	11	2.0	0.5	P5307-ND	.26	.91	7.11	45.00	43.00/M	39.00/M	ECA-2AM3R3
	4.7	4.7	0.10	50	5	11	2.0	0.5	P5308-ND	.26	.91	7.11	45.00	43.00/M	39.00/M	ECA-2AM4R7
	10	10.0	0.10	70	5	11	2.0	0.5	P5309-ND	.35	1.24	9.74	62.00	58.00/M	54.00/M	ECA-2AM100
	22	22.0	0.10	115	6.3	11.2	2.5	0.5	P5310-ND	.47	1.78	13.95	89.00	84.00/M	77.00/M	ECA-2AM220
	33	33.0	0.10	145	8	11.5	3.5	0.6	P5311-ND	.53	2.25	17.63	112.00	106.00/M	97.00/M	ECA-2AM330
	47	47.0	0.10	180	8	11.5	3.5	0.6	P5312-ND	.55	2.76	21.58	137.00	129.00/M	119.00/M	ECA-2AM470
	100	100.0	0.10	350	10	16	5.0	0.6	P5313-ND	.56	4.80	37.64	239.00	226.00/M	208.00/M	ECA-2AM101
	220	220.0	0.10	550	12.5	20	5.0	0.6	P5314-ND	1.16	9.91	77.64	493.00	465.00/M	429.00/M	ECA-2AM221
	330	330.0	0.10	700	12.5	25	5.0	0.6	P5315-ND	1.40	11.96	93.70	595.00	562.00/M	518.00/M	ECA-2AM331
	470	470.0	0.10	900	16	25	7.5	0.8	P5316-ND	2.08	17.81	139.50	886.00	836.00/M	771.00/M	ECA-2AM471
	1000	1000.0	0.10	1300	18	35.5	7.5	0.8	P5317-ND	3.94	33.73	264.25	1678.00	1584.00/M	1460.00/M	ECA-2AM102
160	1.0	19.6	0.16	36	6.3	11.2	2.5	0.5	P5318-ND	.30	2.59	20.27	129.00	121.00/M	112.00/M	ECA-2CM010
	2.2	31.1	0.16	53	6.3	11.2	2.5	0.5	P5319-ND	.33	2.86	22.37	142.00	134.00/M	124.00/M	ECA-2CM2R2
	3.3	41.6	0.16	66	6.3	11.2	2.5	0.5	P5320-ND	.41	3.49	27.37	174.00	164.00/M	151.00/M	ECA-2CM3R3
	4.7	55.1	0.16	78	6.3	11.2	2.5	0.5	P5321-ND	.42	3.56	27.90	177.00	167.00/M	154.00/M	ECA-2CM4R7
	10	103.0	0.16	105	10	12.5	5.0	0.6	P5322-ND	.57	4.91	38.43	244.00	230.00/M	212.00/M	ECA-2CM100
	22	221.0	0.16	175	10	16	5.0	0.6	P5323-ND	.80	6.89	53.96	343.00	323.00/M	298.00/M	ECA-2CM220
	33	326.0	0.16	235	10	20	5.0	0.6	P5324-ND	.96	8.20	64.22	408.00	385.00/M	355.00/M	ECA-2CM330
	47	461.0	0.16	320	12.5	20	5.0	0.6	P5325-ND	1.27	10.89	85.28	542.00	511.00/M	471.00/M	ECA-2CM470
	100	970.0	0.16	515	12.5	25	5.0	0.6	P5326-ND	1.61	13.78	107.91	685.00	647.00/M	596.00/M	ECA-2CM101
	220	2122.0	0.16	830	16	31.5	7.5	0.8	P5327-ND	2.69	23.02	180.29	1145.00	1081.00/M	996.00/M	ECA-2CM221
	330	3178.0	0.16	1090	18	31.5	7.5	0.8	P5328-ND	3.72	31.92	250.04	1588.00	1499.00/M	1382.00/M	ECA-2CM331
	470	4522.0	0.16	1440	18	40	7.5	0.8	P5329-ND	4.79	41.09	321.89	2044.00	1929.00/M	1779.00/M	ECA-2CM471
250	1.0	25.0	0.18	34	6.3	11.2	2.5	0.5	P5330-ND	.45	3.86	30.27	192.00	181.00/M	167.00/M	ECA-2EM010
	2.2	43.0	0.18	50	6.3	11.2	2.5	0.5	P5331-ND	.47	4.03	31.58	201.00	189.00/M	175.00/M	ECA-2EM2R2
	3.3	59.5	0.18	72	8	11.5	3.5	0.6	P5332-ND	.53	4.57	35.80	227.00	215.00/M	198.00/M	ECA-2EM3R3
	4.7	80.5	0.18	86	8	11.5	3.5	0.6	P5333-ND	.62	5.28	41.32	262.00	248.00/M	228.00/M	ECA-2EM4R7
	10	160.0	0.18	110	10	16	5.0	0.6	P5334-ND	.76	6.55	51.32	326.00	308.00/M	284.00/M	ECA-2EM100
	22	340.0	0.18	180	10	20	5.0	0.6	P5335-ND	1.02	8.74	68.43	435.00	410.00/M	378.00/M	ECA-2EM220
	33	505.0	0.18	250	12.5	20	5.0	0.6	P5336-ND	1.22	10.45	81.86	520.00	491.00/M	452.00/M	ECA-2EM330
	47	715.0	0.18	350	12.5	25	5.0	0.6	P5337-ND	1.58	13.51	105.81	672.00	634.00/M	585.00/M	ECA-2EM470
	100	1510.0	0.18	530	16	31.5	7.5	0.8	P5338-ND	2.60	22.24	174.24	1107.00	1044.00/M	963.00/M	ECA-2EM101
	220	3310.0	0.18	930	18	40	7.5	0.8	P5339-ND	4.82	41.33	323.74	2056.00	1940.00/M	1789.00/M	ECA-2EM221
450	1.0	37.0	0.20	37	8	11.5	3.5	0.6	P5340-ND	.59	5.04	39.48	251.00	237.00/M	218.00/M	ECA-2WM010
	2.2	69.4	0.20	44	10	12.5	5.0	0.6	P5341-ND	.69	5.88	46.06	293.00	276.00/M	255.00/M	ECA-2WM2R2
	3.3	99.1	0.20	60	10	16	5.0	0.6	P5342-ND	.86	7.39	57.90	368.00	347.00/M	320.00/M	ECA-2WM3R3
	4.7	136.0	0.20	79	10	20	5.0	0.6	P5343-ND	.96	8.23	64.48	410.00	386.00/M	356.00/M	ECA-2WM4R7
	10	280.0	0.20	130	12.5	20	5.0	0.6	P5344-ND	1.22	10.45	81.86	520.00	491.00/M	452.00/M	ECA-2WM100
	22	604.0	0.20	210	16	25	7.5	0.8	P5345-ND	1.96	16.77	131.34	834.00	787.00/M	726.00/M	ECA-2WM220
	33	901.0	0.20	285	16	31.5	7.5	0.8	P5346-ND	2.54	21.81	170.82	1085.00	1024.00/M	944.00/M	ECA-2WM330

Panasonic® NHE

Miniature Axial Lead Aluminum Electrolytic Capacitors



Size Code	Dimensions (mm) D x L x d
AA	4.5 x 10.5 x 0.6
A	5 x 12.5 x 0.6
B	6.3 x 12.5 x 0.6
C	6.3 x 16 x 0.6
D	8 x 16 x 0.6
E	8 x 20 x 0.6
F	10 x 20 x 0.6
G	10 x 25 x 0.6
H	12.5 x 25 x 0.8
I	12.5 x 31.5 x 0.8
J	16 x 25 x 0.8
K	16 x 31.5 x 0.8
L	16 x 40 x 0.8
M	18 x 40 x 0.8

Specifications

NHE series has been introduced to meet the requirements of use of over wide temperature range of −55 ~ +105°C with same case size as SU series.

Features:

- **Reduced case size, same as SU series**
- 2,000 hours load life at 105°C
  (1,000 hours for products of 8mm dia. or less)
- **Anti-solvent Freon TE, TES, TP-35**
- **Operating Temperature Range:** −55 ~ +105°C
- **Rated Working Voltage Range:** 6.3 ~ 100V DC
- **Rated Capacitance:** 0.1 ~ 15,000µF
- **Capacitance Tolerance:** ±20% (at 20°C, 120Hz)
- **tan** δ (at 20°C, 120Hz)

W.V.	6.3	10	16	25	35	50	63	100
tan δ	0.28	0.22	0.19	0.16	0.13	0.10	0.09	0.07

Add 0.02 per 1,000µF for capacitors with more than 1,000µF.

- **DC Leakage current:**
  I = 0 01 CV or 3µA, whichever is greater
  where I = DC leakage current in µA
  C = rated capacitance in µF
  V = rated working voltage in V
  DC leakage current shall be measured after 2 minutes application of the DC rated working voltage through the 1,000 ohms resistor at 20°C
- **Load life:**
  After following load life test with DC voltage and ripple current applied (the sum of DC and ripple peak voltage shall not exceed the rated voltage), the capacitors shall meet following limits.
  ϕ5, ϕ6, ϕ8 ....1,000 hours at +105°C
  ϕ10 ~ ϕ22.4..........2,000 hours at +105°C
  Measurement shall be performed after 2 hours exposure at room temperature.

Capacitance change	Within ±20% of the initial measured value
tan δ	Less than 200% of the initial specified value
DC leakage current	Less than the initial specified value

- **Shelf life:**
  After storage for 1,000 hours at +105°C with no voltage applied, the capacitors shall meet the following limits.

Capacitance change	Within ±20% of the initial measured value
tan δ	Less than 200% of the initial specified value
DC leakage current	Less than the initial specified value

Measurement shall be performed after 2 hours exposure at room temperature.

- **Stability at low temperature:**
  Impedance ratio against value at +20°C, at 120Hz.

W.V.	6.3	10	16	25	35	50	63	100
Z(−125°C)/Z(20°C)	4	3	2	2	2	2	2	2
Z(−40°C)/Z(20°C)	8	6	4	3	3	3	3	3
Z(−55°C)/Z(20°C)	12	10	8	6	6	6	6	6

Add 0.5 (-25°C) or 1 0 (−40°C, 50°C) per 1,000µF for capacitors with more than 1,000µF

- **Maximum Permissible Ripple Current:**

W.V. (V.DC)	Capacitance (µE)	Frequency (Hz) 60	120	1K	10K	100K
6.3	0.1 ~ 330	0.85	1	1.30	1.40	1.55
∫	470 ~ 3300	0.95	1	1.15	1.20	1.25
50	4700 ~	0.95	1	1.10	1.20	1.20
63	0.47 ~ 33	0.75	1	1.55	1.65	1.80
∫	47 ~ 220	0.75	1	1.40	1.60	1.65
100	330 ~	0.80	1	1.30	1.35	1.40

- **Temperature multiplier**

Temp. (C)	85	105
Multiplier	1.75	1

To get a permissible current at given frequency and temperature, multiply the ripple current at 105°C, 100kHz with the above multipliers.

However, there is a possibility that reverse voltage is rated to the capacitors at low frequency. So ripple current shall be calculated by using the above mentioned multiplier, or by using the following formula, whichever is greater.

$I_p = \pi \bullet f \bullet c \bullet V_N / \sqrt{2} X 10^{-6}$

I_p = Max. ripple current (A rms); f = Frequency (Hz); C = Rated capacitance (µF); V_N = Working voltage (V.DC)

- **Cleaning Solvents & Conditions:**

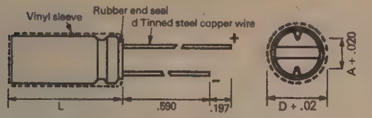
Solvents	Conditions
Freon TE Freon TES Freon TP-35	Vapor, ultra sonic or immersion cleaning, for 5 minutes at 40°C

PANASONIC NHE CROSS REFERENCES: Elna: RE3; **Marcon:** BSM; **Nichicon:** VT; **Ruby-con:** SSP; **UCC:** KME.

WV	µF	Case	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part Number
6.3 (8)	100	B	P5400-ND	.56	4.91	42.58	196.00	186.00/M	170.00/M	ECE-BOJGE101
	220	C	P5401-ND	.68	5.96	51.68	238.00	226.00/M	206.00/M	ECE-BOJGE221
	330	D	P5402-ND	.89	7.88	68.25	315.00	298.00/M	273.00/M	ECE-BOJGE331
	470	D	P5403-ND	.90	7.91	68.58	316.00	299.00/M	274.00/M	ECE-BOJGE471
	1,000	F	P5404-ND	1.72	14.70	115.15	735.00	695.00/M	636.00/M	ECE-BOJGE102
	2,200	H	P5405-ND	2.11	18.09	141.71	904.00	855.00/M	783.00/M	ECE-BOJGE222
	3,300	H	P5406-ND	2.22	18.99	148.76	949.00	898.00/M	822.00/M	ECE-BOJGE332
	4,700	I	P5407-ND	2.64	22.65	177.43	1132.00	1071.00/M	981.00/M	ECE-BOJGE472
	6,800	K	P5408-ND	3.47	29.76	233.12	1487.00	1407.00/M	1288.00/M	ECE-BOJGE682
	10,000	L	P5409-ND	4.22	36.21	283.65	1810.00	1712.00/M	1568.00/M	ECE-BOJGE103
	15,000	M	P5410-ND	5.60	48.03	376.24	2400.00	2271.00/M	2079.00/M	ECE-BOJGE153
10 (13)	22	A	P5411-ND	.51	4.49	38.95	180.00	170.00/M	156.00/M	ECE-B1AGE220
	33	B	P5412-ND	.53	4.69	40.63	187.00	177.00/M	162.00/M	ECE-B1AGE330
	47	B	P5413-ND	.61	5.40	46.80	216.00	204.00/M	187.00/M	ECE-B1AGE470
	100	C	P5414-ND	.85	7.46	64.68	298.00	282.00/M	258.00/M	ECE-B1AGE101
	220	C	P5415-ND	.85	7.50	65.00	300.00	284.00/M	260.00/M	ECE-B1AGE221
	330	D	P5416-ND	.94	8.33	72.15	333.00	315.00/M	288.00/M	ECE-B1AGE331
	470	D	P5417-ND	.98	8.66	75.08	346.00	328.00/M	300.00/M	ECE-B1AGE471
	1,000	F	P5418-ND	1.78	15.24	119.38	762.00	721.00/M	660.00/M	ECE-B1AGE102
	2,000	H	P5419-ND	2.17	18.63	145.94	931.00	881.00/M	806.00/M	ECE-B1AGE222
	3,300	I	P5420-ND	2.55	21.87	171.32	1093.00	1034.00/M	947.00/M	ECE-B1AGE332
	4,700	J	P5421-ND	3.17	27.18	212.91	1358.00	1285.00/M	1177.00/M	ECE-B1AGE472
	6,800	K	P5422-ND	3.70	31.71	248.40	1585.00	1499.00/M	1373.00/M	ECE-B1AGE682
	10,000	M	P5423-ND	5.06	43.41	340.05	2169.00	2052.00/M	1879.00/M	ECE-B1AGE103
16 (20)	22	B	P5424-ND	.60	5.33	46.15	213.00	201.00/M	184.00/M	ECE-B1CGE220
	33	B	P5425-ND	.60	5.33	46.15	213.00	201.00/M	184.00/M	ECE-B1CGE330
	47	C	P5426-ND	.84	7.43	64.35	297.00	281.00/M	257.00/M	ECE-B1CGE470
	100	C	P5427-ND	.85	7.46	64.68	298.00	282.00/M	258.00/M	ECE-B1CGE101
	220	D	P5428-ND	.95	8.36	72.48	334.00	316.00/M	290.00/M	ECE-B1CGE221
	330	D	P5429-ND	.99	8.74	75.73	349.00	330.00/M	303.00/M	ECE-B1CGE331
	470	E	P5430-ND	1.09	9.64	83.53	385.00	365.00/M	334.00/M	ECE-B1CGE471
	1,000	G	P5431-ND	1.94	16.59	129.96	829.00	784.00/M	718.00/M	ECE-B1CGE102
	2,200	I	P5432-ND	2.56	21.93	171.79	1096.00	1037.00/M	949.00/M	ECE-B1CGE222
	3,300	J	P5433-ND	3.18	27.24	213.38	1361.00	1288.00/M	1179.00/M	ECE-B1CGE332
	4,700	K	P5434-ND	3.80	32.61	255.45	1630.00	1542.00/M	1412.00/M	ECE-B1CGE472
	6,800	L	P5435-ND	4.63	39.66	310.67	1982.00	1875.00/M	1717.00/M	ECE-B1CGE682
25 (32)	4.7	A	P5436-ND	.48	4.24	36.73	169.00	160.00/M	147.00/M	ECE-B1EGE4R7
	10	A	P5437-ND	.51	4.49	38.95	180.00	170.00/M	156.00/M	ECE-B1EGE100
	22	B	P5438-ND	.60	5.25	45.50	210.00	199.00/M	182.00/M	ECE-B1EGE220
	33	C	P5439-ND	.85	7.50	65.00	300.00	284.00/M	260.00/M	ECE-B1EGE330
	47	C	P5440-ND	.85	7.50	65.00	300.00	284.00/M	260.00/M	ECE-B1EGE470
	100	C	P5441-ND	.85	7.50	65.00	300.00	284.00/M	260.00/M	ECE-B1EGE101
	220	D	P5442-ND	.94	8.33	72.15	333.00	315.00/M	288.00/M	ECE-B1EGE221
	330	E	P5443-ND	1.10	9.71	84.18	388.00	367.00/M	336.00/M	ECE-B1EGE331
	470	F	P5444-ND	1.78	15.24	119.38	762.00	721.00/M	660.00/M	ECE-B1EGE471
	1,000	H	P5445-ND	2.19	18.78	147.11	938.00	888.00/M	813.00/M	ECE-B1EGE102
	2,200	J	P5446-ND	3.19	27.30	213.85	1364.00	1291.00/M	1182.00/M	ECE-B1EGE222
	3,300	K	P5447-ND	3.74	32.07	251.22	1603.00	1516.00/M	1388.00/M	ECE-B1EGE332
	4,700	M	P5448-ND	5.26	45.06	352.97	2252.00	2130.00/M	1951.00/M	ECE-B1EGE472
35 (44)	4.7	A	P5449-ND	.51	4.49	38.95	180.00	170.00/M	156.00/M	ECE-B1VGE4R7
	10	B	P5450-ND	.53	4.69	40.63	187.00	177.00/M	162.00/M	ECE-B1VGE100
	22	C	P5451-ND	.83	7.35	63.70	294.00	278.00/M	255.00/M	ECE-B1VGE220
	33	C	P5452-ND	.84	7.43	64.35	297.00	281.00/M	257.00/M	ECE-B1VGE330
	47	C	P5453-ND	.84	7.43	64.35	297.00	281.00/M	257.00/M	ECE-B1VGE470
	100	D	P5454-ND	.98	8.40	72.80	336.00	318.00/M	291.00/M	ECE-B1VGE101
	220	E	P5455-ND	1.09	9.60	83.20	384.00	363.00/M	332.00/M	ECE-B1VGE221
	330	F	P5456-ND	1.76	15.09	118.21	754.00	713.00/M	653.00/M	ECE-B1VGE331
	470	G	P5457-ND	1.89	16.20	126.90	810.00	766.00/M	701.00/M	ECE-B1VGE471
	1,000	I	P5458-ND	2.47	21.18	165.91	1058.00	1001.00/M	917.00/M	ECE-B1VGE102
	2,200	K	P5459-ND	3.68	31.56	247.22	1577.00	1492.00/M	1366.00/M	ECE-B1VGE222
	3,300	L	P5460-ND	4.67	39.99	313.26	1998.00	1891.00/M	1731.00/M	ECE-B1VGE332
50 (63)	0.1	A	P5461-ND	.50	4.45	38.58	178.00	168.00/M	154.00/M	ECE-B1HGE0R1
	0.22	A	P5462-ND	.50	4.45	38.58	178.00	168.00/M	154.00/M	ECE-B1HGER22
	0.33	A	P5463-ND	.51	4.54	39.31	181.00	172.00/M	157.00/M	ECE-B1HGER33
	0.47	A	P5464-ND	.51	4.54	39.31	181.00	172.00/M	157.00/M	ECE-B1HGER47
	1.0	A	P5465-ND	.51	4.54	39.31	181.00	172.00/M	157.00/M	ECE-B1HGE010
	2.2	A	P5466-ND	.51	4.54	39.31	181.00	172.00/M	157.00/M	ECE-B1HGE2R2
	3.3	A	P5467-ND	.51	4.54	39.31	181.00	172.00/M	157.00/M	ECE-B1HGE3R3
	4.7	B	P5468-ND	.60	5.33	46.15	213.00	201.00/M	184.00/M	ECE-B1HGE4R7
	10	C	P5469-ND	.84	7.43	64.35	297.00	281.00/M	257.00/M	ECE-B1HGE100
	22	C	P5470-ND	.84	7.43	64.35	297.00	281.00/M	257.00/M	ECE-B1HGE220
	33	C	P5471-ND	.86	7.61	65.98	304.00	288.00/M	264.00/M	ECE-B1HGE330
	47	C	P5472-ND	.88	7.76	67.28	310.00	294.00/M	269.00/M	ECE-B1HGE470
	100	D	P5473-ND	.99	8.78	76.05	351.00	332.00/M	304.00/M	ECE-B1HGE101
	220	F	P5474-ND	1.83	15 69	122.91	784.00	742.00/M	679.00/M	ECE-B1HGE221
	330	G	P5475-ND	1.95	16.74	131.13	837.00	791.00/M	725.00/M	ECE-B1HGE331
	470	H	P5476-ND	2.22	18.99	148.76	949.00	898.00/M	822.00/M	ECE-B1HGE471
	1,000	J	P5477-ND	3.24	27.75	217 38	1387.00	1312.00/M	1201.00/M	ECE-B1HGE102
	2.200	M	P5478-ND	5.42	46.44	363.78	2321.00	2196.00/M	2010.00/M	ECE-B1HGE222
63 (79)	2.2	A	P5479-ND	.51	4.49	38.95	180.00	170.00/M	156.00/M	ECE-B1JGE2R2
	3.3	B	P5480-ND	.52	4.58	39.65	183.00	173.00/M	158.00/M	ECE-B1JGE3R3
	4.7	B	P5481-ND	.56	4.91	42.58	196.00	186.00/M	170.00/M	ECE-B1JGE4R7
	10	C	P5482-ND	.83	7.35	63.70	294.00	278.00/M	255.00/M	ECE-B1JGE100
	22	C	P5483-ND	.83	7.35	63.70	294.00	278.00/M	255.00/M	ECE-B1JGE220
	33	C	P5484-ND	.86	7.58	65.65	303.00	287.00/M	262.00/M	ECE-B1JGE330
	47	D	P5485-ND	.90	7.91	68.58	316.00	299.00/M	274.00/M	ECE-B1JGE470
	100	E	P5486-ND	1.11	9.79	84.83	391.00	370.00/M	339.00/M	ECE-B1JGE101
	220	G	P5487-ND	1.93	16.50	129.25	825.00	780.00/M	714.00/M	ECE-B1JGE221
	330	H	P5488-ND	2.23	19.08	149 46	953.00	902.00/M	826.00/M	ECE-B1JGE331
	470	I	P5489-ND	2.58	22.08	172.96	1103.00	1044.00/M	956.00/M	ECE-B1JGE471
	1,000	K	P5490-ND	3.87	33.18	259.91	1658.00	1569 00/M	1436.00/M	ECE-B1JGE102
100 (125)	0.47	AA	P5504-ND	.48	4.28	37.05	170.91	161.70/M	148.06/M	ECE-B2AGER47S
	1.0	A	P5492-ND	.51	4.54	39.31	181.00	172.00/M	157.00/M	ECE-B2AGE010
	2.2	B	P5493-ND	.61	5.36	46.48	214.00	203.00/M	186.00/M	ECE-B2AGE2R2
	3.3	C	P5494-ND	.78	6.90	59.80	276.00	261.00/M	239.00/M	ECE-B2AGE3R3
	4.7	C	P5495-ND	.84	7.43	64.35	297.00	281.00/M	257.00/M	ECE-B2AGE4R7
	10	C	P5496-ND	.85	7.46	64.68	298.00	282.00/M	258.00/M	ECE-B2AGE100
	22	D	P5497-ND	.97	8.55	74.10	342.00	323.00/M	296.00/M	ECE-B2AGE220
	33	E	P5498-ND	1.08	9.49	82.23	379.00	359.00/M	329.00/M	ECE-B2AGE330
	47	E	P5499-ND	1.15	10.16	88.08	406.00	384.00/M	352.00/M	ECE-B2AGE470
	100	G	P5500-ND	2.00	17.10	133.95	855.00	808.00/M	740.00/M	ECE-B2AGE101
	220	I	P5501-ND	2.71	23.19	181.66	1159.00	1096.00/M	1004.00/M	ECE-B2AGE221
	330	J	P5502-ND	3.46	29.64	232.18	1481.00	1401.00/M	1283.00/M	ECE-B2AGE331
	470	L	P5503-ND	4.66	39.96	313.02	1997.00	1889.00/M	1730.00/M	ECE-B2AGE471

Panasonic® NHE

Miniature Radial Lead Aluminum Electrolytic Capacitors



Size Code	Dimensions (mm) D x L x A x d
A	5 x 11 x 2.0 x 0.5
B	6.3 x 11.2 x 2.5 x 0.5
C	8 x 11.5 x 3.5 x 0.6
D	8 x 12.5 x 3.5 x 0.6
E	10 x 12.5 x 5.0 x 0.6
F	10 x 16 x 5.0 x 0.6
G	10 x 20 x 5.0 x 0.6
H	12.5 x 20 x 5.0 x 0.6
I	12.5 x 25 x 5.0 x 0.6
J	16 x 25 x 7.5 x 0.8
K	16 x 31.5 x 7.5 x 0.8
L	18 x 35.5 x 7.5 x 0.8

Specifications:

NHE series has been introduced to meet the requirements of use of over wide temperature range of −55 ~ +105°C with same case size as SU series.

Features:

- **Reduced case size, same as SU series**
- **2,000 hours load life at 1057C**
  (1,000 hours for products of 8mm dia. or less)
- **Anti-solvent Freon TE, TES, TP-35**
- **Operating Temperature Range:** –55 ~ +105°C
- **Rated Working Voltage Range:** 6.3 ~ 100V DC
- **Rated Capacitance:** 0.1 ~ 15,000µF
- **Capacitance Tolerance:** ±20% (at 20°C, 120 Hz)
- **tan δ** (at 20°C, 120 Hz)

W.V.	6.3	10	16	25	35	50	63	100
tan δ	0.28	0.22	0.19	0.16	0.13	0.10	0.09	0.07

Add 0.02 per 1,000µF for capacitors with more than 1,000µF.

- **DC Leakage current:**

  1 = 0.01 CV or 3µA, whichever is greater
  where 1 = DC leakage current in µA
  C = rated capacitance in µF
  V = rated working voltage in V

  DC leakage current shall be measured after 2 minutes application of the DC rated working voltage through the 1,000 ohms resistor at 20°C

- **Load life:**

  After following load life test with DC voltage and ripple current applied (the sum of DC and ripple peak voltage shall not exceed the rated voltage), the capacitors shall meet following limits.
  ϕ5, ϕ6, ϕ8 ....1,000 hours at +105°C
  ϕ10 ~ ϕ22.4 ....2,000 hours at +105°C
  Measurement shall be performed after 2 hours exposure at room temperature.

  Add 0.5 (−25°C) or 1.0 (−40°C, −50°C) per 1,000µF for capacitors with more than 1,000µF.

Capacitance change	Within ±20% of the initial measured value
tan δ	Less than 200% of the initial specified value
DC leakage current	Less than the initial specified value

- **Shelf life:**

  After storage for 1,000 hours at +105°C with no voltage applied, the capacitors shall meet the following limits.

Capacitance change	Within ±20% of the initial measured value
tan δ	Less than 200% of the initial specified value
DC leakage current	Less than the initial specified value

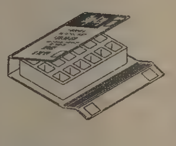
Measurement shall be performed after 2 hours exposure at room temperature.

- **Stability at low temperature**

  Impedance ratio against value at +20°C, at 120 Hz.

W.V.	6.3	10	16	25	35	50	63	100
Z(−125°C)/Z(20°C)	4	3	2	2	2	2	2	2
Z(−40°C)/Z(20°C)	8	6	4	3	3	3	3	3
Z(−55°C)/Z(20°C)	12	10	8	6	6	6	6	6

Add 0.5 (-25°C) or 1.0 (-40°C, -50°) or 1,000 µF for capacitors with more than 1,000 µF.



Panasonic®

Miniature Radial Lead Aluminum Electrolytic Capacitors

NHE-Series Kit

150 capacitors, 15 values as denoted (*), 10 each. Price includes notebook style storage case and bin storage guide for convenient storage and quick access.

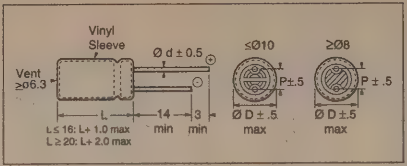
P5198-KIT-ND $69.95

PANASONIC NHE CROSS REFERENCES: Elna: RE3; **Marcon:** BSM; **Nichicon:** VT; **Rubycon:** SSP; **UCC:** KME.

			Digi-Key	Pricing						Panasonic
WV	µF	Case	Part Number	1	10	100	1,000	5,000	10,000	Part No.
6.3 (8)	47	A	P5202-ND	.21	1.60	13.83	64.00	60.00/M	55.00/M	ECE-A0JGE470
	100	A	P5203-ND	.24	1.80	15.60	72.00	68.00/M	62.00/M	ECE-A0JGE101
	220	B	P5204-ND	.30	2.21	19.18	88.00	84.00/M	77.00/M	ECE-A0JGE221
	330	B	P5205-ND	.30	2.25	19.50	90.00	85.00/M	78.00/M	ECE-A0JGE331
	470	D	P5206-ND	.47	3.53	30.55	141.00	133.00/M	122.00/M	ECE-A0JGE471
	1,000	E	P5207-ND	.66	4.95	42.90	198.00	187.00/M	171.00/M	ECE-A0JGE102
	2,200	H	P5208-ND	.98	8.37	65.57	418.00	396.00/M	362.00/M	ECE-A0JGE222
	3,300	H	P5209-ND	.99	8.52	66.74	426.00	403.00/M	369.00/M	ECE-A0JGE332
	4,700	J	P5210-ND	1.55	13.32	104.34	666.00	630.00/M	577.00/M	ECE-A0JGE472
	6,800	J	P5211-ND	1.65	14.16	110.92	708.00	669.00/M	613.00/M	ECE-A0JGE682
	10,000	K	P5212-ND	2.11	18.09	141.71	904.00	855.00/M	783.00/M	ECE-A0JGE103
	15,000	L	P5213-ND	3.06	26.22	205.39	1310.00	1240.00/M	1135.00/M	ECE-A0JGE153
10 (13)	22	A	P5214-ND	.21	1.60	13.83	64.00	60.00/M	55.00/M	ECE-A1AGE220
	33	A	P5215-ND	.22	1.64	14.20	65.00	62.00/M	57.00/M	ECE-A1AGE330
	47	A	P5216-ND	.22	1.64	14.20	65.00	62.00/M	57.00/M	ECE-A1AGE470
	100	A	P5217-ND	.23	1.73	14.95	69.00	65.00/M	60.00/M	ECE-A1AGE101
	220	B	P5218-ND	.30	2.21	19.18	88.00	84.00/M	77.00/M	ECE-A1AGE221
	330	C	P5219-ND	.51	3.83	33.15	153.00	145.00/M	132.00/M	ECE-A1AGE331
	470	D	P5220-ND	.58	4.31	37.38	172.00	163.00/M	149.00/M	ECE-A1AGE471
	1,000	F	P5221-ND	.74	5.55	48.10	222.00	210.00/M	192.00/M	ECE-A1AGE102
	2,200	H	P5222-ND	.97	8.34	65.33	417.00	394.00/M	361.00/M	ECE-A1AGE222
	3,300	I	P5223-ND	1.13	9.66	75.67	483.00	457.00/M	418.00/M	ECE-A1AGE332
	4,700	J	P5224-ND	1.62	13.92	109.04	696.00	658.00/M	603.00/M	ECE-A1AGE472
	6,800	K	P5225-ND	2.04	17.52	137.24	876.00	828.00/M	758.00/M	ECE-A1AGE682
	10,000	L	P5226-ND	2.85	24.42	191.29	1220.00	1155.00/M	1057.00/M	ECE-A1AGE103
16 (20)	10	A	P5227-ND	.21	1.60	13.83	64.00	60.00/M	55.00/M	ECE-A1CGE100
	22	A	P5228-ND	.21	1.60	13.83	64.00	60.00/M	55.00/M	ECE-A1CGE220
	33	A	P5229-ND	.22	1.64	14.20	65.00	62.00/M	57.00/M	ECE-A1CGE330
	47	A	P5230-ND	.23	1.69	14.63	67.00	64.00/M	58.00/M	ECE-A1CGE470
	100	B	P5231-ND	.28	2.10	18.20	84.00	79.00/M	73.00/M	ECE-A1CGE101
	220	C	P5232-ND	.51	3.83	33.15	153.00	145.00/M	132.00/M	ECE-A1CGE221
	330	D	P5233-ND	.58	4.35	37.70	174.00	165.00/M	151.00/M	ECE-A1CGE331
	470	E	P5234-ND	.66	4.95	42.90	198.00	187.00/M	171.00/M	ECE-A1CGE471
	1,000	G	P5235-ND	.91	6.79	58.83	271.00	257.00/M	235.00/M	ECE-A1CGE102
	2,200	I	P5236-ND	1.13	9.72	76.14	486.00	460.00/M	421.00/M	ECE-A1CGE222
	3,300	J	P5237-ND	1.62	13.86	108.57	693.00	655.00/M	600.00/M	ECE-A1CGE332
	4,700	K	P5238-ND	2.06	17.67	138.42	883.00	835.00/M	765.00/M	ECE-A1CGE472
	6,800	L	P5239-ND	2.86	24.54	192.23	1226.00	1160.00/M	1062.00/M	ECE-A1CGE682
25 (32)	10	A	P5240-ND	.21	1.60	13.83	64.00	60.00/M	55.00/M	ECE-A1EGE100
	22	A	P5241-ND	.22	1.64	14.20	65.00	62.00/M	57.00/M	ECE-A1EGE220
	33	A	P5242-ND	.23	1.72	14.92	69.00	65.00/M	60.00/M	ECE-A1EGE330
	47	A	P5243-ND	.23	1.73	14.95	69.00	65.00/M	60.00/M	ECE-A1EGE470
	100	B	P5244-ND	.30	2.25	19.50	90.00	85.00/M	78.00/M	ECE-A1EGE101
	220	D	P5245-ND	.56	4.16	36.08	166.00	157.00/M	144.00/M	ECE-A1EGE221
	330	E	P5246-ND	.66	4.95	42.90	198.00	187.00/M	171.00/M	ECE-A1EGE331
	470	F	P5247-ND	.77	5.78	50.05	231.00	218.00/M	200.00/M	ECE-A1EGE471
	1,000	H	P5248-ND	.98	8.40	65.80	420.00	397.00/M	364.00/M	ECE-A1EGE102
	2,200	J	P5249-ND	1.65	14.13	110.69	706.00	668.00/M	612.00/M	ECE-A1EGE222
	3,300	K	P5250-ND	2.11	18.06	141.47	903.00	854.00/M	782.00/M	ECE-A1EGE332
	4,700	L	P5251-ND	3.03	26.01	203.75	1300.00	1230.00/M	1126.00/M	ECE-A1EGE472
35 (44)	4.7	A	P5252-ND	.21	1.60	13.83	64.00	60.00/M	55.00/M	ECE-A1VGE4R7
	10	A	P5253-ND	.22	1.64	14.20	65.00	62.00/M	57.00/M	ECE-A1VGE100
	22	A	P5254-ND	.23	1.72	14.92	69.00	65.00/M	60.00/M	ECE-A1VGE220
	33	A	P5255-ND	.23	1.73	14.95	69.00	65.00/M	60.00/M	ECE-A1VGE330
	47	B	P5256-ND	.30	2.21	19.18	88.00	84.00/M	77.00/M	ECE-A1VGE470
	100	C	P5257-ND	.51	3.83	33.15	153.00	145.00/M	132.00/M	ECE-A1VGE101
	220	E	P5258-ND	.67	4.99	43.23	199.00	189.00/M	173.00/M	ECE-A1VGE221
	330	F	P5259-ND	.75	5.63	48.75	225.00	213.00/M	195.00/M	ECE-A1VGE331
	470	G	P5260-ND	.89	6.64	57.53	265.00	251.00/M	230.00/M	ECE-A1VGE471
	1,000	I	P5261-ND	1.15	9.84	77.08	492.00	465.00/M	426.00/M	ECE-A1VGE102
	2,200	K	P5262-ND	2.14	18.30	143.35	915.00	865.00/M	792.00/M	ECE-A1VGE222
	3,300	L	P5263-ND	3.05	26.10	204.45	1304.00	1234.00/M	1130.00/M	ECE-A1VGE332
50 (63)	0.1	A	P5264-ND	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGE0R1
	0.22	A	P5265-ND	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGER22
	0.33	A	P5266-ND	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGER33
	0.47	A	P5267-ND*	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGER47
	1.0	A	P5268-ND*	.21	1.58	13.65	63.00	60.00/M	55.00/M	ECE-A1HGE010
	2.2	A	P5269-ND*	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGE2R2
	3.3	A	P5270-ND*	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGE3R3
	4.7	A	P5271-ND*	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGE4R7
	10	A	P5272-ND*	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A1HGE100
	22	A	P5273-ND*	.23	1.73	14.95	69.00	65.00/M	60.00/M	ECE-A1HGE220
	33	B	P5274-ND*	.31	2.29	19.83	91.00	87.00/M	79.00/M	ECE-A1HGE330
	47	B	P5275-ND*	.30	2.25	19.50	90.00	85.00/M	78.00/M	ECE-A1HGE470
	100	D	P5276-ND*	.56	4.20	36.40	168.00	159.00/M	145.00/M	ECE-A1HGE101
	220	F	P5277-ND*	.79	5.89	51.03	235.00	223.00/M	204.00/M	ECE-A1HGE221
	330	G	P5278-ND*	.93	6.98	60.45	279.00	264.00/M	242.00/M	ECE-A1HGE331
	470	H	P5279-ND*	1.02	8.76	68.62	438.00	414.00/M	379.00/M	ECE-A1HGE471
	1,000	J	P5280-ND*	1.69	14.52	113.74	726.00	687.00/M	629.00/M	ECE-A1HGE102
	2,200	L	P5281-ND*	3.14	26.91	210.80	1345.00	1272.00/M	1165.00/M	ECE-A1HGE222
63 (79)	4.7	A	P5282-ND	.22	1.64	14.20	65.00	62.00/M	57.00/M	ECE-A1JGE4R7
	10	A	P5283-ND	.23	1.69	14.63	67.00	64.00/M	58.00/M	ECE-A1JGE100
	22	B	P5284-ND	.29	2.14	18.53	85.00	81.00/M	74.00/M	ECE-A1JGE220
	33	B	P5285-ND	.31	2.29	19.83	91.00	87.00/M	79.00/M	ECE-A1JGE330
	47	C	P5286-ND	.55	4.09	35.43	163.00	155.00/M	142.00/M	ECE-A1JGE470
	100	E	P5287-ND	.68	5.06	43.88	202.00	191.00/M	175.00/M	ECE-A1JGE101
	220	G	P5288-ND	.94	7.01	60.78	280.00	265.00/M	243.00/M	ECE-A1JGE221
	330	H	P5289-ND	1.08	9.24	72.38	462.00	437.00/M	400.00/M	ECE-A1JGE331
	470	I	P5290-ND	1.17	10.02	78.49	501.00	474.00/M	434.00/M	ECE-A1JGE471
	1,000	K	P5291-ND	2.21	18.93	148.29	946.00	895.00/M	819.00/M	ECE-A1JGE102
100 (125)	0.47	A	P5292-ND	.22	1.65	14.30	66.00	62.00/M	57.00/M	ECE-A2AGER47
	1.0	A	P5293-ND	.22	1.61	13.98	64.00	61.00/M	56.00/M	ECE-A2AGE010
	2.2	A	P5294-ND	.23	1.69	14.63	67.00	64.00/M	58.00/M	ECE-A2AGE2R2
	3.3	A	P5295-ND	.23	1.69	14.63	67.00	64.00/M	58.00/M	ECE-A2AGE3R3
	4.7	A	P5296-ND	.23	1.73	14.95	69.00	65.00/M	60.00/M	ECE-A2AGE4R7
	10	B	P5297-ND	.30	2.25	19.50	90.00	85.00/M	78.00/M	ECE-A2AGE100
	22	C	P5298-ND	.50	3.75	32.50	150.00	142.00/M	130.00/M	ECE-A2AGE220
	33	E	P5299-ND	.65	4.88	42.25	195.00	184.00/M	169.00/M	ECE-A2AGE330
	47	F	P5300-ND	.74	5.51	47.78	220.00	209.00/M	191.00/M	ECE-A2AGE470
	100	H	P5301-ND	.97	8.31	65.10	415.00	393.00/M	360.00/M	ECE-A2AGE101
	220	J	P5302-ND	1.63	13.98	109.51	699.00	661.00/M	605.00/M	ECE-A2AGE221
	330	J	P5303-ND	1.83	15.72	123.14	786.00	743.00/M	681.00/M	ECE-A2AGE331
	470	K	P5304-ND	2.35	20.13	157.69	1006.00	952.00/M	871.00/M	ECE-A2AGE471

Panasonic® NEW! NHG Series Radial Lead Aluminum Electrolytic Capacitors

PANASONIC NHG SERIES
CROSS REFERENCES
Nippon Chemicon: KMG
Nichicon: VZ; **Elna:** RJ4;
Rubycon: YXA



FEATURES:

- Compact size (same case size with series M).
- Life: 1000 ~ 2000 hours at +105°C

SPECIFICATIONS:

Operating Temperature Range	-55 to +105°C	-25 to +105°C
Rated Working Voltage Range	6.3 to 100 V.DC	160 to 450 V.DC
Nominal Capacitance Range	0.1 to 22000 µF	1.0 to 330 µF

Capacitance Tolerance: ±20% (120 Hz, +20°C)

Leakage Current	I ≦ 0.01 CV (µA) or 3 (µA) Whichever is greater after 2 minutes application of rated working voltage at +20°C.	I ≦ 0.06 CV + 10 (µA) after 2 minutes application of rated working voltage at +20°C.

tan δ: (at 120 Hz, +20°C)

W.V.	6.3	10	16	25	35	50	63	100	160	250	450
tan δ max.	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.15	0.15	0.24

For capacitance value > 1000 µF, add 0.02 per every 1000 µF.

Ripple Current: 120 Hz, +105°C

W.V. (V.DC)	Cap(µF)	Frequency (Hz)				
		60	120	1k	10k	100k
6.3 ~ 100	~ 33	0.75	1	1.55	1.80	2.00
	47 ~ 470	0.80	1	1.35	1.50	1.50
	1000 ~	0.85	1	1.10	1.15	1.15
160 ~ 450	1.0 ~ 330	0.80	1	1.35	1.50	1.50

Endurance:

Test Conditions		Post Test Requirements at +20°C	
Duration	2000 Hours*	**Leakage Current**	≦ initial specified value
Ambient Temperature	+105°C	**Capacitance Change**	±20% of initial measured value
Applied Voltage	Rated DC Working Voltage	**tan δ**	≦ 200% initial specified value

* 1000 Hours for ≦ Ø8mm products.

Shelf Life:

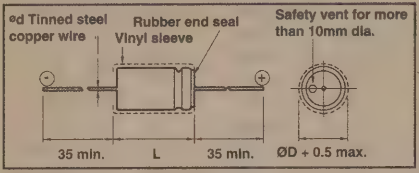
Test Conditions		Post Test Requirements at +20°C	
Duration	1000 Hours	**Leakage Current**	≦ initial specified value
Ambient Temperature	+105°C	**Capacitance Change**	±20% of initial measured value
Applied Voltage	—	**tan δ**	≦ 200% initial specified value

WV (VDC)	Cap µF	D.C.L. (+20°C) (µA) max.	tan δ max.	Ripple Current (mA) rms	Dimensions (mm)				Digi-Key Part No.	Pricing						Panasonic Part No.
					ϕD	L	P	ϕd		1	10	100	1,000	5,000	10,000	
6.3	100	6.3	0.28	91	5	11	2.0	0.5	P5505-ND	.39	1.48	11.58	74.00	70.00/M	64.00/M	ECA-0JHG101
	220	13.8	0.28	140	5	11	2.0	0.5	P5506-ND	.44	1.88	14.74	94.00	89.00/M	81.00/M	ECA-0JHG221
	330	20.7	0.28	190	6.3	11.2	2.5	0.5	P5507-ND	.45	1.92	15.00	96.00	91.00/M	83.00/M	ECA-0JHG331
	470	29.6	0.28	230	6.3	11.2	2.5	0.5	P5508-ND	.50	3.02	23.69	151.00	143.00/M	131.00/M	ECA-0JHG471
	1000	63.0	0.28	380	8	11.5	3.5	0.6	P5509-ND	.55	4.10	32.11	205.00	194.00/M	177.00/M	ECA-0JHG102
	2200	138.6	0.30	710	10	16	5.0	0.6	P5510-ND	1.35	10.12	87.72	405.00	383.00/M	351.00/M	ECA-0JHG222
	3300	207.9	0.32	840	10	20	5.0	0.6	P5511-ND	1.43	10.71	92.82	428.00	405.00/M	371.00/M	ECA-0JHG332
	4700	296.1	0.34	1090	12.5	20	5.0	0.6	P5512-ND	2.14	16.04	139.05	641.00	607.00/M	556.00/M	ECA-0JHG472
	6800	428.4	0.38	1350	12.5	25	5.0	0.6	P5513-ND	2.28	17.09	148.15	683.00	647.00/M	592.00/M	ECA-0JHG682
	10000	630.0	0.46	1650	16	25	7.5	0.8	P5514-ND	3.23	24.23	210.03	969.00	917.00/M	839.00/M	ECA-0JHG103
	15000	945.0	0.56	2010	16	31.5	7.5	0.8	P5515-ND	4.22	31.63	274.09	1264.00	1196.00/M	1095.00/M	ECA-0JHG153
	22000	1386.0	0.70	2350	18	35.5	7.5	0.8	P5516-ND	5.71	42.80	370.92	1711.00	1619.00/M	1482.00/M	ECA-0JHG223
10	100	10.0	0.24	110	5	11	2.0	0.5	P5517-ND	.39	1.48	11.58	74.00	70.00/M	64.00/M	ECA-1AHG101
	220	22.0	0.24	170	6.3	11.2	2.5	0.5	P5518-ND	.44	1.88	14.74	94.00	89.00/M	81.00/M	ECA-1AHG221
	330	33.0	0.24	200	6.3	11.2	2.5	0.5	P5519-ND	.50	3.02	23.69	151.00	143.00/M	131.00/M	ECA-1AHG331
	470	47.0	0.24	250	8	11.5	3.5	0.6	P5520-ND	.62	3.73	29.22	186.00	176.00/M	161.00/M	ECA-1AHG471
	1000	100.0	0.24	460	10	12.5	5.0	0.6	P5521-ND	.80	5.96	51.69	238.00	226.00/M	207.00/M	ECA-1AHG102
	2200	220.0	0.26	760	10	20	5.0	0.6	P5522-ND	1.34	10.04	87.00	401.00	380.00/M	348.00/M	ECA-1AHG222
	3300	330.0	0.28	1000	12.5	20	5.0	0.6	P5523-ND	1.72	12.94	112.11	517.00	489.00/M	448.00/M	ECA-1AHG332
	4700	470.0	0.30	1260	12.5	25	5.0	0.6	P5524-ND	2.24	16.80	145.60	672.00	635.00/M	582.00/M	ECA-1AHG472
	6800	680.0	0.34	1570	16	25	7.5	0.8	P5525-ND	3.10	23.23	201.29	929.00	879.00/M	804.00/M	ECA-1AHG682
	10000	1000.0	0.42	1890	16	31.5	7.5	0.8	P5526-ND	4.13	30.95	268.27	1237.00	1171.00/M	1072.00/M	ECA-1AHG103
	15000	1500.0	0.52	2180	18	35.5	7.5	0.8	P5527-ND	5.64	42.34	366.91	1693.00	1601.00/M	1466.00/M	ECA-1AHG153
16	47	7.5	0.20	77	5	11	2.0	0.5	P5528-ND	.39	1.44	11.32	72.00	68.00/M	63.00/M	ECA-1CHG470
	100	16.0	0.20	110	5	11	2.0	0.5	P5529-ND	.42	1.81	14.21	91.00	86.00/M	79.00/M	ECA-1CHG101
	220	35.2	0.20	180	6.3	11.2	2.5	0.5	P5530-ND	.53	3.16	24.74	158.00	149.00/M	137.00/M	ECA-1CHG221
	330	52.8	0.20	260	8	11.5	3.5	0.6	P5531-ND	.62	3.73	29.22	186.00	176.00/M	161.00/M	ECA-1CHG331
	470	75.2	0.20	310	8	11.5	3.5	0.6	P5532-ND	.71	4.23	33.16	212.00	200.00/M	183.00/M	ECA-1CHG471
	1000	160.0	0.20	560	10	16	5.0	0.6	P5533-ND	.97	7.27	62.97	290.00	275.00/M	252.00/M	ECA-1CHG102
	2200	352.0	0.22	920	12.5	20	5.0	0.6	P5534-ND	1.62	12.18	105.56	487.00	461.00/M	422.00/M	ECA-1CHG222
	3300	528.0	0.24	1170	12.5	25	5.0	0.6	P5535-ND	2.23	16.72	144.87	668.00	632.00/M	579.00/M	ECA-1CHG332
	4700	752.0	0.26	1480	16	25	7.5	0.8	P5536-ND	3.16	23.69	205.30	947.00	896.00/M	820.00/M	ECA-1CHG472
	6800	1088.0	0.30	1780	16	31.5	7.5	0.8	P5537-ND	3.95	29.61	256.62	1184.00	1120.00/M	1025.00/M	ECA-1CHG682
	10000	1600.0	0.38	2060	18	35.5	7.5	0.8	P5538-ND	5.89	44.18	382.93	1766.00	1671.00/M	1530.00/M	ECA-1CHG103
25	47	11.7	0.16	91	5	11	2.0	0.5	P5539-ND	.39	1.48	11.58	74.00	70.00/M	64.00/M	ECA-1EHG470
	100	25.0	0.16	130	6.3	11.2	2.5	0.5	P5540-ND	.45	1.92	15.00	96.00	91.00/M	83.00/M	ECA-1EHG101
	220	55.0	0.16	230	8	11.5	3.5	0.6	P5541-ND	.59	3.56	27.90	178.00	168.00/M	154.00/M	ECA-1EHG221
	330	82.5	0.16	310	8	11.5	3.5	0.6	P5542-ND	.64	4.23	33.16	212.00	200.00/M	183.00/M	ECA-1EHG331
	470	117.5	0.16	380	10	12.5	5.0	0.6	P5543-ND	.82	6.17	53.51	247.00	234.00/M	214.00/M	ECA-1EHG471
	1000	250.0	0.16	680	10	20	5.0	0.6	P5544-ND	1.35	10.12	87.72	405.00	383.00/M	351.00/M	ECA-1EHG102
	2200	550.0	0.18	1090	12.5	25	5.0	0.6	P5545-ND	2.27	17.05	147.78	682.00	645.00/M	591.00/M	ECA-1EHG222
	3300	825.0	0.20	1400	16	25	7.5	0.8	P5546-ND	3.23	24.23	210.03	969.00	917.00/M	839.00/M	ECA-1EHG332
	4700	1175.0	0.22	1750	16	31.5	7.5	0.8	P5547-ND	4.30	32.21	279.19	1288.00	1218.00/M	1116.00/M	ECA-1EHG472
	6800	1700.0	0.26	2040	18	35.5	7.5	0.8	P5548-ND	5.61	42.08	364.73	1682.00	1592.00/M	1457.00/M	ECA-1EHG682
35	33	11.5	0.14	75	5	11	2.0	0.5	P5549-ND	.39	1.48	11.58	74.00	70.00/M	64.00/M	ECA-1VHG330
	47	16.4	0.14	90	5	11	2.0	0.5	P5550-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1VHG470
	100	35.0	0.14	150	6.3	11.2	2.5	0.5	P5551-ND	.54	3.23	25.27	161.00	153.00/M	140.00/M	ECA-1VHG101
	220	77.0	0.14	270	8	11.5	3.5	0.6	P5552-ND	.57	4.27	33.43	213.00	202.00/M	185.00/M	ECA-1VHG221
	330	115.5	0.14	350	10	12.5	5.0	0.6	P5553-ND	.81	6.05	52.42	242.00	229.00/M	209.00/M	ECA-1VHG331
	470	164.5	0.14	460	10	16	5.0	0.6	P5554-ND	.95	7.10	61.52	284.00	268.00/M	246.00/M	ECA-1VHG471
	1000	350.0	0.14	810	12.5	20	5.0	0.6	P5555-ND	1.76	13.19	114.30	527.00	499.00/M	457.00/M	ECA-1VHG102
	2200	770.0	0.16	1260	16	25	7.5	0.8	P5556-ND	3.25	24.36	211.12	974.00	921.00/M	844.00/M	ECA-1VHG222
	3300	1155.0	0.18	1610	16	31.5	7.5	0.8	P5557-ND	4.67	35.03	303.58	1400.00	1325.00/M	1213.00/M	ECA-1VHG332
	4700	1645.0	0.20	1910	18	35.5	7.5	0.8	P5558-ND	6.24	46.79	405.50	1871.00	1770.00/M	1620.00/M	ECA-1VHG472

WV (VDC)	Cap µF	D.C.L. (±20°C) (µA) max.	tan δ max.	Ripple Current (mA) rms	Dimensions (mm)				Digi-Key Part No.	Pricing						Panasonic Part No.
					ϕD	L	P	ϕd		1	10	100	1,000	5,000	10,000	
50	0.1	3.0	0.12	1.1	5	11	2.0	0.5	P5559-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHG0R1
	0.22	3.0	0.12	2.3	5	11	2.0	0.5	P5560-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHGR22
	0.33	3.0	0.12	3.5	5	11	2.0	0.5	P5561-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHGR33
	0.47	3.0	0.12	5	5	11	2.0	0.5	P5562-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHGR47
	1.0	3.0	0.12	10	5	11	2.0	0.5	P5563-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHG010
	2.2	3.0	0.12	18	5	11	2.0	0.5	P5564-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHG2R2
	3.3	3.0	0.12	22	5	11	2.0	0.5	P5565-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHG3R3
	4.7	3.0	0.12	26	5	11	2.0	0.5	P5566-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHG4R7
	10	5.0	0.12	39	5	11	2.0	0.5	P5567-ND	.37	1.38	10.79	69.00	65.00/M	60.00/M	ECA-1HHG100
	22	11.0	0.12	65	5	11	2.0	0.5	P5568-ND	.39	1.48	11.58	74.00	70.00/M	64.00/M	ECA-1HHG220
	33	16.5	0.12	90	5	11	2.0	0.5	P5569-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1HHG330
	47	23.5	0.12	110	6.3	11.2	2.5	0.5	P5570-ND	.45	1.92	15.00	96.00	91.00/M	83.00/M	ECA-1HHG470
	100	50.0	0.12	180	8	11.5	3.5	0.6	P5571-ND	.60	3.60	28.16	180.00	170.00/M	156.00/M	ECA-1HHG101
	220	110.0	0.12	330	10	12.5	5.0	0.6	P5572-ND	.84	6.30	54.60	252.00	238.00/M	218.00/M	ECA-1HHG221
	330	165.0	0.12	410	10	16	5.0	0.6	P5573-ND	1.00	7.48	64.79	299.00	283.00/M	259.00/M	ECA-1HHG331
	470	235.0	0.12	530	10	20	5.0	0.6	P5574-ND	1.41	10.54	91.36	421.00	399.00/M	365.00/M	ECA-1HHG471
	1000	500.0	0.12	950	12.5	25	5.0	0.6	P5575-ND	2.34	17.51	151.79	700.00	662.00/M	607.00/M	ECA-1HHG102
	2200	1100.0	0.14	1470	16	31.5	7.5	0.8	P5576-ND	4.80	36.04	312.31	1441.00	1363.00/M	1248.00/M	ECA-1HHG222
	3300	1650.0	0.16	1770	18	35.5	7.5	0.8	P5577-ND	5.92	44.39	384.75	1775.00	1679.00/M	1537.00/M	ECA-1HHG332
63	10	6.3	0.10	46	5	11	2.0	0.5	P5578-ND	.39	1.44	11.32	72.00	68.00/M	63.00/M	ECA-1JHG100
	22	13.8	0.10	71	5	11	2.0	0.5	P5579-ND	.43	1.85	14.48	92.00	87.00/M	80.00/M	ECA-1JHG220
	33	20.7	0.10	100	6.3	11.2	2.5	0.5	P5580-ND	.45	1.95	15.27	97.00	92.00/M	84.00/M	ECA-1JHG330
	47	29.6	0.10	120	6.3	11.2	2.5	0.5	P5581-ND	.53	3.16	24.74	158.00	149.00/M	137.00/M	ECA-1JHG470
	100	63.0	0.10	215	10	12.5	5.0	0.6	P5582-ND	.58	4.33	33.95	217.00	205.00/M	188.00/M	ECA-1JHG101
	220	138.6	0.10	335	10	16	5.0	0.6	P5583-ND	1.01	7.56	65.52	302.00	286.00/M	262.00/M	ECA-1JHG221
	330	207.9	0.10	510	10	20	5.0	0.6	P5584-ND	1.43	10.71	92.82	428.00	405.00/M	371.00/M	ECA-1JHG331
	470	296.1	0.10	640	12.5	20	5.0	0.6	P5585-ND	1.79	13.44	116.48	537.00	508.00/M	465.00/M	ECA-1JHG471
	1000	630.0	0.10	930	16	25	7.5	0.8	P5586-ND	3.38	25.33	219.49	1012.00	958.00/M	877.00/M	ECA-1JHG102
	2200	1386.0	0.12	1610	18	35.5	7.5	0.8	P5587-ND	7.28	54.60	473.20	2183.00	2065.00/M	1891.00/M	ECA-1JHG222
100	0.47	3.0	0.08	9	5	11	2.0	0.5	P5588-ND	.39	1.44	11.32	72.00	68.00/M	63.00/M	ECA-2AHGR47
	1.0	3.0	0.08	14	5	11	2.0	0.5	P5589-ND	.39	1.44	11.32	72.00	68.00/M	63.00/M	ECA-2AHG010
	2.2	3.0	0.08	21	5	11	2.0	0.5	P5590-ND	.39	1.44	11.32	72.00	68.00/M	63.00/M	ECA-2AHG2R2
	3.3	3.3	0.08	31	5	11	2.0	0.5	P5591-ND	.39	1.44	11.32	72.00	68.00/M	63.00/M	ECA-2AHG3R3
	4.7	4.7	0.08	38	5	11	2.0	0.5	P5592-ND	.39	1.48	11.58	74.00	70.00/M	64.00/M	ECA-2AHG4R7
	10	10.0	0.08	54	6.3	11.2	2.5	0.5	P5593-ND	.45	1.92	15.00	96.00	91.00/M	83.00/M	ECA-2AHG100
	22	22.0	0.08	93	6.3	11.2	2.5	0.5	P5594-ND	.54	3.23	25.27	161.00	153.00/M	140.00/M	ECA-2AHG220
	33	33.0	0.08	130	8	11.5	3.5	0.6	P5595-ND	.56	4.17	32.64	208.00	197.00/M	180.00/M	ECA-2AHG330
	47	47.0	0.08	165	10	12.5	5.0	0.6	P5596-ND	.79	5.92	51.32	237.00	224.00/M	205.00/M	ECA-2AHG470
	100	100.0	0.08	265	10	20	5.0	0.6	P5597-ND	1.33	10.00	86.63	400.00	378.00/M	346.00/M	ECA-2AHG101
	220	220.0	0.08	440	12.5	25	5.0	0.6	P5598-ND	2.50	18.73	162.34	749.00	709.00/M	649.00/M	ECA-2AHG221
	330	330.0	0.08	540	16	25	7.5	0.8	P5599-ND	2.81	21.04	182.36	841.00	796.00/M	729.00/M	ECA-2AHG331
	470	470.0	0.08	715	16	25	7.5	0.8	P5850-ND	3.60	26.96	233.69	1078.00	1020.00/M	934.00/M	ECA-2AHG471
	1000	1000.0	0.08	985	18	35.5	7.5	0.8	P5851-ND	7.68	57.62	499.41	2304.00	2180.00/M	1996.00/M	ECA-2AHG102
160	1.0	19.6	0.15	17	6.3	11.2	2.5	0.5	P5852-ND	.30	2.59	20.27	129.00	122.00/M	112.00/M	ECA-2CHG010
	2.2	31.1	0.15	25	6.3	11.2	2.5	0.5	P5853-ND	.33	2.86	22.37	143.00	135.00/M	124.00/M	ECA-2CHG2R2
	3.3	41.6	0.15	36	6.3	11.2	2.5	0.5	P5854-ND	.41	3.53	27.64	176.00	167.00/M	153.00/M	ECA-2CHG3R3
	4.7	55.1	0.15	43	6.3	11.2	2.5	0.5	P5855-ND	.42	3.60	28.16	180.00	170.00/M	156.00/M	ECA-2CHG4R7
	10	106.0	0.15	70	10	12.5	5.0	0.6	P5856-ND	.82	6.13	53.14	245.00	232.00/M	212.00/M	ECA-2CHG100
	22	221.0	0.15	130	10	20	5.0	0.6	P5857-ND	1.15	8.61	74.62	344.00	326.00/M	298.00/M	ECA-2CHG220
	33	326.0	0.15	180	10	20	5.0	0.6	P5858-ND	1.25	9.41	81.54	376.00	356.00/M	326.00/M	ECA-2CHG330
	47	461.0	0.15	220	12.5	20	5.0	0.6	P5859-ND	1.81	13.57	117.57	542.00	513.00/M	470.00/M	ECA-2CHG470
	100	970.0	0.15	335	16	25	7.5	0.8	P5860-ND	2.42	18.14	157.25	725.00	686.00/M	628.00/M	ECA-2CHG101
	220	2122.0	0.15	540	16	31.5	7.5	0.8	P5861-ND	4.12	30.91	267.90	1236.00	1169.00/M	1071.00/M	ECA-2CHG221
	330	3178.0	0.15	705	18	31.5	7.5	0.8	P5862-ND	6.19	46.45	402.58	1857.00	1757.00/M	1609.00/M	ECA-2CHG331
250	1.0	25.0	0.15	17	6.3	11.2	2.5	0.5	P5863-ND	.45	3.86	30.27	193.00	183.00/M	167.00/M	ECA-2EHG010
	2.2	43.0	0.15	29	6.3	11.2	2.5	0.5	P5864-ND	.47	4.03	31.58	201.00	191.00/M	175.00/M	ECA-2EHG2R2
	3.3	59.5	0.15	42	8	11.5	3.5	0.6	P5865-ND	.76	5.71	49.50	228.00	216.00/M	198.00/M	ECA-2EHG3R3
	4.7	80.5	0.15	50	8	11.5	3.5	0.6	P5866-ND	.88	6.59	57.15	264.00	249.00/M	228.00/M	ECA-2EHG4R7
	10	160.0	0.15	88	10	16	5.0	0.6	P5867-ND	1.09	8.19	70.98	327.00	310.00/M	284.00/M	ECA-2EHG100
	22	340.0	0.15	155	12.5	20	5.0	0.6	P5868-ND	1.55	11.59	100.46	463.00	438.00/M	401.00/M	ECA-2EHG220
	33	505.0	0.15	190	12.5	20	5.0	0.6	P5869-ND	1.75	13.10	113.57	524.00	496.00/M	454.00/M	ECA-2EHG330
	47	715.0	0.15	230	12.5	25	5.0	0.6	P5870-ND	2.30	17.26	149.60	690.00	653.00/M	598.00/M	ECA-2EHG470
	100	1510.0	0.15	365	16	31.5	7.5	0.8	P5871-ND	4.01	30.07	260.62	1202.00	1137.00/M	1041.00/M	ECA-2EHG101
450	1.0	37.0	0.20	18	8	11.5	3.5	0.6	P5872-ND	.86	6.47	56.06	259.00	245.00/M	224.00/M	ECA-2WHG010
	2.2	69.4	0.20	29	10	12.5	5.0	0.6	P5873-ND	.99	7.43	64.43	297.00	281.00/M	257.00/M	ECA-2WHG2R2
	3.3	99.1	0.20	41	10	16	5.0	0.6	P5874-ND	1.52	11.38	98.64	455.00	431.00/M	394.00/M	ECA-2WHG3R3
	4.7	136.0	0.20	49	10	20	5.0	0.6	P5875-ND	1.60	11.97	103.74	479.00	453.00/M	415.00/M	ECA-2WHG4R7
	10	280.0	0.20	75	12.5	20	5.0	0.6	P5876-ND	2.68	20.08	173.99	803.00	759.00/M	695.00/M	ECA-2WHG100
	22	604.0	0.20	115	16	25	7.5	0.8	P5877-ND	3.70	27.72	240.24	1108.00	1048.00/M	960.00/M	ECA-2WHG220
	33	901.0	0.20	155	16	31.5	7.5	0.8	P5878-ND	4.96	37.17	322.14	1486.00	1406.00/M	1287.00/M	ECA-2WHG330

Panasonic® HFS SERIES 105°, Low Impedance

Axial Lead Aluminum Electrolytic Capacitors


ød Tinned steel copper wire
Rubber end seal
Vinyl sleeve
Safety vent for more than 10mm dia.
35 min.
L
35 min.
ØD + 0.5 max.

Body Dia. φ D	5	6.3	8	10	12.5	16
Lead Dia. φ d	0.6			0.8		

FEATURES:

- Miniaturized version of HF series
- Low impedance at high frequency and low temperature
- Long life
  φ5 ~ φ8 .... 1,000 hours at +105°C
  φ10 ~ φ16 .... 2,000 hours at +105°C
- Anti-solvent for Freon TMS, TE, TES, WD602, TP-35
- Safety vent construction (Case diaφ D ▶ 10mm)

SPECIFICATIONS:

- **Operating temperature range:** −55C ~ +105°C
- **Rated working voltage range:** 10 ~ 63V DC
- **Rated capacitance:** 0.47 ~ 4,7000µF
- **Capacitance tolerance:** (at 120 Hz, +20°C) −20 ~ +20%
- **tan δ:** (at 120 Hz, +20°C) Add 0.02 per 1,000µF for more than 1,000µF items.

W.V.	10	16	25	35	50	63
tan δ	0.17	0.13	0.10	0.09	0.08	0.08

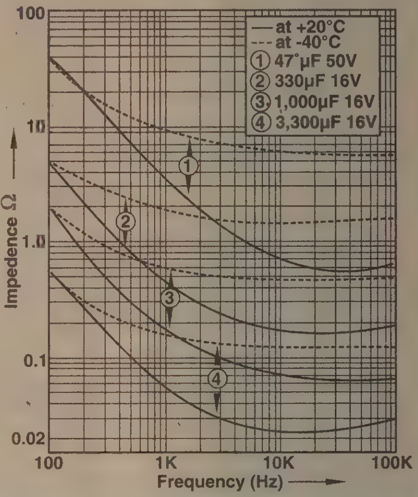
- **Effective Series Resistance**
  E.S.R. shall be calculated in the formula,
  E.S.R. = tan δ/wC
  where E.S.R. = in Ω
  C = minimum capacitance in tolerance in Farad.
- **DC leakage current:**
  1 = 0.002 CV +2µA max.
  where 1 = DC leakage current in µA
  C = rated capacitance in µA
  V = rated working voltage in V
  DC leakage current shall be measured after 2 minutes application of the DC rated working voltage through the 1,000 ohm resistor at 20°C
- **Load life:**
  After the following load life test with DC voltage and ripple current applied (the sum of DC and ripple peak voltage shall not exceed the rated working voltage), the measurements shall meet the following limits.
  φ5, φ6, φ8 .... 1,000 hours at +105°C
  φ10, φ12.5, φ16 .... 2,000 hours at +105°C
  Measurements shall be performed after 2 hours exposure at room temperature.
  Capacitance change: Within ±20% of the initial measured value tan δ: Less than 200% of the initial specified value DC leakage current: Less than the initial specified value
- **Ripple current is measured @:** 120Hz/85°C.

HFS Series is a newly developed product which provides good performance for the application of switch-mode power supply output with smaller sizes than HF Series.

PANASONIC HFS CROSS REFERENCES

Note: Crosses Are Not Axial Leaded.

Elna: RSG; **Marcon:** AFM; **Nichicon:** PC; **Rubycon:** GIA; **Sprague:** 510D; **UCC:** KMC.



WV (V)	Cap. (µF)	Dimensions (mm) D	L	d	Leakage Current (µA)	Tan δ	Max. Imp. (Ohms)	Ripple Current (mA Rms)	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
10	22	5	10.5	0.6	2.4	0.17	7.0	91	P1300-ND	.68	5.85	45.80	291.00	274.00/M	253.00/M	ECE-B1AFS220
	33	6.3	10.5	0.6	2.7	0.17	5.0	122	P1301-ND	.71	6.12	47.90	304.00	287.00/M	265.00/M	ECE-B1AFS330
	47	6.3	10.5	0.6	2.9	0.17	2.5	153	P1302-ND	.69	5.88	46.06	293.00	276.00/M	255.00/M	ECE-B1AFS470
	100	6.3	16	0.6	4.0	0.17	1.8	255	P1303-ND	.73	6.25	48.96	311.00	293.00/M	271.00/M	ECE-B1AFS101
	220	8	16	0.6	6.4	0.17	1.00	360	P1304-ND	.89	7.59	59.48	378.00	357.00/M	329.00/M	ECE-B1AFS221
	330	8	16	0.6	8.6	0.17	0.50	500	P1305-ND	.93	7.93	62.12	395.00	372.00/M	343.00/M	ECE-B1AFS331
	470	8	20	0.6	11.4	0.17	0.34	680	P1306-ND	1.03	8.80	68.96	438.00	413.00/M	381.00/M	ECE-B1AFS471
	1000	10	25	0.6	22.0	0.17	0.20	1120	P1307-ND	1.89	16.23	127.13	807.00	762.00/M	703.00/M	ECE-B1AFS102
	2200	16	25	0.8	46.0	0.19	0.10	2050	P1308-ND	3.02	25.87	202.66	1287.00	1215.00/M	1120.00/M	ECE-B1AFS222
	3300	16	31.5	0.8	68.0	0.21	0.075	2700	P1309-ND	3.49	29.90	234.25	1488.00	1404.00/M	1295.00/M	ECE-B1AFS332
	4700	16	40	0.8	96.0	0.23	0.068	3000	P1310-ND	4.19	35.92	281.36	1787.00	1686.00/M	1555.00/M	ECE-B1AFS472
16	22	6.3	10.5	0.6	2.7	0.13	5.0	100	P1311-ND	.72	6.18	48.43	308.00	290.00/M	268.00/M	ECE-B1CFS220
	33	6.3	10.5	0.6	3.1	0.13	2.5	100	P1312-ND	.69	5.88	46.06	293.00	276.00/M	255.00/M	ECE-B1CFS330
	47	6.3	16	0.6	3.5	0.13	1.8	220	P1313-ND	.73	6.25	48.96	311.00	293.00/M	271.00/M	ECE-B1CFS470
	100	6.3	16	0.6	5.2	0.13	1.00	360	P1314-ND	.74	6.32	49.48	314.00	297.00/M	273.00/M	ECE-B1CFS101
	220	8	16	0.6	9.0	0.13	0.50	500	P1315-ND	.92	7.86	61.59	391.00	369.00/M	340.00/M	ECE-B1CFS221
	330	8	20	0.6	12.5	0.13	0.34	680	P1316-ND	1.02	8.74	68.43	435.00	410.00/M	378.00/M	ECE-B1CFS331
	470	10	20	0.6	17.0	0.13	0.25	900	P1317-ND	1.77	15.19	118.97	756.00	713.00/M	657.00/M	ECE-B1CFS471
	1000	12.5	25	0.8	34.0	0.13	0.16	1350	P1318-ND	2.23	19.08	149.50	949.00	896.00/M	826.00/M	ECE-B1CFS102
	2200	16	31.5	0.8	72.4	0.15	0.10	2050	P1319-ND	3.39	29.10	227.93	1448.00	1366.00/M	1260.00/M	ECE-B1CFS222
	3300	16	40	0.8	107.6	0.17	0.068	3000	P1320-ND	2.79	23.96	187.66	1192.00	1125.00/M	1037.00/M	ECE-B1CFS332
25	4.7	5	10.5	0.6	2.2	0.10	7.0	44	P1321-ND	.68	5.81	45.53	289.00	273.00/M	252.00/M	ECE-B1EFS4R7
	10	5	10.5	0.6	2.5	0.10	7.0	78	P1322-ND	.68	5.85	45.80	291.00	274.00/M	253.00/M	ECE-B1EFS100
	22	6.3	10.5	0.6	3.1	0.10	2.5	150	P1323-ND	.69	5.95	46.59	296.00	279.00/M	257.00/M	ECE-B1EFS220
	33	6.3	16	0.6	3.7	0.10	1.8	180	P1324-ND	.72	6.15	48.17	306.00	289.00/M	266.00/M	ECE-B1EFS330
	47	6.3	16	0.6	4.4	0.10	1.8	220	P1325-ND	.74	6.38	50.01	318.00	300.00/M	276.00/M	ECE-B1EFS470
	100	8	16	0.6	7.0	0.10	1.00	360	P1326-ND	.89	7.59	59.48	378.00	357.00/M	329.00/M	ECE-B1EFS101
	220	8	20	0.6	13.0	0.10	0.34	680	P1327-ND	1.02	8.77	68.70	436.00	412.00/M	380.00/M	ECE-B1EFS221
	330	10	20	0.6	18.5	0.10	0.25	900	P1328-ND	1.77	15.19	118.97	756.00	713.00/M	657.00/M	ECE-B1EFS331
	470	10	25	0.6	25.5	0.10	0.20	1120	P1329-ND	1.96	16.77	131.34	834.00	787.00/M	726.00/M	ECE-B1EFS471
	1000	16	25	0.8	52.0	0.10	0.10	2050	P1330-ND	3.07	26.28	205.82	1307.00	1234.00/M	1137.00/M	ECE-B1EFS102
	2200	16	40	0.8	112.0	0.12	0.068	3000	P1331-ND	2.95	25.27	197.93	1257.00	1186.00/M	1094.00/M	ECE-B1EFS222
	3300	18	40	0.8	167.0	0.14	0.060	3700	P1332-ND	4.80	41.16	322.42	2048.00	1932.00/M	1782.00/M	ECE-B1EFS332
35	4.7	5	10.5	0.6	2.3	0.09	7.0	44	P1333-ND	.68	5.81	45.53	289.00	273.00/M	252.00/M	ECE-B1VFS4R7
	10	6.3	10.5	0.6	2.7	0.09	2.5	100	P1334-ND	.69	5.91	46.32	294.00	278.00/M	256.00/M	ECE-B1VFS100
	22	6.3	16	0.6	3.5	0.09	1.8	160	P1335-ND	.74	6.35	49.74	316.00	298.00/M	275.00/M	ECE-B1VFS220
	33	8	16	0.6	4.3	0.09	1.8	193	P1336-ND	.86	7.36	57.64	366.00	345.00/M	319.00/M	ECE-B1VFS330
	47	8	16	0.6	5.2	0.09	1.00	360	P1337-ND	.86	7.36	57.64	366.00	345.00/M	319.00/M	ECE-B1VFS470
	100	8	20	0.6	9.0	0.09	0.50	500	P1338-ND	.97	8.30	65.01	413.00	390.00/M	359.00/M	ECE-B1VFS101
	220	10	20	0.6	17.4	0.09	0.25	900	P1339-ND	1.85	15.83	123.97	787.00	743.00/M	685.00/M	ECE-B1VFS221
	330	10	25	0.6	25.1	0.09	0.20	1120	P1340-ND	2.00	17.14	134.23	853.00	805.00/M	742.00/M	ECE-B1VFS331
	470	12.5	25	0.8	34.9	0.09	0.16	1350	P1341-ND	2.32	19.89	155.81	990.00	934.00/M	861.00/M	ECE-B1VFS471
	1000	16	31.5	0.8	72.0	0.09	0.10	2050	P1342-ND	3.69	31.62	247.67	1573.00	1484.00/M	1369.00/M	ECE-B1VFS102
	2200	18	40	0.8	156.0	0.11	0.060	3700	P1343-ND	5.39	46.20	361.90	2298.00	2169.00/M	2000.00/M	ECE-B1VFS222
50	.47	5	10.5	0.6	2.0	0.08	7.0	9	P1344-ND	.65	5.54	43.43	276.00	260.00/M	240.00/M	ECE-B1HFSR47
	1.0	5	10.5	0.6	2.1	0.08	5.0	17	P1345-ND	.65	5.54	43.43	276.00	260.00/M	240.00/M	ECE-B1HFS010
	2.2	5	10.5	0.6	2.2	0.08	3.5	34	P1346-ND	.65	5.54	43.43	276.00	260.00/M	240.00/M	ECE-B1HFS2R2
	3.3	5	10.5	0.6	2.3	0.08	3.0	60	P1347-ND	.65	5.54	43.43	276.00	260.00/M	240.00/M	ECE-B1HFS3R3
	4.7	6.3	10.5	0.6	2.5	0.08	3.0	72	P1348-ND	.69	5.91	46.32	294.00	278.00/M	256.00/M	ECE-B1HFS4R7
	10	6.3	16	0.6	3.0	0.08	2.5	110	P1349-ND	.69	5.88	46.06	293.00	276.00/M	255.00/M	ECE-B1HFS100
	22	8	16	0.6	4.2	0.08	1.8	170	P1350-ND	.87	7.43	58.17	369.00	349.00/M	321.00/M	ECE-B1HFS220
	33	8	16	0.6	5.3	0.08	1.00	360	P1351-ND	.87	7.49	58.69	373.00	352.00/M	324.00/M	ECE-B1HFS330
	47	8	16	0.6	6.7	0.08	1.00	360	P1352-ND	.88	7.56	59.22	376.00	355.00/M	327.00/M	ECE-B1HFS470
	100	8	20	0.6	12.0	0.08	0.34	680	P1353-ND	1.03	8.80	68.96	438.00	413.00/M	381.00/M	ECE-B1HFS101
	220	12.5	25	0.8	24.0	0.08	0.20	1120	P1354-ND	2.25	19.32	151.34	961.00	907.00/M	836.00/M	ECE-B1HFS221
	330	16	25	0.8	35.0	0.08	0.20	1120	P1355-ND	3.22	27.59	216.09	1372.00	1295.00/M	1194.00/M	ECE-B1HFS331
	470	16	25	0.8	49.0	0.08	0.10	2050	P1356-ND	3.22	27.59	216.09	1372.00	1295.00/M	1194.00/M	ECE-B1HFS471
	1000	16	40	0.8	102.0	0.08	0.075	2700	P1357-ND	4.39	37.60	294.52	1871.00	1765.00/M	1628.00/M	ECE-B1HFS102
63	.47	5	10.5	0.6	2.1	0.08	7.0	9	P1358-ND	.65	5.58	43.69	277.00	262.00/M	241.00/M	ECE-B1JFSR47
	1.0	5	10.5	0.6	2.1	0.08	5.0	17	P1359-ND	.65	5.58	43.69	277.00	262.00/M	241.00/M	ECE-B1JFS010
	2.2	5	10.5	0.6	2.3	0.08	3.5	34	P1360-ND	.65	5.58	43.69	277.00	262.00/M	241.00/M	ECE-B1JFS2R2
	3.3	6.3	10.5	0.6	2.4	0.08	3.0	60	P1361-ND	.69	5.88	46.06	293.00	276.00/M	255.00/M	ECE-B1JFS3R3
	4.7	6.3	10.5	0.6	2.6	0.08	3.0	72	P1362-ND	.69	5.95	46.59	296.00	279.00/M	257.00/M	ECE-B1JFS4R7
	10	6.3	16	0.6	3.3	0.08	2.5	120	P1363-ND	.73	6.22	48.69	309.00	292.00/M	269.00/M	ECE-B1JFS100
	22	8	16	0.6	4.8	0.08	1.8	360	P1364-ND	.87	7.43	58.17	369.00	349.00/M	321.00/M	ECE-B1JFS220
	33	8	16	0.6	6.2	0.00	1.00	360	P1365-ND	.89	7.59	59.48	378.00	357.00/M	329.00/M	ECE-B1JFS330
	47	8	20	0.6	7.9	0.08	1.00	500	P1366-ND	.98	8.37	65.54	416.00	393.00/M	362.00/M	ECE-B1JFS470
	100	10	20	0.6	14.6	0.08	0.34	900	P1367-ND	1.82	15.62	122.39	777.00	734.00/M	676.00/M	ECE-B1JFS101
	220	12.5	25	0.8	29.7	0.08	0.20	1120	P1368-ND	2.35	20.16	157.92	1003.00	946.00/M	873.00/M	ECE-B1JFS221
	330	16	25	0.8	43.6	0.08	0.20	1350	P1369-ND	3.26	27.92	218.72	1389.00	1311.00/M	1209.00/M	ECE-B1JFS331

Panasonic® HFS SERIES 105°, Low Impedance

Radial Lead Aluminum Electrolytic Capacitors

HFS Series is a newly developed product which provides good performance for the application of switch-mode power supply output with smaller sizes than the HF Series.

FEATURES:

- Miniaturized version of HF Series
- Low impedance at high frequency and low temperature
- Long life
  ϕ5 ~ ϕ8 ....1,000 hours at +105°C
  ϕ10 ~ ϕ16..........................2,000 hours at +105°C
- Anti-solvent for Freon TMS, TE, TES, WD602, TP-35
- Safety vent construction (Case diaϕ D = 6.3mm)

SPECIFICATIONS:

- **Operating temperature range:** −55°C ~ +105°C
- **Rated working voltage range:** 10 ~ 63V DC
- **Rated capacitance:** 0.47 ~ 4,700µF
- **Capacitance tolerance:** (at 120 Hz, +20°C) −20 ~ +20%
- **tan δ:** (at 120 Hz, +20°C)

W.V.	10	16	25	35	50	63
tan δ	0.17	0.13	0.10	0.09	0.08	0.08

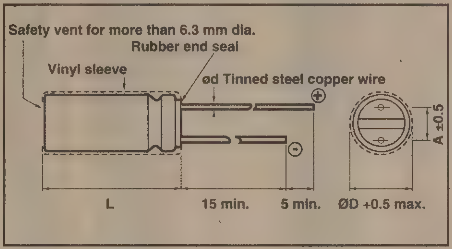
- **Load life:**
  After the following load life test with DC voltage and ripple current applied (the sum of DC and ripple peak voltage shall not exceed the rated working voltage), the measurements shall meet the following limits.
  ϕ5, ϕ6, ϕ8.................1,000 hours at +105°C
  ϕ10, ϕ12.5, ϕ16 ....2,000 hours at +105°C

  Measurements shall be performed after 2 hours exposure at room temperature.

  Capacitance change: Within ±20% of the initial measured value

  tan δ: Less than 200% of the initial specified value

  DC leakage current: Less than the initial specified value

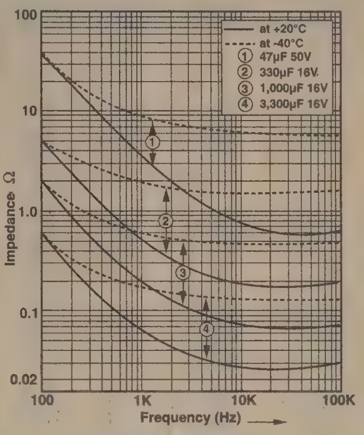

Safety vent for more than 6.3 mm dia.
Rubber end seal
Vinyl sleeve
ϕd Tinned steel copper wire
⊕
⊖
A ±0.5
L
15 min.
5 min.
ØD +0.5 max.

Body Dia. ØD	5		6.3	8	10		12.5	16
Lead Dia. Ød		0.5			0.6			0.8
Lead space A	2		2.5	3.5		5		7.5

PANASONIC HFS CROSS REFERENCES

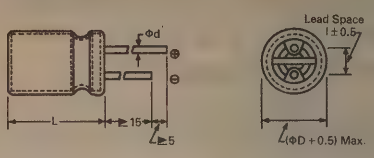
Elna: RSG; **Marcon:** AFM; **Nichicon:** PC; **Rubycon:** GIA; **Sprague:** 510D; **UCC:** KMC.

- **Effective Series Resistance:**
  Add 0.02 per 1,000µF for more than 1,000µF items.
  E.S.R. shall be calculated in the formula,
  E.S.R. = tan δ/wC
  where E.S.R. = in Ω
  C = minimum capacitance in tolerance in Farad.
- **DC leakage current:**
  1 = 0.002 CV +2µA max.
  where I = DC leakage current in µA
  C = rated capacitance in µA
  V = rated working voltage in V
  DC leakage current shall be measured after 2 minutes application of the DC rated working voltage through the 1,000 ohms resistor at 20°C



WV (V)	Cap. (µF)	Dimensions (mm)			Leakage Current (µA)	Tan δ	Max. Imp. (Ohms)	Ripple Current (mA)	Digi-Key Part No.	Pricing						Panasonic Part No.
		D	L	A						1	10	100	1,000	5,000	10,000	
10	47	5	11	2	2.9	0.17	2.5	153	P1200-ND	.24	2.05	16.06	102.00	96.00/M	89.00/M	ECE-A1AFS470
	100	6.3	11.2	2.5	4.0	0.17	1.8	255	P1201-ND	.27	2.35	18.42	117.00	110.00/M	102.00/M	ECE-A1AFS101
	220	8	11.5	3.5	6.4	0.17	1.00	360	P1202-ND	.46	3.93	30.79	196.00	185.00/M	170.00/M	ECE-A1AFS221
	330	10	12.5	5	8.6	0.17	0.50	500	P1203-ND	.51	4.34	33.96	216.00	204.00/M	188.00/M	ECE-A1AFS331
	470	10	16	5	11.4	0.17	0.34	680	P1204-ND	.56	4.80	37.64	239.00	226.00/M	208.00/M	ECE-A1AFS471
	1000	12.5	20	5	22.0	0.17	0.20	1120	P1205-ND	.86	7.40	57.93	368.00	347.00/M	320.00/M	ECE-A1AFS102
	2200	16	25	7.5	46.0	0.19	0.10	2050	P1206-ND	1.33	11.42	89.49	568.00	536.00/M	495.00/M	ECE-A1AFS222
	3300	16	31.5	7.5	68.0	0.21	0.075	2700	P1207-ND	1.66	14.22	111.35	707.00	667.00/M	615.00/M	ECE-A1AFS332
	4700	16	35.5	7.5	96.0	0.23	0.068	3000	P1208-ND	2.07	17.71	138.73	881.00	831.00/M	767.00/M	ECE-A1AFS472
16	33	5	11	2	3.0	0.13	2.5	100	P1209-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1CFS330
	47	6.3	11.2	2.5	3.5	0.13	1.8	220	P1210-ND	.28	2.42	18.95	120.00	114.00/M	105.00/M	ECE-A1CFS470
	100	8	11.5	3.5	5.2	0.13	1.00	360	P1211-ND	.44	3.73	29.22	186.00	175.00/M	162.00/M	ECE-A1CFS101
	220	10	12.5	5	9.0	0.13	0.50	500	P1212-ND	.50	4.30	33.72	214.00	202.00/M	186.00/M	ECE-A1CFS221
	330	10	16	5	12.5	0.13	0.34	680	P1213-ND	.55	4.74	37.12	236.00	222.00/M	205.00/M	ECE-A1CFS331
	470	10	20	5	17.0	0.13	0.25	900	P1214-ND	.60	5.14	40.30	256.00	242.00/M	223.00/M	ECE-A1CFS471
	1000	12.5	25	5	34.0	0.13	0.16	1350	P1215-ND	.97	8.30	65.02	413.00	390.00/M	359.00/M	ECE-A1CFS102
	2200	16	25	7.5	72.4	0.15	0.10	2050	P1216-ND	1.56	13.41	105.02	667.00	629.00/M	580.00/M	ECE-A1CFS222
	3300	16	35.5	7.5	107.6	0.17	0.068	3000	P1217-ND	2.02	17.34	135.84	863.00	814.00/M	751.00/M	ECE-A1CFS332
25	22	5	11	2	3.1	0.10	2.5	150	P1218-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1EFS220
	33	6.3	11.2	2.5	3.6	0.10	1.8	180	P1219-ND	.28	2.39	18.70	119.00	112.00/M	103.00/M	ECE-A1EFS330
	47	6.3	11.2	2.5	4.3	0.10	1.8	220	P1220-ND	.33	2.86	22.39	142.00	134.00/M	124.00/M	ECE-A1EFS470
	100	8	11.5	3.5	7.0	0.10	1.00	360	P1221-ND	.46	3.90	30.55	194.00	183.00/M	169.00/M	ECE-A1EFS101
	220	10	16	5	13.0	0.10	0.34	680	P1222-ND	.56	4.77	37.40	238.00	224.00/M	207.00/M	ECE-A1EFS221
	330	10	20	5	18.5	0.10	0.25	900	P1223-ND	.61	5.24	41.08	261.00	246.00/M	227.00/M	ECE-A1EFS331
	470	12.5	20	5	25.5	0.10	0.20	1120	P1224-ND	.86	7.36	57.66	366.00	346.00/M	319.00/M	ECE-A1EFS471
	1000	16	25	7.5	52.0	0.10	0.10	2050	P1225-ND	1.32	11.33	88.72	564.00	532.00/M	490.00/M	ECE-A1EFS102
	2200	16	35.5	7.5	112.0	0.12	0.068	3000	P1226-ND	2.04	17.51	137.14	871.00	822.00/M	758.00/M	ECE-A1EFS222
35	10	5	11	2	2.7	0.09	2.5	100	P1227-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1VFS100
	22	6.3	11.2	2.5	3.5	0.09	1.8	160	P1228-ND	.28	2.42	18.95	120.00	114.00/M	105.00/M	ECE-A1VFS220
	33	6.3	11.2	2.5	4.3	0.09	1.8	193	P1229-ND	.33	2.86	22.39	142.00	134.00/M	124.00/M	ECE-A1VFS330
	47	8	11.5	3.5	5.2	0.09	1.00	360	P1230-ND	.46	3.90	30.55	194.00	183.00/M	169.00/M	ECE-A1VFS470
	100	10	12.5	5	9.0	0.09	0.50	500	P1231-ND	.49	4.23	33.17	211.00	199.00/M	183.00/M	ECE-A1VFS101
	220	10	20	5	17.4	0.09	0.25	900	P1232-ND	.59	5.07	39.75	252.00	238.00/M	220.00/M	ECE-A1VFS221
	330	12.5	20	5	25.1	0.09	0.20	1120	P1233-ND	.85	7.26	56.88	361.00	341.00/M	314.00/M	ECE-A1VFS331
	470	12.5	25	5	34.9	0.09	0.16	1350	P1234-ND	.95	8.17	63.97	406.00	383.00/M	354.00/M	ECE-A1VFS471
	1000	16	25	7.5	72.0	0.09	0.10	2050	P1235-ND	1.51	12.94	101.34	644.00	607.00/M	560.00/M	ECE-A1VFS102
50	0.47	5	11	2	2.0	0.08	7.0	9	P1236-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1HFSR47
	1.0	5	11	2	2.1	0.08	5.0	17	P1237-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1HFS010
	2.2	5	11	2	2.2	0.08	3.5	34	P1238-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1HFS2R2
	3.3	5	11	2	2.3	0.08	3.0	60	P1239-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1HFS3R3
	4.7	5	11	2	2.4	0.08	3.0	72	P1240-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1HFS4R7
	10	5	11	2	3.0	0.08	2.5	110	P1241-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1HFS100
	22	6.3	11.2	2.5	4.2	0.08	1.8	170	P1242-ND	.28	2.39	18.70	119.00	112.00/M	103.00/M	ECE-A1HFS220
	33	8	11.5	3.5	5.3	0.08	1.00	360	P1243-ND	.44	3.77	29.50	187.00	177.00/M	163.00/M	ECE-A1HFS330
	47	8	11.5	3.5	6.7	0.08	1.00	360	P1244-ND	.46	3.90	30.55	194.00	183.00/M	169.00/M	ECE-A1HFS470
	100	10	15	5	12.0	0.08	0.34	680	P1245-ND	.55	4.74	37.12	236.00	222.00/M	205.00/M	ECE-A1HFS101
	220	12.5	20	5	24.0	0.08	0.20	1120	P1246-ND	.85	7.26	56.88	361.00	341.00/M	314.00/M	ECE-A1HFS221
	330	12.5	20	5	35.0	0.08	0.20	1120	P1247-ND	1.03	8.87	69.48	441.00	416.00/M	384.00/M	ECE-A1HFS331
	470	16	25	7.5	49.0	0.08	0.10	2050	P1248-ND	1.34	11.46	89.76	570.00	538.00/M	496.00/M	ECE-A1HFS471
	1000	16	31.5	7.5	102.0	0.08	0.075	2700	P1249-ND	1.98	16.94	132.68	843.00	795.00/M	733.00/M	ECE-A1HFS102
63	0.47	5	11	2	2.1	0.08	7.0	9	P1250-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1JFSR47
	1.0	5	11	2	2.1	0.08	5.0	17	P1251-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1JFS010
	2.2	5	11	2	2.3	0.08	3.5	34	P1252-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1JFS2R2
	3.3	5	11	2	2.4	0.08	3.0	60	P1253-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1JFS3R3
	4.7	5	11	2	2.6	0.08	3.0	72	P1254-ND	.24	2.05	16.08	102.00	96.00/M	89.00/M	ECE-A1JFS4R7
	10	6.3	11.2	2.5	3.3	0.08	1.8	120	P1255-ND	.28	2.42	18.96	120.00	114.00/M	105.00/M	ECE-A1JFS100
	22	8	11.5	3.5	4.8	0.08	1.00	360	P1256-ND	.45	3.83	30.02	191.00	180.00/M	166.00/M	ECE-A1JFS220
	33	8	11.5	3.5	6.2	0.08	1.00	360	P1257-ND	.47	4.07	31.86	202.00	191.00/M	176.00/M	ECE-A1JFS330
	47	10	12.5	5	7.9	0.08	1.00	500	P1258-ND	.53	4.54	35.53	226.00	213.00/M	196.00/M	ECE-A1JFS470
	100	10	20	5	14.6	0.08	0.25	900	P1259-ND	.65	5.55	43.45	276.00	260.00/M	240.00/M	ECE-A1JFS101
	220	12.5	20	5	29.7	0.08	0.20	1120	P1260-ND	.98	8.37	65.56	416.00	393.00/M	362.00/M	ECE-A1JFS221
	330	12.5	25	5	43.5	0.08	0.16	1350	P1261-ND	1.14	9.81	76.87	488.00	461.00/M	425.00/M	ECE-A1JFS331
	470	16	25	7.5	61.2	0.08	0.10	2050	P1262-ND	1.57	13.44	105.29	669.00	631.00/M	582.00/M	ECE-A1JFS471
	1000	16	35.5	7.5	128.0	0.08	0.068	3000	P1263-ND	2.60	22.31	174.77	1110.00	1047.00/M	966.00/M	ECE-A1JFS102

Panasonic. HFQ Radial-Lead Aluminum Electrolytic Capacitors



Features:

- Significantly low impedance per unit volume.
- Life of 2,000 hours at +105°C.
- Complete line from long and narrow styles to thin styles frees set designing.
- Anti-Solvent: Freon TE, TES, or TP-35 Freon solvent.

Operating Temperature Range: −55°C to +105°C.
Capacitance Tolerance: ±20% (120Hz, +20°C).

WV V	Cap. (µF)	Dimensions (mm)				Max. Ripple Current (mA) rms	Max. Impedance 100KHz, +20°C (Ohms)	Digi-Key Part No.	Pricing						Panasonic Part No.
		D	L	d	l				1	10	100	1,000	5,000	10,000	
6.3	68	4	11	0.45	1.5	120	1.0	P5601-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-0JFQ680
	100	5	11	0.5	2	175	0.65	P5602-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-0JFQ101
	150	5	15	0.5	2	235	0.46	P5603-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-0JFQ151
	220	6.3	11.2	0.5	2.5	290	0.30	P5604-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-0JFQ221
	330	6.3	15	0.5	2.5	400	0.20	P5605-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-0JFQ331
	470	8	12.5	0.6	3.5	445	0.17	P5606-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-0JFQ471
	680	8	15	0.6	3.5	575	0.12	P5607-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-0JFQ681L
	680	10	12.5	0.6	5	625	0.12	P5608-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-0JFQ681
	820	10	16	0.6	5	795	0.09	P5609-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-0JFQ821
	1000	8	20	0.6	3.5	760	0.09	P5610-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-0JFQ102
	1200	10	20	0.6	5	1015	0.065	P5611-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-0JFQ122L
	1200	12.5	15	0.6	5	1010	0.065	P5612-ND	.75	6.45	50.53	321.00	303.00/M	279.00/M	ECA-0JFQ122
	1500	10	25	0.6	5	1190	0.055	P5613-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-0JFQ152
	2200	10	30	0.6	5	1440	0.045	P5614-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-0JFQ222L
	2200	12.5	25	0.6	5	1400	0.042	P5615-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-0JFQ222
	2700	12.5	25	0.6	5	1690	0.034	P5616-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-0JFQ272
	2700	16	15	0.8	7.5	1360	0.046	P5617-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECA-0JFQ272S
	3300	18	15	0.8	7.5	1620	0.038	P5618-ND	1.28	10.95	85.78	545.00	514.00/M	474.00/M	ECA-0JFQ332
	3900	12.5	30	0.8	5	1950	0.030	P5619-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-0JFQ392
	4700	12.5	35	0.8	5	2220	0.024	P5620-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-0JFQ472L
	4700	16	20	0.8	7.5	1730	0.034	P5621-ND	1.44	12.30	96.35	612.00	577.00/M	532.00/M	ECA-0JFQ472
	5600	12.5	40	0.8	5	2390	0.021	P5622-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-0JFQ562L
	5600	16	25	0.8	7.5	2070	0.028	P5623-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-0JFQ562
	5600	18	20	0.8	7.5	2000	0.028	P5624-ND	1.71	14.67	114.92	730.00	689.00/M	635.00/M	ECA-0JFQ562S
	6800	16	31.5	0.8	7.5	2350	0.025	P5625-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-0JFQ682
	6800	18	25	0.8	7.5	2200	0.025	P5626-ND	1.86	15.96	125.02	794.00	749.00/M	691.00/M	ECA-0JFQ682S
	8200	16	35.5	0.8	7.5	2550	0.022	P5627-ND	2.31	19.80	155.10	985.00	930.00/M	857.00/M	ECA-0JFQ822
	10000	18	31.5	0.8	7.5	2800	0.023	P5628-ND	2.37	20.28	158.86	1009.00	952.00/M	878.00/M	ECA-0JFQ103
	12000	16	40	0.8	7.5	2900	0.018	P5629-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-0JFQ123
	12000	18	35.5	0.8	7.5	2900	0.021	P5630-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-0JFQ123S
	15000	18	40	0.8	7.5	3000	0.017	P5631-ND	3.31	28.35	222.08	1410.00	1331.00/M	1227.00/M	ECA-0JFQ153
10	47	4	11	0.45	1.5	120	1.0	P5632-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1AFQ470
	82	5	11	0.5	2	175	0.65	P5633-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1AFQ820
	100	5	15	0.5	2	235	0.46	P5634-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-1AFQ101
	180	6.3	11.2	0.5	2.5	290	0.30	P5635-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-1AFQ181
	220	6.3	15	0.5	2.5	400	0.20	P5636-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-1AFQ221
	330	8	12.5	0.6	3.5	445	0.17	P5637-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-1AFQ331
	470	8	15	0.6	3.5	575	0.12	P5638-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1AFQ471L
	470	10	12.5	0.6	5	625	0.12	P5639-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1AFQ471
	560	10	16	0.6	5	795	0.09	P5640-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1AFQ561
	680	8	20	0.6	3.5	760	0.09	P5641-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1AFQ681
	1000	10	20	0.6	5	1015	0.065	P5642-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-1AFQ102L
	1000	12.5	15	0.6	5	1010	0.065	P5643-ND	.75	6.45	50.53	321.00	303.00/M	279.00/M	ECA-1AFQ102
	1200	10	25	0.6	5	1190	0.055	P5644-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-1AFQ122
	1500	10	30	0.6	5	1440	0.045	P5645-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-1AFQ152L
	1800	12.5	20	0.6	5	1400	0.042	P5646-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-1AFQ182
	1800	16	15	0.8	7.5	1360	0.046	P5647-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECA-1AFQ182S
	2200	12.5	25	0.6	5	1690	0.034	P5648-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-1AFQ222
	2200	18	15	0.8	7.5	1620	0.038	P5649-ND	1.29	11.07	86.72	551.00	520.00/M	479.00/M	ECA-1AFQ222S
	2700	12.5	30	0.8	5	1950	0.030	P5650-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1AFQ272
	3300	12.5	35	0.8	5	2220	0.024	P5651-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1AFQ332L
	3300	16	20	0.8	7.5	1730	0.034	P5652-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1AFQ332
	3900	12.5	40	0.8	5	2390	0.021	P5653-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-1AFQ392L
	3900	16	25	0.8	7.5	2070	0.028	P5654-ND	1.63	14.01	109.75	697.00	658.00/M	606.00/M	ECA-1AFQ392
	3900	18	20	0.8	7.5	2000	0.028	P5655-ND	1.71	14.67	114.92	730.00	689.00/M	635.00/M	ECA-1AFQ392S
	5600	16	31.5	0.8	7.5	2350	0.025	P5656-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-1AFQ562
	5600	18	25	0.8	7.5	2200	0.025	P5657-ND	2.02	17.31	135.60	861.00	813.00/M	749.00/M	ECA-1AFQ562S
	6800	16	35.5	0.8	7.5	2550	0.022	P5658-ND	2.31	19.80	155.10	985.00	930.00/M	857.00/M	ECA-1AFQ682L
	6800	18	31.5	0.8	7.5	2800	0.023	P5659-ND	2.42	20.70	162.15	1030.00	972.00/M	896.00/M	ECA-1AFQ682
	8200	16	40	0.8	7.5	2900	0.018	P5660-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1AFQ822L
	8200	18	35.5	0.8	7.5	2900	0.021	P5661-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1AFQ822
	10000	18	40	0.8	7.5	3000	0.017	P5662-ND	3.56	30.48	238.76	1516.00	1431.00/M	1319.00/M	ECA-1AFQ103
16	39	4	11	0.45	1.5	120	1.0	P5663-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1CFQ390
	56	5	11	0.5	2	175	0.65	P5664-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1CFQ560
	82	5	15	0.5	2	235	0.46	P5665-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-1CFQ820
	120	6.3	11.2	0.5	2.5	290	0.30	P5666-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-1CFQ121
	180	6.3	15	0.5	2.5	400	0.20	P5667-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-1CFQ181
	270	8	12.5	0.6	3.5	445	0.17	P5668-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-1CFQ271
	330	8	15	0.6	3.5	575	0.12	P5669-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1CFQ331L
	330	10	12.5	0.6	5	625	0.12	P5670-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1CFQ331
	390	10	16	0.6	5	795	0.09	P5671-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1CFQ391
	470	8	20	0.6	3.5	760	0.09	P5672-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1CFQ471
	680	10	20	0.6	5	1015	0.065	P5673-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-1CFQ681L
	680	12.5	15	0.6	5	1010	0.065	P5674-ND	.76	6.54	51.23	325.00	307.00/M	283.00/M	ECA-1CFQ681
	820	10	25	0.6	5	1190	0.055	P5675-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-1CFQ821
	1200	10	30	0.6	5	1440	0.045	P5676-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-1CFQ122L
	1200	12.5	20	0.6	5	1400	0.042	P5677-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-1CFQ122
	1500	12.5	25	0.6	5	1690	0.034	P5678-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-1CFQ152
	1500	16	15	0.8	7.5	1360	0.046	P5679-ND	1.14	9.81	76.85	488.00	461.00/M	425.00/M	ECA-1CFQ152S
	1800	18	15	0.8	7.5	1620	0.038	P5680-ND	1.28	11.01	86.25	548.00	517.00/M	477.00/M	ECA-1CFQ182
	2200	12.5	30	0.8	5	1950	0.030	P5681-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1CFQ222L
	2200	16	20	0.8	7.5	1730	0.034	P5682-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1CFQ222
	2700	12.5	35	0.8	5	2220	0.024	P5683-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1CFQ272L
	2700	16	25	0.8	7.5	2070	0.028	P5684-ND	1.39	11.94	93.53	594.00	561.00/M	517.00/M	ECA-1CFQ272
	3300	12.5	40	0.8	5	2390	0.021	P5685-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-1CFQ332L
	3300	18	20	0.8	7.5	2000	0.028	P5686-ND	1.84	15.81	123.85	787.00	742.00/M	684.00/M	ECA-1CFQ332S
	3900	16	31.5	0.8	7.5	2350	0.025	P5687-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-1CFQ392
	3900	18	25	0.8	7.5	2200	0.025	P5688-ND	1.88	16.08	125.96	800.00	755.00/M	696.00/M	ECA-1CFQ392S
	4700	16	35.5	0.8	7.5	2550	0.022	P5689-ND	2.33	20.01	156.75	996.00	939.00/M	866.00/M	ECA-1CFQ472L
	4700	18	31.5	0.8	7.5	2800	0.023	P5690-ND	2.43	20.82	163.09	1036.00	977.00/M	901.00/M	ECA-1CFQ472
	5600	16	40	0.8	7.5	2900	0.018	P5691-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1CFQ562
	6800	18	35.5	0.8	7.5	2900	0.021	P5692-ND	2.96	25.35	198.58	1261.00	1190.00/M	1097.00/M	ECA-1CFQ682
	8200	18	40	0.8	7.5	3000	0.017	P5693-ND	3.41	29.19	228.66	1452.00	1370.00/M	1264.00/M	ECA-1CFQ822
25	27	4	11	0.45	1.5	120	1.0	P5694-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1EFQ270
	39	5	11	0.5	2	175	0.65	P5695-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1EFQ390
	56	5	15	0.5	2	235	0.46	P5696-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-1EFQ560
	82	6.3	11.2	0.5	2.5	290	0.30	P5697-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-1EFQ820
	120	6.3	15	0.5	2.5	400	0.20	P5698-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-1EFQ121
	180	8	12.5	0.6	3.5	445	0.17	P5699-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-1EFQ181
	220	8	15	0.6	3.5	575	0.12	P5700-ND	.51	4.38	34.31	218.00	206.00/M	190.00/M	ECA-1EFQ221L
	220	10	12.5	0.6	5	625	0.12	P5701-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1EFQ221
	270	10	16	0.6	5	795	0.09	P5702-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1EFQ271

WV V	Cap. (µF)	Dimensions (mm)				Max. Ripple Current (mA) rms	Max. Impedance 100KHz, +20°C (Ohms)	Digi-Key Part No.	Pricing						Panasonic Part No.
		D	L	d	l				1	10	100	1,000	5,000	10,000	
25	330	8	20	0.6	3.5	760	0.09	P5703-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1EFQ331
	470	10	20	0.6	5	1015	0.065	P5704-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-1EFQ471L
	470	12.5	15	0.6	5	1010	0.065	P5705-ND	.76	6.48	50.76	322.00	304.00/M	281.00/M	ECA-1EFQ471
	560	10	25	0.6	5	1190	0.055	P5706-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-1EFQ561
	820	10	30	0.6	5	1440	0.045	P5707-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-1EFQ821L
	820	12.5	20	0.6	5	1400	0.042	P5708-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-1EFQ821
	820	16	15	0.8	7.5	1360	0.046	P5709-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECA-1EFQ821S
	1000	12.5	25	0.6	5	1690	0.034	P5710-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-1EFQ102
	1200	18	15	0.8	7.5	1620	0.038	P5711-ND	1.38	11.85	92.83	590.00	556.00/M	513.00/M	ECA-1EFQ122
	1500	12.5	30	0.8	5	1950	0.030	P5712-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1EFQ152L
	1500	16	20	0.8	7.5	1730	0.034	P5713-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1EFQ152
	1800	12.5	35	0.8	5	2220	0.024	P5714-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1EFQ182L
	1800	16	25	0.8	7.5	2070	0.028	P5715-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1EFQ182
	2200	12.5	40	0.8	5	2390	0.021	P5716-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-1EFQ222L
	2200	18	20	0.8	7.5	2000	0.028	P5717-ND	1.80	15.39	120.56	766.00	723.00/M	666.00/M	ECA-1EFQ222S
	2700	16	31.5	0.8	7.5	2350	0.025	P5718-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-1EFQ272
	2700	18	25	0.8	7.5	2200	0.025	P5719-ND	2.09	17.88	140.06	890.00	839.00/M	774.00/M	ECA-1EFQ272S
	3300	16	35.5	0.8	7.5	2550	0.022	P5720-ND	2.38	20.40	159.80	1015.00	958.00/M	883.00/M	ECA-1EFQ332L
	3300	18	31.5	0.8	7.5	2800	0.023	P5721-ND	2.45	21.00	164.50	1045.00	986.00/M	909.00/M	ECA-1EFQ332
	3900	16	40	0.8	7.5	2900	0.018	P5722-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1EFQ392L
	3900	18	35.5	0.8	7.5	2900	0.021	P5723-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1EFQ392
	4700	18	40	0.8	7.5	3000	0.017	P5724-ND	3.19	27.33	214.09	1360.00	1283.00/M	1183.00/M	ECA-1EFQ472
35	18	4	11	0.45	1.5	120	1.0	P5725-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1VFQ180
	27	5	11	0.5	2	175	0.65	P5726-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1VFQ270
	39	5	15	0.5	2	235	0.46	P5727-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-1VFQ390
	56	6.3	11.2	0.5	2.5	290	0.30	P5728-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-1VFQ560
	82	6.3	15	0.5	2.5	400	0.20	P5729-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-1VFQ820
	120	8	12.5	0.6	3.5	445	0.17	P5730-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-1VFQ121
	150	8	15	0.6	3.5	575	0.12	P5731-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1VFQ151L
	150	10	12.5	0.6	5	625	0.12	P5732-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1VFQ151
	180	10	16	0.6	5	795	0.09	P5733-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1VFQ181
	220	8	20	0.6	3.5	760	0.09	P5734-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1VFQ221
	330	10	20	0.6	5	1015	0.065	P5735-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-1VFQ331L
	330	12.5	15	0.6	5	1010	0.065	P5736-ND	.76	6.54	51.23	325.00	307.00/M	283.00/M	ECA-1VFQ331
	390	10	25	0.6	5	1190	0.055	P5737-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-1VFQ391
	560	10	30	0.6	5	1440	0.045	P5738-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-1VFQ561L
	560	12.5	20	0.6	5	1400	0.042	P5739-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-1VFQ561
	560	16	15	0.8	7.5	1360	0.046	P5740-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECA-1VFQ561S
	680	12.5	25	0.6	5	1690	0.034	P5741-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-1VFQ681
	820	18	15	0.8	7.5	1620	0.038	P5742-ND	1.30	11.16	87.42	555.00	524.00/M	483.00/M	ECA-1VFQ821
	1000	12.5	30	0.8	5	1950	0.030	P5743-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1VFQ102L
	1000	16	20	0.8	7.5	1730	0.034	P5744-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1VFQ102
	1200	12.5	35	0.8	5	2220	0.024	P5745-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1VFQ122L
	1200	16	25	0.8	7.5	2070	0.028	P5746-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1VFQ122
	1500	12.5	40	0.8	5	2390	0.021	P5747-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-1VFQ152L
	1500	18	20	0.8	7.5	2000	0.028	P5748-ND	1.76	15.06	117.97	749.00	707.00/M	652.00/M	ECA-1VFQ152
	1800	16	31.5	0.8	7.5	2350	0.025	P5749-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-1VFQ182
	1800	18	25	0.8	7.5	2200	0.025	P5750-ND	1.92	16.44	128.78	818.00	772.00/M	712.00/M	ECA-1VFQ182S
	2200	16	35.5	0.8	7.5	2550	0.022	P5751-ND	2.20	18.87	147.82	939.00	886.00/M	817.00/M	ECA-1VFQ222L
	2200	18	31.5	0.8	7.5	2800	0.023	P5752-ND	2.39	20.46	160.27	1018.00	961.00/M	886.00/M	ECA-1VFQ222
	2700	16	40	0.8	7.5	2900	0.018	P5753-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1VFQ272L
	2700	18	35.5	0.8	7.5	2900	0.021	P5754-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1VFQ272
	3300	18	40	0.8	7.5	3000	0.017	P5755-ND	3.40	29.13	228.19	1449.00	1368.00/M	1261.00/M	ECA-1VFQ332
50	10	4	11	0.45	1.5	90	2.500	P5756-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1HFQ100
	18	5	11	0.5	2	155	1.300	P5757-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1HFQ180
	27	5	15	0.5	2	215	0.900	P5758-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-1HFQ270
	33	6.3	11.2	0.5	2.5	260	0.600	P5759-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-1HFQ330
	56	6.3	15	0.5	2.5	360	0.400	P5760-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-1HFQ560
	68	8	12.5	0.6	3.5	410	0.300	P5761-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-1HFQ680
	82	10	12.5	0.6	5	510	0.230	P5762-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1HFQ820
	100	8	15	0.6	3.5	500	0.230	P5763-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1HFQ101
	120	10	16	0.6	5	640	0.160	P5764-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1HFQ121
	150	8	20	0.6	3.5	670	0.160	P5765-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1HFQ151
	220	10	20	0.6	5	890	0.110	P5766-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-1HFQ221L
	220	12.5	15	0.6	5	920	0.130	P5767-ND	.76	6.48	50.76	322.00	304.00/M	281.00/M	ECA-1HFQ221
	270	10	25	0.6	5	1040	0.090	P5768-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-1HFQ271
	330	12.5	20	0.6	5	1200	0.080	P5769-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-1HFQ331
	390	10	30	0.6	5	1300	0.075	P5770-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-1HFQ391L
	390	16	15	0.8	7.5	1270	0.084	P5771-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECA-1HFQ391
	470	12.5	25	0.6	5	1440	0.070	P5772-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-1HFQ471
	470	18	15	0.8	7.5	1470	0.070	P5773-ND	1.30	11.16	87.42	555.00	524.00/M	483.00/M	ECA-1HFQ471S
	560	12.5	30	0.8	5	1680	0.060	P5774-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1HFQ561
	680	12.5	35	0.8	5	1850	0.050	P5775-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1HFQ681L
	680	16	20	0.8	7.5	1470	0.053	P5776-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1HFQ681
	680	18	20	0.8	7.5	1810	0.050	P5777-ND	1.71	14.67	114.92	730.00	689.00/M	635.00/M	ECA-1HFQ681S
	820	12.5	40	0.8	5	2010	0.043	P5778-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-1HFQ821L
	820	16	25	0.8	7.5	1810	0.044	P5779-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1HFQ821
	1000	16	31.5	0.8	7.5	2120	0.033	P5780-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-1HFQ102
	1000	18	25	0.8	7.5	2000	0.041	P5781-ND	1.89	16.17	126.67	804.00	759.00/M	700.00/M	ECA-1HFQ102S
	1200	16	35.5	0.8	7.5	2260	0.028	P5782-ND	2.31	19.80	155.10	985.00	930.00/M	857.00/M	ECA-1HFQ122L
	1200	18	31.5	0.8	7.5	2220	0.031	P5783-ND	2.51	21.51	168.50	1070.00	1010.00/M	931.00/M	ECA-1HFQ122
	1500	16	40	0.8	7.5	2410	0.026	P5784-ND	2.94	25.20	197.40	1254.00	1183.00/M	1091.00/M	ECA-1HFQ152L
	1500	18	35.5	0.8	7.5	2460	0.027	P5785-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1HFQ152
	1800	18	40	0.8	7.5	2560	0.025	P5786-ND	3.19	27.33	214.09	1360.00	1283.00/M	1183.00/M	ECA-1HFQ182
63	6.8	4	11	0.45	1.5	80	3.500	P5787-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1JFQ6R8
	12	5	11	0.5	2	145	2.000	P5788-ND	.23	1.98	15.51	99.00	93.00/M	86.00/M	ECA-1JFQ120
	18	5	15	0.5	2	200	1.300	P5789-ND	.26	2.19	17.16	109.00	103.00/M	95.00/M	ECA-1JFQ180
	22	6.3	11.2	0.5	2.5	240	1.000	P5790-ND	.28	2.37	18.57	118.00	111.00/M	103.00/M	ECA-1JFQ220
	39	6.3	15	0.5	2.5	330	0.700	P5791-ND	.32	2.76	21.62	137.00	130.00/M	119.00/M	ECA-1JFQ390
	56	8	12.5	0.6	3.5	370	0.380	P5792-ND	.40	3.45	27.03	172.00	162.00/M	149.00/M	ECA-1JFQ560
	68	10	12.5	0.6	5	470	0.300	P5793-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1JFQ680
	82	8	15	0.6	3.5	450	0.300	P5794-ND	.51	4.35	34.08	216.00	204.00/M	188.00/M	ECA-1JFQ820
	100	8	20	0.6	3.5	600	0.190	P5795-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1JFQ101L
	100	10	16	0.6	5	580	0.190	P5796-ND	.58	4.95	38.78	246.00	232.00/M	214.00/M	ECA-1JFQ101
	150	10	20	0.6	5	820	0.140	P5797-ND	.70	5.97	46.77	297.00	280.00/M	258.00/M	ECA-1JFQ151L
	150	12.5	15	0.6	5	890	0.160	P5798-ND	.77	6.57	51.47	327.00	308.00/M	284.00/M	ECA-1JFQ151
	180	10	25	0.6	5	950	0.120	P5799-ND	.79	6.75	52.88	336.00	317.00/M	292.00/M	ECA-1JFQ181
	220	12.5	20	0.6	5	1140	0.095	P5800-ND	1.06	9.12	71.44	454.00	428.00/M	395.00/M	ECA-1JFQ221
	270	10	30	0.6	5	1110	0.095	P5801-ND	.92	7.92	62.04	394.00	372.00/M	343.00/M	ECA-1JFQ271L
	270	16	15	0.8	7.5	1220	0.100	P5802-ND	1.11	9.51	74.50	473.00	446.00/M	412.00/M	ECA-1JFQ271
	330	12.5	25	0.6	5	1420	0.090	P5803-ND	1.25	10.68	83.66	531.00	501.00/M	462.00/M	ECA-1JFQ331
	330	18	15	0.8	7.5	1410	0.085	P5804-ND	1.33	11.40	89.30	567.00	535.00/M	494.00/M	ECA-1JFQ331S
	390	12.5	30	0.8	5	1620	0.080	P5805-ND	1.39	11.88	93.06	591.00	558.00/M	514.00/M	ECA-1JFQ391
	470	12.5	35	0.8	5	1780	0.065	P5806-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1JFQ471L
	470	16	20	0.8	7.5	1450	0.070	P5807-ND	1.39	11.91	93.30	593.00	559.00/M	516.00/M	ECA-1JFQ471
	560	12.5	40	0.8	5	1950	0.060	P5808-ND	1.85	15.84	124.08	788.00	744.00/M	686.00/M	ECA-1JFQ561L
	560	16	25	0.8	7.5	1750	0.060	P5809-ND	1.62	13.86	108.57	690.00	651.00/M	600.00/M	ECA-1JFQ561
	560	18	20	0.8	7.5	1750	0.065	P5810-ND	1.71	14.67	114.92	730.00	689.00/M	635.00/M	ECA-1JFQ561S
	680	16	31.5	0.8	7.5	2050	0.050	P5811-ND	2.08	17.85	139.83	888.00	838.00/M	773.00/M	ECA-1JFQ681
	680	18	25	0.8	7.5	1940	0.057	P5812-ND	1.95	16.68	130.66	830.00	783.00/M	722.00/M	ECA-1JFQ681S
	820	16	35.5	0.8	7.5	2220	0.042	P5813-ND	2.31	19.80	155.10	985.00	930.00/M	857.00/M	ECA-1JFQ821
	1000	16	40	0.8	7.5	2370	0.034	P5814-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1JFQ102L
	1000	18	31.5	0.8	7.5	2110	0.048	P5815-ND	2.45	21.00	164.50	1045.00	986.00/M	909.00/M	ECA-1JFQ102
	1200	18	35.5	0.8	7.5	2300	0.041	P5816-ND	2.91	24.96	195.52	1242.00	1172.00/M	1081.00/M	ECA-1JFQ122
	1500	18	40	0.8	7.5	2510	0.033	P5817-ND	3.19	27.33	214.09	1360.00	1283.00/M	1183.00/M	ECA-1JFQ152

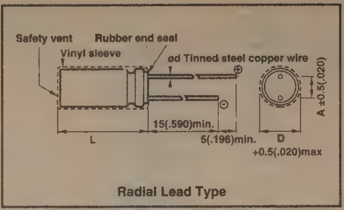
Panasonic® HF/HFU

High Frequency Miniature Electrolytic Capacitors

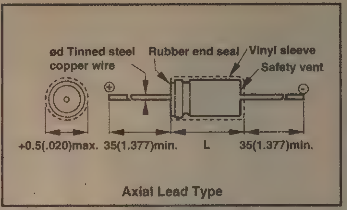
SPECIFICATIONS: Operating temp. range: −55 ~ 105°C. High ripple current: Approx. 2 times compared to standard type. Tan δ & Impedance: 300% max. of the initial specified value. Very low impedance at high frequency. Stable characteristics in low temperature range. Leakage current: Less than the initial specified value. Long life at high temperature: 2000 hours at +105°C HF series. 1000 hours at +105°C HFU series. Capacitance tolerance: (at 120Hz/20°C) ±20% (HF Series): ±10% (HFU series).

PANASONIC HF CROSS REFERENCES

Elna: RSA; **Marion:** SFM; **Nichicon:** PX; **Rubycon:** G2A; **Sprague:** 672D/673D; **UCC:** SXC.



Radial Lead Type



Axial Lead Type

WV (V)	Cap. (µF)	Dimensions (mm) D	L	A	d	Current Leakage (µA)	Tan 120 Hz +20°C	ESR 100 kHz +20°C	Ripple Current (A)rms	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
Radial Lead Type																	
10	47	6.3	11.2	2.5	0.6	3.0	0.10	1.80	0.20	P6737-ND†	.65	5.58	43.69	277.00	262.00/M	241.00/M	ECE-A1AF470
	100	8	11.5	3.5	0.6	4.0	0.10	1.50	0.30	P6738-ND†	.74	6.35	49.74	316.00	298.00/M	275.00/M	ECE-A1AF101
	220	10	16	5.0	0.6	6.4	0.15	0.22	0.68	P6718-ND	.89	7.59	59.48	378.00	357.00/M	329.00/M	ECE-A1AF221
	330	10	20	5.0	0.6	8.6	0.15	0.18	0.90	P6719-ND	1.11	9.51	74.49	473.00	446.00/M	412.00/M	ECE-A1AF331
	470	12.5	20	5.0	0.6	11.4	0.15	0.14	1.25	P6720-ND	1.37	11.73	91.86	583.00	551.00/M	508.00/M	ECE-A1AF471
	1000	12.5	25	5.0	0.6	22.0	0.15	0.10	1.75	P6703-ND	1.53	13.14	102.91	654.00	617.00/M	569.00/M	ECE-A1AF102
	2200	16	31.5	7.5	0.8	46.0	0.15	0.05	3.30	P6704-ND	2.77	23.72	185.82	1180.00	1114.00/M	1027.00/M	ECE-A1AF222
16	22	6.3	11.2	2.5	0.6	2.8	0.10	1.80	0.20	P6739-ND†	.61	5.24	41.06	261.00	246.00/M	227.00/M	ECE-A1CF220
	33	6.3	11.2	2.5	0.6	3.1	0.10	1.80	0.20	P6740-ND†	.66	5.68	44.48	283.00	267.00/M	246.00/M	ECE-A1CF330
	47	8	11.5	3.5	0.6	3.5	0.10	1.50	0.30	P6741-ND†	.72	6.15	48.17	306.00	289.00/M	266.00/M	ECE-A1CF470
	100	10	12.5	5.0	0.6	5.2	0.10	0.30	0.50	P6705-ND	.84	7.22	56.59	359.00	339.00/M	313.00/M	ECE-A1CF101
	220	10	16	5.0	0.6	9.0	0.10	0.22	0.68	P6706-ND	.96	8.27	64.75	411.00	388.00/M	358.00/M	ECE-A1CF221
	330	10	20	5.0	0.6	12.6	0.10	0.18	0.90	P6707-ND	1.23	10.58	82.91	527.00	497.00/M	458.00/M	ECE-A1CF331
	470	12.5	20	5.0	0.6	17.9	0.10	0.14	1.25	P6708-ND	1.46	12.50	97.91	622.00	587.00/M	541.00/M	ECE-A1CF471
	1000	16	25	7.5	0.8	34.0	0.10	0.07	2.44	P6709-ND*	1.94	16.67	130.55	829.00	782.00/M	721.00/M	ECE-A1CF102
	2200	18	31.5	7.5	0.8	72.4	0.10	0.03	4.00	P6710-ND*	3.59	30.78	241.09	1531.00	1445.00/M	1332.00/M	ECE-A1CF222
25	1.0	6.3	11.2	2.5	0.6	2.1	0.05	1.80	0.08	P6742-ND†	.58	4.97	38.95	247.00	233.00/M	215.00/M	ECE-A1EF010
	2.2	6.3	11.2	2.5	0.6	2.2	0.05	1.80	0.08	P6743-ND†	.58	4.97	38.95	247.00	233.00/M	215.00/M	ECE-A1EF2R2
	3.3	6.3	11.2	2.5	0.6	2.2	0.05	1.80	0.08	P6744-ND†	.58	4.97	38.95	247.00	233.00/M	215.00/M	ECE-A1EF3R3
	4.7	6.3	11.2	2.5	0.6	2.3	0.05	1.80	0.10	P6745-ND†	.58	4.97	38.95	247.00	233.00/M	215.00/M	ECE-A1EF4R7
	10	6.3	11.2	2.5	0.6	2.3	0.05	1.80	0.15	P6746-ND†	.61	5.24	41.06	261.00	246.00/M	227.00/M	ECE-A1EF100
	22	8	11.5	3.5	0.6	3.1	0.05	1.50	0.30	P6747-ND†	.65	5.58	43.69	277.00	262.00/M	241.00/M	ECE-A1EF220
	33	8	11.5	3.5	0.6	3.7	0.05	1.50	0.30	P6748-ND†	.72	6.15	48.17	306.00	289.00/M	266.00/M	ECE-A1EF330
	47	10	12.5	5.0	0.6	4.3	0.08	0.30	0.50	P6711-ND	.81	6.92	54.22	344.00	325.00/M	300.00/M	ECE-A1EF470
	100	10	16	5.0	0.6	7.0	0.08	0.22	0.68	P6721-ND	.91	7.80	61.06	388.00	366.00/M	337.00/M	ECE-A1EF101
	220	12.5	20	5.0	0.6	13.0	0.08	0.14	1.25	P6713-ND	1.33	11.42	89.49	568.00	536.00/M	495.00/M	ECE-A1EF221
	330	12.5	25	5.0	0.6	18.5	0.08	0.10	1.75	P6714-ND	1.53	13.14	102.91	654.00	617.00/M	569.00/M	ECE-A1EF331
	470	16	25	7.5	0.8	25.5	0.08	0.07	2.44	P6715-ND	2.17	18.58	145.55	924.00	872.00/M	804.00/M	ECE-A1EF471
	1000	16	31.5	7.5	0.8	52.0	0.08	0.05	3.30	P6716-ND	2.77	23.72	185.82	1180.00	1114.00/M	1027.00/M	ECE-A1EF102
35	33	10	12.5	5.0	0.6	4.3	0.07	0.30	0.50	P6717-ND	.71	6.05	47.38	301.00	284.00/M	262.00/M	ECE-A1VF330
	47	10	16	5.0	0.6	5.3	0.07	0.22	0.68	P6722-ND	.86	7.39	57.90	368.00	347.00/M	320.00/M	ECE-A1VF470
	100	10	20	5.0	0.6	9.0	0.07	0.18	0.90	P6723-ND	1.12	9.61	75.28	478.00	451.00/M	416.00/M	ECE-A1VF101
	220	12.5	25	5.0	0.6	17.4	0.07	0.10	1.75	P6724-ND	1.53	13.14	102.91	654.00	617.00/M	569.00/M	ECE-A1VF221
	330	16	25	7.5	0.8	25.1	0.07	0.07	2.44	P6725-ND	2.11	18.08	141.60	899.00	849.00/M	783.00/M	ECE-A1VF331
	470	16	31.5	7.5	0.8	34.9	0.07	0.05	3.30	P6726-ND*	2.77	23.72	185.82	1180.00	1114.00/M	1027.00/M	ECE-A1VF471
50	1.0	8	11.5	3.5	0.6	2.1	0.05	1.50	0.10	P6749-ND*†	.58	4.97	38.95	247.00	233.00/M	215.00/M	ECE-A1HF010
	2.2	8	11.5	3.5	0.6	2.3	0.05	1.50	0.10	P6750-ND*†	.58	4.97	38.95	247.00	233.00/M	215.00/M	ECE-A1HF2R2
	3.3	8	11.5	3.5	0.6	2.4	0.05	1.50	0.10	P6751-ND*†	.60	5.17	40.53	257.00	243.00/M	224.00/M	ECE-A1HF3R3
	4.7	8	11.5	3.5	0.6	2.5	0.05	1.50	0.20	P6752-ND*†	.62	5.34	41.85	266.00	251.00/M	231.00/M	ECE-A1HF4R7
	47	19	20	5.0	0.6	6.7	0.06	0.18	0.90	P6805-ND	.98	8.37	65.54	416.00	393.00/M	362.00/M	ECE-A1HF470
	10	8	11.5	3.5	0.6	3.0	0.05	1.50	0.30	P6753-ND*†	.69	5.95	46.59	296.00	279.00/M	257.00/M	ECE-A1HF100
	22	10	12.5	5.0	0.6	4.2	0.06	0.30	0.50	P6754-ND*	.77	6.62	51.85	329.00	311.00/M	287.00/M	ECE-A1HF220
	33	10	16	5.0	0.6	5.3	0.06	0.22	0.68	P6727-ND*	.86	7.39	57.90	368.00	347.00/M	320.00/M	ECE-A1HF330
	100	12.5	25	5.0	0.6	12.0	0.06	0.10	1.75	P6729-ND*	1.47	12.60	98.70	627.00	592.00/M	545.00/M	ECE-A1HF101
	220	16	25	7.5	0.8	24.0	0.06	0.07	2.44	P6730-ND*	2.09	17.94	140.55	893.00	842.00/M	777.00/M	ECE-A1HF221
	330	16	31.5	7.5	0.8	35.0	0.06	0.05	3.30	P6731-ND*	2.77	23.72	185.82	1180.00	1114.00/M	1027.00/M	ECE-A1HF331
63	22	10	16	5.0	0.6	4.8	0.05	0.22	0.68	P6732-ND	.86	7.39	57.90	368.00	347.00/M	320.00/M	ECE-A1JF220
	33	10	16	5.0	0.6	6.2	0.05	0.22	0.68	P6733-ND	1.07	9.14	71.59	455.00	429.00/M	396.00/M	ECE-A1JF330
	47	10	20	5.0	0.6	7.9	0.05	0.18	0.90	P6734-ND	1.23	10.58	82.91	527.00	497.00/M	458.00/M	ECE-A1JF470
	100	12.5	25	5.0	0.6	14.6	0.05	0.10	1.75	P6735-ND	1.68	14.41	112.91	717.00	677.00/M	624.00/M	ECE-A1JF101
	220	16	31.5	7.5	0.8	29.7	0.05	0.05	3.30	P6736-ND	2.77	23.72	185.82	1180.00	1114.00/M	1027.00/M	ECE-A1JF221
Axial Lead Type																	
10	47	6.3	16	—	0.6	3.0	0.10	1.80	0.20	P6755-ND†	1.48	12.67	99.23	630.00	595.00/M	548.00/M	ECE-B1AF470
	100	8	16	—	0.6	4.0	0.10	1.50	0.30	P6756-ND†	1.59	13.64	106.86	679.00	640.00/M	591.00/M	ECE-B1AF101
	220	10	20	—	0.6	6.4	0.15	0.22	0.68	P6757-ND	1.83	15.72	123.18	782.00	738.00/M	681.00/M	ECE-B1AF221
	330	10	25	—	0.6	8.6	0.15	0.18	0.90	P6758-ND	2.00	17.10	133.97	851.00	803.00/M	740.00/M	ECE-B1AF331
	470	12.5	25	—	0.8	11.4	0.15	0.14	1.25	P6759-ND	2.73	23.39	183.19	1163.00	1098.00/M	1012.00/M	ECE-B1AF471
	1000	16	25	—	0.8	22.0	0.15	0.10	1.75	P6760-ND	3.45	29.57	231.62	1471.00	1388.00/M	1280.00/M	ECE-B1AF102
	2200	16	40	—	0.8	46.0	0.15	0.05	3.30	P6761-ND	5.05	43.31	339.26	2155.00	2033.00/M	1875.00/M	ECE-B1AF222
16	22	6.3	16	—	0.6	2.8	0.10	1.80	0.20	P6762-ND†	1.45	12.47	97.65	620.00	585.00/M	540.00/M	ECE-B1CF220
	33	6.3	16	—	0.6	3.1	0.10	1.80	0.20	P6763-ND†	1.48	12.67	99.23	630.00	595.00/M	548.00/M	ECE-B1CF330
	47	8	16	—	0.6	3.5	0.10	1.50	0.30	P6764-ND†	1.67	14.31	112.12	712.00	672.00/M	620.00/M	ECE-B1CF470
	100	8	16	—	0.6	5.2	0.10	1.00	0.30	P6765-ND†	1.81	15.56	121.86	774.00	730.00/M	673.00/M	ECE-B1CF101
	220	10	20	—	0.6	9.0	0.10	0.22	0.68	P6766-ND	1.99	17.07	133.71	849.00	801.00/M	739.00/M	ECE-B1CF221
	330	10	25	—	0.6	12.6	0.10	0.18	0.90	P6767-ND	2.73	23.39	183.19	1163.00	1098.00/M	1012.00/M	ECE-B1CF331
	470	12.5	25	—	0.8	17.0	0.10	0.14	1.25	P6768-ND	3.10	26.61	208.45	1324.00	1249.00/M	1152.00/M	ECE-B1CF471
	1000	16	31.5	—	0.8	34.0	0.10	0.07	2.44	P6769-ND	3.85	33.00	258.46	1642.00	1549.00/M	1428.00/M	ECE-B1CF102
	2200	18	40	—	0.8	72.4	0.10	0.03	4.00	P6770-ND	5.99	51.34	402.17	2554.00	2410.00/M	2223.00/M	ECE-B1CF222
25	1.0	6.3	16	—	0.6	2.1	0.05	1.80	0.08	P6771-ND†	1.34	11.49	90.01	572.00	539.00/M	497.00/M	ECE-B1EF010
	2.2	6.3	16	—	0.6	2.2	0.05	1.80	0.08	P6772-ND†	1.34	11.49	90.01	572.00	539.00/M	497.00/M	ECE-B1EF2R2
	3.3	6.3	16	—	0.6	2.2	0.05	1.80	0.08	P6773-ND†	1.34	11.49	90.01	572.00	539.00/M	497.00/M	ECE-B1EF3R3
	4.7	6.3	16	—	0.6	2.3	0.05	1.80	0.10	P6774-ND†	1.34	11.49	90.01	572.00	539.00/M	497.00/M	ECE-B1EF4R7
	10	6.3	16	—	0.6	2.5	0.05	1.80	0.15	P6775-ND†	1.34	11.49	90.01	572.00	539.00/M	497.00/M	ECE-B1EF100
	22	8	16	—	0.6	3.1	0.05	1.50	0.30	P6776-ND†	1.52	13.04	102.12	649.00	612.00/M	564.00/M	ECE-B1EF220
	33	8	16	—	0.6	3.7	0.05	1.50	0.30	P6777-ND†	1.67	14.31	112.12	712.00	672.00/M	620.00/M	ECE-B1EF330
	47	8	16	—	0.6	4.3	0.05	1.00	0.30	P6778-ND†	1.81	15.56	121.86	774.00	730.00/M	673.00/M	ECE-B1EF470
	100	10	20	—	0.6	7.0	0.08	0.22	0.68	P6779-ND	1.99	17.07	133.71	849.00	801.00/M	739.00/M	ECE-B1EF101
	220	12.5	25	—	0.8	13.0	0.08	0.14	1.25	P6780-ND	2.76	23.62	185.03	1175.00	1109.00/M	1023.00/M	ECE-B1EF221
	330	16	25	—	0.8	18.5	0.08	0.10	1.75	P6781-ND	3.24	27.79	217.67	1382.00	1305.00/M	1203.00/M	ECE-B1EF331
	470	16	31.5	—	0.8	25.5	0.08	0.07	2.44	P6782-ND	3.68	31.52	246.88	1568.00	1480.00/M	1364.00/M	ECE-B1EF471
	1000	16	40	—	0.8	52.0	0.08	0.05	3.30	P6783-ND	5.48	47.01	368.22	2339.00	2207.00/M	2035.00/M	ECE-B1EF102
35	47	10	20	—	0.6	5.3	0.07	0.22	0.68	P6784-ND	1.99	17.07	133.71	849.00	801.00/M	739.00/M	ECE-B1VF470
	100	10	25	—	0.6	9.0	0.07	0.18	0.90	P6785-ND	2.67	22.92	179.50	1140.00	1076.00/M	992.00/M	ECE-B1VF101
	220	16	25	—	0.8	17.4	0.07	0.10	1.75	P6786-ND	3.25	27.89	218.46	1387.00	1309.00/M	1207.00/M	ECE-B1VF221
	330	16	31.5	—	0.8	25.1	0.07	0.07	2.44	P6787-ND	3.61	30.95	242.41	1540.00	1453.00/M	1340.00/M	ECE-B1VF331
	470	16	40	—	0.8	34.9	0.07	0.05	3.30	P6788-ND	4.19	35.95	281.62	1789.00	1688.00/M	1556.00/M	ECE-B1VF471
50	1.0	8	16	—	0.6	2.1	0.05	1.50	0.10	P6789-ND†	1.37	11.73	91.86	583.00	551.00/M	508.00/M	ECE-B1HF010
	2.2	8	16	—	0.6	2.3	0.05	1.50	0.10	P6790-ND†	1.37	11.73	91.86	583.00	551.00/M	508.00/M	ECE-B1HF2R2
	3.3	8	16	—	0.6	2.4	0.05	1.50	0.10	P6791-ND†	1.45	12.47	97.65	620.00	585.00/M	540.00/M	ECE-B1HF3R3
	4.7	8	16	—	0.6	2.5	0.05	1.50	0.20	P6792-ND†	1.48	12.67	99.23	630.00	595.00/M	548.00/M	ECE-B1HF4R7
	10	8	16	—	0.6	3.0	0.05	1.50	0.30	P6793-ND†	1.66	14.21	111.33	707.00	667.00/M	615.00/M	ECE-B1HF100
	22	8	16	—	0.6	4.2	0.05	1.00	0.30	P6794-ND†	1.86	15.93	124.76	792.00	748.00/M	689.00/M	ECE-B1HF220
	33	10	20	—	0.6	5.3	0.06	0.22	0.68	P6795-ND	1.94	16.63	130.28	827.00	781.00/M	720.00/M	ECE-B1HF330
	47	10	20	—	0.6	6.7	0.06	0.22	0.68	P6796-ND	2.21	18.92	148.18	941.00	888.00/M	819.00/M	ECE-B1HF470
	100	12.5	25	—	0.8	12.0	0.06	0.14	1.25	P6797-ND	2.78	23.86	186.87	1187.00	1120.00/M	1033.00/M	ECE-B1HF101
	220	16	31.5	—	0.8	24.0	0.06	0.07	2.44	P6798-ND	3.92	33.60	263.20	1672.00	1577.00/M	1455.00/M	ECE-B1HF221
	330	16	40	—	0.8	35.0	0.06	0.05	3.30	P6799-ND	4.95	42.40	332.16	2110.00	1991.00/M	1836.00/M	ECE-B1HF331
63	22	10	20	—	0.6	4.8	0.05	0.22	0.68	P6800-ND	1.99	17.07	133.71	849.00	801.00/M	739.00/M	ECE-B1JF220
	33	10	20	—	0.6	6.2	0.05	0.22	0.68	P6801-ND	2.30	19.69	154.24	980.00	924.00/M	852.00/M	ECE-B1JF330
	47	10	25	—	0.6	7.9	0.05	0.18	0.90	P6802-ND	3.34	28.66	224.51	1426.00	1346.00/M	1241.00/M	ECE-B1JF470
	100	16	25	—	0.8	14.6	0.05	0.10	1.75	P6803-ND	3.53	30.27	237.14	1506.00	1421.00/M	1311.00/M	ECE-B1JF101
	220	16	40	—	0.8	29.7	0.05	0.05	3.30	P6804-ND	4.95	42.40	332.16	2110.00	1991.00/M	1836.00/M	ECE-B1JF221

* **P6700-KIT-ND** (10 each of parts indicated.) Complete with notebook style storage case & bin storage guide **$129.95**

† HFU Series

Panasonic® FA Series Capacitors

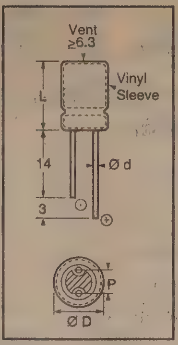
Features: • Smaller than series HFQ • Low impedance • Long life: 3500 ~ 7000 hours at +105°C

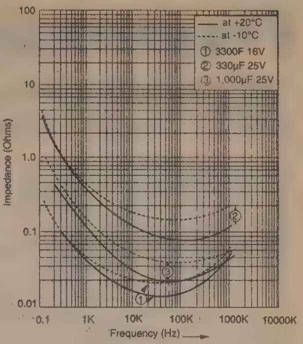
Specifications: • Operating Temperature Range: -55 to +105°C • Rated Working Voltage Range: 6.3 to 63V DC • Nominal Capacitance Range: 68 to 15000µF • Capacitance Tolerance: ±20% (120Hz, +20°C) • Leakage Current: I ≤ 0.01CV (µA) after 2 minutes application of rated working voltage at +20°C • tanδ (120Hz, +20°C)

Working voltage (V)	6.3	10	16	25	35	50	63
tanδ max.	0.22	0.19	0.16	0.14	0.12	0.10	0.08

For capacitance value > 1000µF, add 0.02 to above chart for every 1000µf increase.

• Impedance at High Frequency: Refer to standard products table. (100kHz, +20°C) • Ripple Current: Refer to standard products table. (100kHz, +105°C) • Endurance — Test conditions: • Ambient Temperature: +105°C ±2°C • Applied Voltage: DC voltage with maximum permissible ripple current specified at +105°C (the sum of the DC voltage and superimposed peak AC voltage for maximum permissible ripple current should be equal to rated DC working voltage.) Post Test Requirements at +20°C: • Leakage Current: ≤ Initial specified value • Capacitance change: ±20% of initial measured value • tanδ: ≤200% of initial specified value • Shelf Life — Test conditions: • Duration: 1000 hours • Ambient Temperature: +105°C ±2°C • Applied Voltage: (none) • Post test requirements at +20°C. Same as limits listed for "Endurance", as shown above.



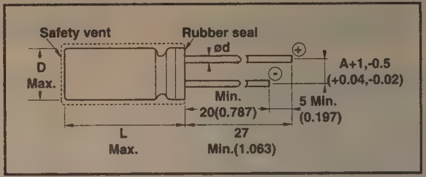


W.V. (V)	Cap. (µF)	Dimensions (mm)				Leakage Current (+20°C) (2 min) (µA) Max	tan δ (120Hz) (+20°C) Max	Impedance (100kHz) (+20°C) (Ω) Max	Ripple Current (100kHz) (+105°C) (mA) rms max.	Life Hours @ 105°C	Digi-Key Part No.	Pricing					Panasonic Part No.
		ϕD	L	P	ϕd							1	10	100	1000	5000	
10	390	8	11.5	3.5	0.6	39.0	0.19	0.117	555	3500	P5601A-ND	.52	4.61	39.98	184.00	174.00/M	EEU-FA1A391
	680	8	15	3.5	0.6	68.0	0.19	0.085	730	5000	P5602A-ND	.65	5.78	50.05	231.00	218.00/M	EEU-FA1A681L
	680	10	12.5	5	0.6	68.0	0.19	0.090	755	4000	P5603A-ND	.70	6.19	53.63	247.00	234.00/M	EEU-FA1A681
	1000	8	20	3.5	0.6	100.0	0.19	0.065	995	5000	P5604A-ND	.76	6.68	57.85	267.00	252.00/M	EEU-FA1A102
	1200	10	20	5	0.6	120.0	0.19	0.052	1220	6000	P5605A-ND	.91	8.03	69.55	321.00	304.00/M	EEU-FA1A122
	1500	10	25	5	0.6	150.0	0.19	0.045	1440	7000	P5606A-ND	1.03	9.08	78.65	363.00	343.00/M	EEU-FA1A152
	2200	10	30	5	0.6	220.0	0.19	0.035	1815	7000	P5607A-ND	1.22	10.80	93.60	432.00	408.00/M	EEU-FA1A222
	2700	12.5	25	5	0.6	270.0	0.19	0.034	1945	7000	P5608A-ND	1.54	13.58	117.65	543.00	513.00/M	EEU-FA1A272
	3300	12.5	30	5	0.8	330.0	0.19	0.025	2310	7000	P5609A-ND	1.70	15.04	130.33	601.00	569.00/M	EEU-FA1A332L
	3900	12.5	35	5	0.5	390.0	0.19	0.022	2510	7000	P5610A-ND	1.94	17.10	148.20	684.00	647.00/M	EEU-FA1A392
	4700	12.5	40	5	0.8	470.0	0.19	0.018	2655	7000	P5657A-ND	2.21	19.54	169.33	781.00	739.00/M	EEU-FA1A472L
	4700	16	25	7.5	0.8	470.0	0.19	0.022	2555	7000	P5611A-ND	2.34	20.63	178.75	825.00	780.00/M	EEU-FA1A472
16	270	8	11.5	3.5	0.6	43.2	0.16	0.117	555	3500	P5612A-ND	.53	4.65	40.30	186.00	176.00/M	EEU-FA1C271
	470	8	15	3.5	0.6	75.2	0.16	0.085	730	5000	P5613A-ND	.66	5.81	50.38	232.00	220.00/M	EEU-FA1C471L
	470	10	12.5	5	0.6	75.2	0.16	0.090	755	4000	P5614A-ND	.71	6.23	53.95	249.00	235.00/M	EEU-FA1C471
	560	10	16	5	0.6	89.6	0.16	0.068	950	6000	P5615A-ND	.78	6.90	59.80	276.00	261.00/M	EEU-FA1C561
	680	8	20	3.5	0.6	108.8	0.16	0.065	995	5000	P5616A-ND	.75	6.64	57.53	265.00	251.00/M	EEU-FA1C681
	820	10	20	5	0.6	131.2	0.16	0.052	1220	6000	P5617A-ND	.92	8.10	70.20	324.00	306.00/M	EEU-FA1C821
	820	12.5	15	5	0.6	131.2	0.16	0.060	1205	5000	P5618A-ND	1.03	9.11	78.98	364.00	345.00/M	EEU-FA1C821S
	1000	10	25	5	0.6	160.0	0.16	0.045	1440	7000	P5619A-ND	1.04	9.15	79.30	366.00	346.00/M	EEU-FA1C102
	1200	12.5	20	5	0.6	192.0	0.16	0.038	1655	7000	P5620A-ND	1.23	10.88	94.25	435.00	411.00/M	EEU-FA1C122
	1500	10	30	5	0.6	240.0	0.16	0.035	1815	7000	P5621A-ND	1.23	10.88	94.25	435.00	411.00/M	EEU-FA1C152
	1800	12.5	25	5	0.6	288.0	0.16	0.034	1945	7000	P5622A-ND	1.50	13.24	114.73	529.00	501.00/M	EEU-FA1C182
	2200	12.5	30	5	0.8	352.0	0.16	0.025	2310	7000	P5623A-ND	1.73	15.23	131.95	609.00	576.00/M	EEU-FA1C222L
	2200	16	20	7.5	0.8	352.0	0.16	0.025	2205	7000	P5624A-ND	1.81	15.98	138.45	639.00	604.00/M	EEU-FA1C222
	2700	12.5	35	5	0.8	432.0	0.16	0.022	2510	7000	P5625A-ND	1.96	17.29	149.83	691.00	654.00/M	EEU-FA1C272
	3300	12.5	40	5	0.8	528.0	0.16	0.018	2655	7000	P5626A-ND	2.24	19.80	171.60	792.00	749.00/M	EEU-FA1C332L
	5600	16	40	7.5	0.8	896.0	0.16	0.015	3360	7000	P5658A-ND	3.56	31.43	272.35	1256.00	1189.00/M	EEU-FA1C562L
25	330	8	15	3.5	0.6	82.5	0.14	0.085	730	5000	P5627A-ND	.63	5.59	48.43	223.00	211.00/M	EEU-FA1E331L
	330	10	12.5	5	0.6	82.5	0.14	0.090	755	4000	P5628A-ND	.71	6.26	54.28	250.00	237.00/M	EEU-FA1E331
	390	10	16	5	0.6	97.5	0.14	0.068	950	6000	P5629A-ND	.79	6.94	60.13	277.00	262.00/M	EEU-FA1E391
	470	8	20	3.5	0.6	117.5	0.14	0.065	995	5000	P5630A-ND	.74	6.49	56.23	259.00	245.00/M	EEU-FA1E471
	560	10	20	5	0.6	140.0	0.14	0.052	1220	6000	P5631A-ND	.93	8.21	71.18	328.00	311.00/M	EEU-FA1E561
	560	12.5	15	5	0.6	140.0	0.14	0.060	1205	5000	P5632A-ND	1.05	9.23	79.95	369.00	349.00/M	EEU-FA1E561S
	680	10	25	5	0.6	170.0	0.14	0.045	1440	7000	P5633A-ND	1.05	9.23	79.95	369.00	349.00/M	EEU-FA1E681
	1000	10	30	5	0.6	250.0	0.14	0.035	1815	7000	P5659A-ND	1.25	11.03	95.55	441.00	417.00/M	EEU-FA1E102L
	1000	12.5	20	5	0.6	250.0	0.14	0.038	1655	7000	P5634A-ND	1.31	11.55	100.10	462.00	437.00/M	EEU-FA1E102
	1500	12.5	30	5	0.8	375.0	0.14	0.025	2310	7000	P5635A-ND	1.80	15.90	137.80	636.00	601.00/M	EEU-FA1E152L
	2200	12.5	40	5	0.8	550.0	0.14	0.018	2655	7000	P5660A-ND	2.36	20.85	180.70	834.00	789.00/M	EEU-FA1E222L
	2200	16	25	7.5	0.8	550.0	0.14	0.022	2555	7000	P5636A-ND	2.40	21.19	183.63	847.00	801.00/M	EEU-FA1E222
	3900	16	40	7.5	0.8	975.0	0.14	0.015	3360	7000	P5661A-ND	3.55	31.35	271.70	1253.00	1186.00/M	EEU-FA1E392L
	4700	18	35.5	7.5	0.8	1175.0	0.14	0.015	3680	7000	P5637A-ND	4.13	36.45	315.90	1457.00	1379.00/M	EEU-FA1E472
	5600	18	40	7.5	0.8	1400.0	0.14	0.014	3735	7000	P5662A-ND	4.68	41.33	358.15	1652.00	1563.00/M	EEU-FA1E562
35	150	8	11.5	3.5	0.6	52.5	0.12	0.117	555	3500	P5638A-ND	.54	4.76	41.28	190.00	180.00/M	EEU-FA1V151
	220	8	15	3.5	0.6	77.0	0.12	0.085	730	5000	P5639A-ND	.64	5.66	49.08	226.00	214.00/M	EEU-FA1V221L
	270	10	16	5	0.6	94.5	0.12	0.068	950	6000	P5640A-ND	.80	7.05	61.10	282.00	267.00/M	EEU-FA1V271
	330	8	20	3.5	0.6	115.5	0.12	0.065	995	5000	P5641A-ND	.74	6.56	56.88	262.00	248.00/M	EEU-FA1V331
	390	10	20	5	0.6	136.5	0.12	0.052	1220	6000	P5642A-ND	.94	8.33	72.15	333.00	315.00/M	EEU-FA1V391
	390	12.5	15	5	0.6	136.5	0.12	0.060	1205	5000	P5643A-ND	1.06	9.34	80.93	373.00	353.00/M	EEU-FA1V391S
	470	10	25	5	0.6	164.5	0.12	0.045	1440	7000	P5644A-ND	1.06	9.38	81.25	375.00	355.00/M	EEU-FA1V471
	680	10	30	5	0.6	238.0	0.12	0.035	1815	7000	P5663A-ND	1.27	11.21	97.18	448.00	424.00/M	EEU-FA1V681L
	1000	12.5	25	5	0.6	350.0	0.12	0.034	1945	7000	P5645A-ND	1.62	14.29	123.83	571.00	540.00/M	EEU-FA1V102
	1200	12.5	35	5	0.8	525.0	0.12	0.022	2510	7000	P5646A-ND	1.85	16.35	141.70	654.00	618.00/M	EEU-FA1V122L
	1500	12.5	35	5	0.8	525.0	0.12	0.022	2510	7000	P5664A-ND	2.10	18.53	160.55	741.00	701.00/M	EEU-FA1V152L
	1800	12.5	40	5	0.8	630.0	0.12	0.018	2655	7000	P5647A-ND	2.39	21.11	182.98	844.00	799.00/M	EEU-FA1V182L
	2200	16	35.5	7.5	0.8	770.0	0.12	0.016	3150	7000	P5648A-ND	3.24	28.61	247.98	1144.00	1082.00/M	EEU-FA1V222
	3300	18	35.5	7.5	0.8	1155.0	0.12	0.015	3680	7000	P5649A-ND	4.23	37.35	323.70	1493.00	1413.00/M	EEU-FA1V332
50	82	8	11.5	3.5	0.6	41.0	0.10	0.234	485	3500	P5650A-ND	.52	4.61	39.98	184.00	174.00/M	EEU-FA1H820
	120	8	15	3.5	0.6	60.0	0.10	0.155	635	5000	P5665A-ND	.62	5.48	47.45	219.00	207.00/M	EEU-FA1H121L
	120	10	12.5	5	0.6	60.0	0.10	0.162	615	4000	P5651A-ND	.68	5.96	51.68	238.00	226.00/M	EEU-FA1H121
	220	10	20	5	0.6	110.0	0.10	0.090	1030	6000	P5652A-ND	.91	7.99	69.23	319.00	302.00/M	EEU-FA1H221
	220	12.5	15	5	0.6	110.0	0.10	0.100	1150	5000	P5653A-ND	1.02	8.96	77.68	358.00	339.00/M	EEU-FA1H221S
	390	12.5	20	5	0.6	195.0	0.10	0.058	1480	7000	P5654A-ND	1.26	11.10	96.20	444.00	420.00/M	EEU-FA1H391
	560	12.5	25	5	0.6	280.0	0.10	0.050	1830	7000	P5655A-ND	1.50	13.20	114.40	528.00	499.00/M	EEU-FA1H561
	680	12.5	30	5	0.8	340.0	0.10	0.040	2215	7000	P5666A-ND	1.65	14.55	126.10	582.00	550.00/M	EEU-FA1H681L
	820	12.5	35	5	0.8	410.0	0.10	0.034	2285	7000	P5667A-ND	1.98	17.51	151.78	700.00	662.00/M	EEU-FA1H821L
	1000	12.5	40	5	0.8	500.0	0.10	0.030	2590	7000	P5668A-ND	2.26	19.95	172.90	798.00	755.00/M	EEU-FA1H102L
	1000	16	25	7.5	0.8	500.0	0.10	0.034	2235	7000	P5656A-ND	2.30	20.25	175.50	810.00	766.00/M	EEU-FA1H102
	1500	16	35.5	7.5	0.8	750.0	0.10	0.025	2790	7000	P5669A-ND	3.08	27.15	235.30	1085.00	1027.00/M	EEU-FA1H152L
	1800	16	40	7.5	0.8	900.0	0.10	0.023	2845	7000	P5670A-ND	3.49	30.75	266.50	1229.00	1163.00/M	EEU-FA1H182L
63	100	8	15	3.5	0.6	63.0	0.10	0.230	535	5000	P5671A-ND	.63	5.59	48.43	223.00	211.00/M	EEU-FA1J101L
	330	10	30	5	0.6	207.9	0.10	0.090	1300	7000	P5672A-ND	1.22	10.73	92.95	429.00	406.00/M	EEU-FA1J331L
	470	12.5	30	5	0.8	296.1	0.10	0.055	2090	7000	P5673A-ND	1.80	15.90	137.80	636.00	601.00/M	EEU-FA1J471L
	680	12.5	35	5	0.8	428.4	0.10	0.047	2265	7000	P5674A-ND	2.01	17.78	154.05	711.00	672.00/M	EEU-FA1J681L
	820	12.5	40	5	0.8	516.6	0.10	0.042	2560	7000	P5675A-ND	2.37	20.89	181.03	835.00	790.00/M	EEU-FA1J821L
	1200	16	40	7.5	0.8	756.0	0.10	0.030	2825	7000	P5676A-ND	3.60	31.76	275.28	1270.00	1201.00/M	EEU-FA1J122L
	1500	18	35.5	7.5	0.8	945.0	0.10	0.030	3095	7000	P5677A-ND	4.13	36.45	315.90	1457.00	1379.00/M	EEU-FA1J152
	1800	18	40	7.5	0.8	1134.0	0.10	0.025	3205	7000	P5678A-ND	4.67	41.18	356.85	1646.00	1557.00/M	EEU-FA1J182

Panasonic® Z Series

Miniature Aluminum Electrolytic Capacitors

±20%, Low Leakage, Low Impedance



SPECIFICATIONS:

- **Operating Temperature:** −40 to +85°C
- **Rated Working Voltage:** 6.3 to 50VDC
- **Rated Capacitance:** 0.1 to 2200µF
- **Capacitance Tolerance:** ±20%
- **Leakage Current:** I = 0.002CV + 1 (µA) max.
  Where, I: d-c leakage current (µA)
  C: rated capacitance (µF)
  V: d-c rated working voltage (V)
  Leakage current is measured after 2-minute application of the rated d-c working voltage.
- **Surge Voltage:**

Working Voltage	Surge Voltage
6.3 V DC	8 V DC
10	13
16	20
25	32
50	63

Surge voltage listed above is applied to the capacitor in series with 1,000 ohms resistor at a cycle of 0.5 minute "ON" and 4.5 minute "OFF" repeating 1,000 times at 25°C ± 10°C. After the test, the capacitor should meet the following limits.

Capacitance change	Within ± 10% of the initial measured value
Tan δ	Less than 150% of the initial specified value
DC leakage current	Less than the initial specified value

- **Tan ∂. (Dissipation Factor) Max.**

Working Volt.	Tan δ	D.F.
6.3 V DC	0.20	20%
10	0.17	17
16	0.13	13
25	0.10	10
50	0.08	8

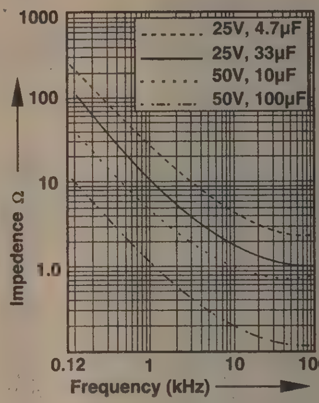
0.06 for 1µF or less.

- **Low Temperature Stability:**
  Maximum impedance ratio against +20°C at 120Hz

Working Volt.	−25°C/+20°C	−40°C/+20°C
6.3V	3	5
10	2	4
16	2	3
25	1.5	2
50	1.5	2

- **Load Life:** After 2,000 hour application of d-c working voltage at +85°C with specified r-m-s ripple current, the measurements should meet the following requirements.

Capacitance change	Within ± 20% of the initial measured value
Tan δ	Less than 200% of the initial specified value
DC leakage current	Less than the initial specified value



PANASONIC Z CROSS REFERENCES

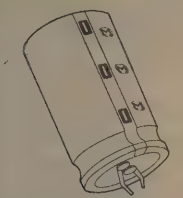
IC: RLR; **Sprage:** 30D; **UCC:** SX

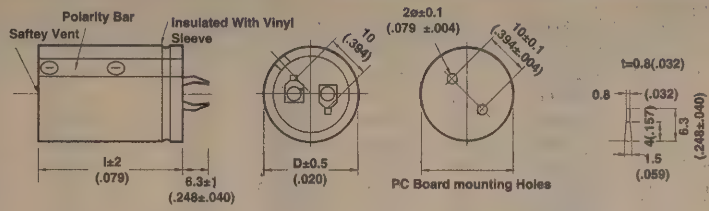
Panasonic/Matsushita Electric has announced a change in the Corporate Trademark. Present trademark: ▲. New trademark: Ⓜ.

Rating		Dimensions mm (inch)				Max. RMS Rip. Cur. (mA) @ 120 Hz 85°C	Max. Leakage Current µA	Digi-Key Part No.	Pricing						Panasonic Part No.
WV DC	Cap. µF	D	L	A	d				1	10	100	1,000	5,000	10,000	
6.3	220	10.0 (.394)	12.5 (0.492)	5.0 (.197)	0.6 (.024)	250	3.7	P6601-ND	.39	3.00	23.97	179.00	171.00/M	155.00/M	ECE-A6Z220
	330	10.0 (.394)	16 (0.630)	5.0 (.197)	0.6 (.024)	320	5.0	P6602-ND	.42	3.22	25.76	192.00	184.00/M	166.00/M	ECE-A6Z330
	470	10.0 (.394)	20 (0.827)	5.0 (.197)	0.6 (.024)	380	6.7	P6603-ND	.43	3.28	26.21	196.00	187.00/M	169.00/M	ECE-A6Z470
	1000	12.5 (.492)	25 (1.024)	5.0 (.197)	0.6 (.024)	530	13.0	P6604-ND	.67	5.15	41.22	308.00	294.00/M	266.00/M	ECE-A6Z1000
	2200	16.0 (.630)	25 (1.024)	7.5 (.295)	0.8 (.032)	800	27.4	P6605-ND	.97	7.45	59.58	445.00	426.00/M	384.00/M	ECE-A6Z2200
10	22	5.0 (.197)	11 (0.433)	2.0 (079)	0.5 (.020)	60	1.5	P6606-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A10Z22
	33	6.3 (.248)	11.2 (0.433)	2.5 (.098)	0.6 (.024)	80	1.7	P6607-ND	.24	1.88	15.01	112.00	107.00/M	97.00/M	ECE-A10Z33
	47	6.3 (.248)	11.2 (0.433)	2.5 (.098)	0.6 (.024)	100	1.9	P6608-ND	.24	1.88	15.01	112.00	107.00/M	97.00/M	ECE-A10Z47
	100	8.0 (.315)	11.5 (0.433)	3.5 (.138)	0.6 (.024)	160	3.0	P6609-ND	.30	2.30	18.37	137.00	131.00/M	119.00/M	ECE-A10Z100
	220	10.0 (.394)	16 (0.630)	5.0 (.197)	0.6 (.024)	250	5.4	P6610-ND	.42	3.22	25.76	192.00	184.00/M	166.00/M	ECE-A10Z220
	330	10.0 (.394)	20 (0.827)	5.0 (.197)	0.6 (.024)	340	7.6	P6611-ND	.44	3.42	27.33	204.00	195.00/M	176.00/M	ECE-A10Z330
	470	12.5 (.492)	20 (0.827)	5.0 (.197)	0.6 (.024)	400	10.4	P6612-ND	.60	4.65	37.18	277.00	266.00/M	240.00/M	ECE-A10Z470
	1000	12.5 (.492)	25 (1.024)	5.0 (.197)	0.6 (.024)	580	21.0	P6613-ND	.72	5.52	44.13	329.00	315.00/M	285.00/M	ECE-A10Z1000
	2200	16.0 (.630)	31.5 (1.299)	7.5 (.295)	0.8 (.032)	850	45.0	P6614-ND	1.16	8.93	71.46	533.00	510.00/M	461.00/M	ECE-A10Z2200
16	6.8	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	30	1.3	P6615-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A16Z6R8
	10	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	40	1.4	P6616-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A16Z10
	22	6.3 (.248)	11.2 (0.433)	2.5 (0.98)	0.6 (024)	70	1.7	P6617-ND	.24	1.88	15.01	112.00	107.00/M	97.00/M	ECE-A16Z22
	33	6.3 (.248)	11.2 (0.433)	2.5 (.098)	0.6 (.024)	90	2.1	P6618-ND	.26	1.99	15.90	119.00	114.00/M	103.00/M	ECE-A16Z33
	47	8.0 (.315)	11.5 (0.433)	3.5 (.138)	0.6 (.024)	110	2.5	P6619-ND	.30	2.30	18.37	137.00	131.00/M	119.00/M	ECE-A16Z47
	100	10.0 (394)	12.5 (0.492)	5.0 (.197)	0.6 (.024)	220	4.2	P6620-ND	.39	3.00	23.97	179.00	171.00/M	155.00/M	ECE-A16Z100
	220	10.0 (.394)	16 (0.630)	5.0 (.197)	0.6 (.024)	320	8.1	P6621-ND	.44	3.42	27.33	204.00	195.00/M	176.00/M	ECE-A16Z220
	330	10.0 (.394)	20 (0.827)	5.0 (.197)	0.6 (.024)	405	11.6	P6622-ND	.60	4.65	37.18	277.00	266.00/M	240.00/M	ECE-A16Z330
	470	12.5 (.492)	20 (0.827)	5.0 (.197)	0.6 (.024)	480	16.1	P6623-ND	.68	5.26	42.11	314.00	301.00/M	272.00/M	ECE-A16Z470
	1000	16.0 (.630)	25 (1.024)	7.5 (.295)	0.8 (.032)	700	33.0	P6624-ND	.85	6.55	52.42	391.00	374.00/M	338.00/M	ECE-A16Z1000
	2200	18.0 (.709)	31.5 (1.299)	7.5 (.295)	0.8 (.032)	1000	71.4	P6625-ND	1.53	11.76	94.08	702.00	672.00/M	607.00/M	ECE-A16Z2200
25	3.3	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	20	1.2	P6626-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A25Z3R3
	4.7	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	25	1.3	P6627-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A25Z4R7
	6.8	6.3 (.248)	11.2 (0.433)	2.5 (.098)	0.6 (.024)	35	1.4	P6628-ND	.21	1.65	13.22	99.00	94.00/M	85.00/M	ECE-A25Z6R8
	10	6.3 (.248)	11.2 (0.433)	2.5 (.098)	0.6 (.024)	45	1.5	P6629-ND	.24	1.88	15.01	112.00	107.00/M	97.00/M	ECE-A25Z10
	22	8.0 (.315)	11.5 (0.433)	3.5 (.138)	0.6 (.024)	80	2.1	P6630-ND	.27	2.04	16.35	122.00	117.00/M	105.00/M	ECE-A25Z22
	33	8.0 (.315)	11.5 (0.433)	3.5 (.138)	0.6 (.024)	110	2.7	P6631-ND	.30	2.30	18.37	137.00	131.00/M	119.00/M	ECE-A25Z33
	47	10.0 (.394)	12.5 (0.492)	5.0 (.197)	0.6 (.024)	140	3.4	P6632-ND	.37	2.88	23.07	172.00	165.00/M	149.00/M	ECE-A25Z47
	100	10.0 (.394)	16 (0.630)	5.0 (.197)	0.6 (.024)	230	6.0	P6633-ND	.42	3.25	25.98	194.00	186.00/M	168.00/M	ECE-A25Z100
	220	12.5 (.492)	20 (0.827)	5.0 (.197)	0.6 (0.24)	400	12.0	P6634-ND	.62	4.73	37.86	283.00	270.00/M	244.00/M	ECE-A25Z220
	330	12.5 (.492)	25 (1.024)	5.0 (.197)	0.6 (.024)	500	17.5	P6635-ND	.72	5.52	44.13	329.00	315.00/M	285.00/M	ECE-A25Z330
	470	16.0 (.630)	25 (1.024)	7.5 (.295)	0.8 (.032)	600	24.5	P6636-ND	.85	6.55	52.42	391.00	374.00/M	338.00/M	ECE-A25Z470
	1000	16.0 (.630)	31.5 (1.299)	7.5 (.295)	0.8 (.032)	850	51.0	P6637-ND	1.38	10.58	84.67	632.00	605.00/M	546.00/M	ECE-A25Z1000
50	0.1	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	—	1.1	P6638-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50ZR1
	0.15	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	—	1.1	P6639-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50ZR15
	0.22	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	—	1.1	P6640-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50ZR22
	0.33	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	—	1.1	P6641-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50ZR33
	0.47	5.0 (.197)	11.2 (0.433)	2.0 (.079)	0.5 (.020)	10	1.1	P6642-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50ZR47
	0.68	5.0 (.197)	11.5 (0.433)	2.0 (.079)	0.5 (.020)	10	1.1	P6643-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50ZR68
	1.0	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	10	1.1	P6644-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50Z1
	1.5	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	10	1.2	P6645-ND	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50Z1R5
	2.2	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	18	1.3	P6646-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50Z2R2
	3.3	5.0 (.197)	11 (0.433)	2.0 (.079)	0.5 (.020)	25	1.4	P6647-ND*	.18	1.40	11.20	84.00	80.00/M	72.00/M	ECE-A50Z3R3
	4.7	6.3 (.248)	11 (0.433)	2.5 (.098)	0.6 (.024)	35	1.5	P6648-ND*	.24	1.88	15.01	112.00	107.00/M	97.00/M	ECE-A50Z4R7
	6.8	8.0 (.315)	11.5 (0.433)	3.5 (.138)	0.6 (.024)	45	1.7	P6649-ND	.28	2.13	17.02	127.00	122.00/M	110.00/M	ECE-A50Z6R8
	10	8.0 (.315)	11 (0.433)	3.5 (.138)	0.6 (.024)	60	2.0	P6650-ND*	.30	2.30	18.37	137.00	131.00/M	119.00/M	ECE-A50Z10
	22	10.0 (.394)	12.5 (0.492)	5.0 (.197)	0.6 (.024)	100	3.2	P6651-ND*	.40	3.11	24.86	186.00	178.00/M	160.00/M	ECE-A50Z22
	33	10.0 (.394)	16 (0.630)	5.0 (.197)	0.6 (.024)	140	4.3	P6652-ND*	.42	3.22	25.76	192.00	184.00/M	166.00/M	ECE-A50Z33
	47	10.0 (.394)	16 (0.630)	5.0 (.197)	0.6 (.024)	180	5.7	P6653-ND*	.44	3.42	27.33	204.00	195.00/M	176.00/M	ECE-A50Z47
	100	12.5 (.492)	20 (0.827)	5.0 (.197)	0.6 (.024)	320	11.0	P6654-ND*	.68	5.26	42.11	314.00	301.00/M	272.00/M	ECE-A50Z100
	220	16.0 (.630)	25 (1.024)	7.5 (.295)	0.8 (.032)	500	23.0	P6655-ND*	.88	6.80	54.43	406.00	389.00/M	351.00/M	ECE-A50Z220
	330	16.0 (.630)	31.5 (1.299)	7.5 (.295)	0.8 (.032)	650	34.0	P6656-ND*	1.38	10.58	84.67	632.00	605.00/M	546.00/M	ECE-A50Z330
	470	18.0 (.709)	31.5 (1.299)	7.5 (.295)	0.8 (.032)	820	48.0	P6657-ND	1.53	11.76	94.08	702.00	672.00/M	607.00/M	ECE-A50Z470

* **Z-KIT-ND** (10 each of parts indicated.) Notebook style storage case and bin storage guide included **$42.95**

Panasonic® TS-Series Large Aluminum Electrolytic Capacitors





CROSS REFERENCES

PANASONIC TSU
Elna: LP; **Marcon:** FTW/FHW, **Nichicon:** UB/PS; **Rubycon:** LP/RP; **Sprague:** 80D; **UCC:** NMA.

PANASONIC TSUP
Matsushita: TSUP; **Nichichemi:** SMH; **Nichicon:** LQ; **Rubycon:** USP; **Marcon:** DWF & CEFHW; **UCC:** SMH; **Sprague:** 82D; **ICI:** LPR/LUG; **Mepco:** 3487.

PANASONIC TSNH
Elna: LPS/LPJ; **Marcon:** FTU/FHU; **Nichicon:** GH/GL/GM; **Rubycon:** XLP/XRP; **Sprague:** 81D; **UCC:** KM.

PANASONIC TSHA
Matsushita: TSHA; **Nichichemi:** KMH; **Nichicon:** GQ; **Rubycon:** MXP; **Marcon:** DUF & CEFHU; **UCC:** KMH; **Sprague:** 81D; **Mepco:** 3488.

Specifications:

- **TSW Series: Standard Type** (16 ~ 250V/ –40 ~ +85°C/220 ~ 15,000µF)
- **TSU Series: Miniaturized Type** (16 ~ 450V/ –40 ~ +85°C/100 ~ 47,000µF)
- **TSUP Series: Large Can Type** (16 ~ 250V/ –40 ~ +85°C/180 ~ 68,000µF)
- **TSNH Series: 105&C Type** (16 ~ 100V/ –40° ~ +105°C/470 ~ 33,000µF)
  * 25 ~ +85°C or 400, 450V TSU Series.
- **TSHA Series: Large Can Type** (10 ~ 250V/ –40 ~ +105°C/180 ~ 68,000µF)
- **Capacitance Tolerance (at 120Hz):**

Type:	TSW	TSU	TSUP	TSNH	TSHA
Tol.:	–10 ~ +30%	±20%	±20%	±20%	±20%

- **Ripple Voltage:**
  The sum of the DC voltage plus the AC peak ripple voltage shall not exceed the rated DC voltage and there shall be no application of reversed voltage.
- **Surge Voltage & Surge Voltage Test:**
  The DC surge voltage is the maximum voltage to which the capacitor should be subjected. The surge voltage listed below is applied in series with a 1,000 ohm resistor at a cycle of 0.5 minutes "ON" and 4.5 minutes "OFF", repeated 1,000 times at 25°C.

Rated DC Voltage:	16	25	35	50	63	80	100	160	200	250	400	450
Surge Voltage:	20	32	44	63	79	100	125	200	250	300	450	500

After the test, the capacitor shall meet the following limits: Capacitance change of ±20% of initial measured value; DC leakage current less than initial limits; and D.F. less than 150% of initial limits.

- **Ripple Current (mA):**

Frequency (Hz):	50Hz	60Hz	120Hz	500Hz	1KHz	10 ~ 50KHz
16V ~ 100V:	0.93	0.95	1.0	1.05	1.06	1.15
160V ~ 450V:	0.75	0.8	1.0	1.2	1.25	1.4

- **D.C. Leakage Current:**
  Measurements shall be made at rated working voltage at 20°C. The voltage shall be applied to the capacitor for a minimum period of 5 minutes before reading the leakage current. Maximum leakage current shall not exceed the value given by the following formula: 16 ~ 100V: in case of C X V = 100,000µFV I = 0.01CVµA max. in case of C X V = 100,000µFV I = 3 v C x VµA max. 160 ~ 450V: 1 = 3 v C x VµA max. where I = leakage current in mA, C = rated capacitance in µF V = DC rated WV in volts.
- **Load Life Test:**
  The capacitor shall be subjected to application of the DC rated voltage with full rated ripple current in the specified ambient temperature for the specified life period. The capacitor shall then be removed from the test chamber and stabilized at room temperature. After reaching temperature stability; the capacitor shall not exceed the following specified values listed: Capacitance change within ±20% of the initial measured value. D.F. 150% of the initial limits. DC leakage current 5 initial limits. Load life for each series is as follows: TSW, TSU: 1,000 hrs. at 85°C; TSNH: 2,000 hrs. at 105°C.

Working Voltage DC	Cap. (µF)	Max. DC (mA) Leakage Current	85° (rms) Ripple Current (120Hz) A	Dimensions in mm D	Dimensions in mm L	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 500	Pricing 1,000	Pricing 5,000	Panasonic Part No.
TSW General Purpose +85°C (Not recommended for new design. Use TSU/TSUP series)													
35	1000	0.35	1.35	22	25	P6511-ND	1.90	16.32	127.84	408.50	762.00	707.00/M	ECE-T35R102SW
TSU General Purpose +85°C													
16	4700	0.75	2.0	22	25	P6445-ND	3.05	26.16	204.92	654.50	1221.00	1134.00/M	ECE-S1CU472D
	6800	0.98	2.3	22	31.5	P6446-ND	3.13	26.85	210.33	671.50	1253.00	1164.00/M	ECE-S1CU682E
	10000	1.20	3.0	22	40	P6447-ND	3.37	28.92	226.54	723.50	1350.00	1253.00/M	ECE-S1CU103G
	22000	1.77	4.6	25	50	P6420-ND	5.64	48.33	378.59	1209.00	2255.00	2094.00/M	ECE-S1CU223N
	33000	2.17	5.2	30	50	P6421-ND	7.90	67.71	530.40	1694.00	3160.00	2934.00/M	ECE-S1CU333U
	47000	2.6	5.4	35	51	P6422-ND	10.00	85.74	671.63	2145.00	4001.00	3715.00/M	ECE-S1CU473Z
25	3300	0.82	2.0	22	25	P6448-ND	3.11	26.67	208.92	667.00	1245.00	1156.00/M	ECE-S1EU332D
	4700	1.02	2.0	22	31.5	P6449-ND	3.19	27.36	214.32	684.50	1277.00	1186.00/M	ECE-S1EU472E
	6800	1.23	2.9	22	40	P6475-ND	3.35	28.74	225.13	719.00	1341.00	1245.00/M	ECE-S1EU682G
	10000	1.6	3.4	25	40	P6480-ND	4.29	36.75	287.88	919.50	1715.00	1593.00/M	ECE-S1EU103M
	22000	2.22	5.3	30	50	P6423-ND	7.88	67.56	529.22	1690.00	3153.00	2928.00/M	ECE-S1EU223U
	33000	2.72	5.8	35	51	P6424-ND	10.63	91.14	713.93	2280.00	4253.00	3949.00/M	ECE-S1EU333Z
35	2200	0.77	1.8	22	25	P6481-ND	3.22	27.57	215.97	689.50	1287.00	1195.00/M	ECE-S1VU222D
	3300	1.01	2.2	22	40	P6482-ND	3.26	27.90	218.55	698.00	1302.00	1209.00/M	ECE-S1VU332E
	4700	1.21	2.5	22	40	P6483-ND	3.30	28.26	221.37	707.00	1319.00	1225.00/M	ECE-S1VU472G
	6800	1.46	3.0	25	40	P6484-ND	4.22	36.21	283.65	906.00	1690.00	1569.00/M	ECE-S1VU682M
	10000	1.77	3.8	30	40	P6485-ND	5.84	50.04	391.98	1252.00	2335.00	2168.00/M	ECE-S1VU103T
	15000	2.17	4.7	30	50	P6425-ND	7.94	68.07	533.22	1703.00	3177.00	2950.00/M	ECE-S1VU153U
	22000	2.63	5.1	35	51	P6426-ND	11.10	95.10	744.95	2379.00	4438.00	4121.00/M	ECE-S1VU223Z
50	2200	0.99	1.9	22	31.5	P6486-ND	3.19	27.36	214.32	684.50	1277.00	1186.00/M	ECE-S1HU222E
	3300	1.21	2.2	22	40	P6487-ND	3.39	29.07	227.72	727.00	1357.00	1260.00/M	ECE-S1HU332G
	4700	1.45	2.7	25	40	P6488-ND	4.32	37.05	290.23	927.00	1729.00	1606.00/M	ECE-S1HU472M
	6800	1.74	3.3	30	40	P6489-ND	5.90	50.58	396.21	1265.50	2360.00	2192.00/M	ECE-S1HU682T
	10000	2.12	4.3	30	50	P6427-ND	7.64	65.49	513.01	1638.50	3056.00	2838.00/M	ECE-S1HU103U
	15000	2.59	4.7	35	51	P6428-ND	10.79	92.49	724.51	2314.00	4316.00	4008.00/M	ECE-S1HU153Z
63	1000	0.63	1.5	22	25	P6490-ND	3.28	28.08	219.96	702.50	1310.00	1217.00/M	ECE-S1JU102D
	2200	1.11	1.9	22	40	P6491-ND	3.52	30.15	236.18	754.50	1407.00	1307.00/M	ECE-S1JU222G
	3300	1.36	2.4	25	40	P6492-ND	4.53	38.82	304.09	971.00	1812.00	1682.00/M	ECE-S1JU332M
	4700	1.63	2.9	25	50	P6493-ND	5.70	48.87	382.82	1222.50	2281.00	2118.00/M	ECE-S1JU472N
	6800	1.96	3.8	30	50	P6494-ND	8.12	69.63	545.44	1742.00	3249.00	3017.00/M	ECE-S1JU682U
	10000	2.38	4.2	35	51	P6495-ND	10.87	93.18	729.91	2331.00	4348.00	4038.00/M	ECE-S1JU103Z

Panasonic® TS-Series Large Aluminum Electrolytic Capacitors

Working Voltage DC	Cap. (µF)	Max. DC (mA) Leakage Current	85° (rms) Ripple Current (120Hz) A	Dimensions in mm		Digi-Key Part No.	Pricing						Panasonic Part No.
				D	L		1	10	100	500	1,000	5,000	
100	470	0.47	1.2	22	25	P6496-ND	3.60	30.84	241.58	771.50	1439.00	1336.00/M	ECE-S2AU471D
	680	0.68	1.4	22	31.5	P6497-ND	3.72	31.86	249.57	797.00	1487.00	1381.00/M	ECE-S2AU681E
	1000	1.00	1.5	22	40	P6498-ND	4.65	39.84	312.08	996.50	1859.00	1726.00/M	ECE-S2AU102G
	2200	1.40	2.3	25	50	P6499-ND	6.91	59.22	463.89	1481.50	2764.00	2566.00/M	ECE-S2AU222N
	3300	1.72	3.0	30	50	P6429-ND	9.66	82.80	648.60	2071.50	3864.00	3588.00/M	ECE-S2AU332U
	4700	2.05	3.4	35	51	P6430-ND	12.93	110.85	868.33	2773.00	5173.00	4804.00/M	ECE-S2AU472Z
200	220	0.62	1.15	22	31.5	P6540-ND	3.28	28.08	219.96	702.50	1310.00	1217.00/M	ECE-S2DU221E
	470	0.91	1.7	25	40	P6542-ND	4.32	37.05	290.23	927.00	1729.00	1606.00/M	ECE-S2DU471M
	680	1.10	2.15	30	40	P6544-ND	5.90	50.58	396.21	1265.50	2360.00	2192.00/M	ECE-S2DU681T
	1000	1.34	2.8	35	40	P6546-ND	7.88	67.56	529.22	1690.00	3153.00	2928.00/M	ECE-S2DU102Y
250	220	0.70	1.15	22	40	P6548-ND	3.56	30.48	238.76	762.50	1422.00	1321.00/M	ECE-S2EU221G
	330	0.86	1.4	25	40	P6549-ND	4.65	39.84	312.08	996.50	1859.00	1726.00/M	ECE-S2EU331M
	470	1.02	1.7	30	40	P6551-ND	6.18	53.01	415.25	1326.00	2474.00	2297.00/M	ECE-S2EU471T
	680	1.23	2.15	30	50	P6553-ND	7.88	67.56	529.22	1690.00	3153.00	2928.00/M	ECE-S2EU681U
	1000	1.5	2.8	35	51	P6431-ND	10.23	87.66	686.67	2193.00	4091.00	3799.00/M	ECE-S2EU102Z
400	68	0.49	.44	25	25	P6432-ND	3.60	30.84	241.58	771.50	1439.00	1336.00/M	ECE-S2GU680J
	100	0.6	.59	25	31.5	P6433-ND	4.04	34.65	271.43	867.00	1617.00	1502.00/M	ECE-S2GU101K
	100	0.60	.59	22	40	P6533-ND	3.84	32.94	258.03	824.00	1537.00	1427.00/M	ECE-S2GU101G
	220	0.88	.95	30	40	P6435-ND	6.83	58.53	458.49	1464.00	2731.00	2536.00/M	ECE-S2GU221T
450	47	0.43	.37	25	25	P6438-ND	3.88	33.27	260.62	832.50	1553.00	1442.00/M	ECE-S2WU470J
	68	0.52	.48	25	31.5	P6439-ND	4.12	35.34	276.83	884.00	1649.00	1531.00/M	ECE-S2WU680K
	100	0.63	.66	30	31.5	P6440-ND	5.25	45.03	352.74	1126.50	2101.00	1951.00/M	ECE-S2WU101R
	220	0.94	1.2	35	40	P6442-ND	8.77	75.18	588.91	1881.00	3508.00	3258.00/M	ECE-S2WU221Y
	330	1.15	1.4	35	51	P6443-ND	11.60	99.45	779.03	2488.00	4641.00	4310.00/M	ECE-S2WU331Z
TSUP Miniaturized Size General Purpose +85°C													
16	6800	0.98	3.15	20	25	P6858-ND	3.58	30.33	220.60	828.00	1544.00	1434.00/M	ECO-S1CP682AA
	8200	1.08	3.47	20	30	P6859-ND	3.73	31.57	229.60	861.50	1607.00	1492.00/M	ECO-S1CP822AA
	10000	1.20	3.78	20	35	P6860-ND	3.88	32.86	239.00	897.00	1673.00	1554.00/M	ECO-S1CP103AA
	10000	1.20	3.78	25	25	P6861-ND	3.17	26.81	195.00	731.50	1365.00	1268.00/M	ECO-S1CP103CA
	12000	1.31	4.52	20	35	P6862-ND	4.22	35.72	259.80	975.00	1819.00	1689.00/M	ECO-S1CP123AA
	12000	1.31	4.52	25	25	P6863-ND	3.51	29.67	215.80	810.00	1511.00	1403.00/M	ECO-S1CP123CA
	15000	1.46	5.26	20	40	P6864-ND	4.47	37.83	275.10	1032.50	1926.00	1788.00/M	ECO-S1CP153AA
	15000	1.46	5.26	25	30	P6865-ND	3.92	33.19	241.40	906.00	1690.00	1569.00/M	ECO-S1CP153CA
	18000	1.60	5.57	22	40	P6866-ND	4.22	35.72	259.80	975.00	1819.00	1689.00/M	ECO-S1CP183BA
	18000	1.60	5.57	25	30	P6867-ND	4.41	37.32	271.40	1018.50	1900.00	1764.00/M	ECO-S1CP183CA
	22000	1.77	6.10	22	45	P6868-ND	4.78	40.48	294.40	1104.50	2061.00	1914.00/M	ECO-S1CP223BA
	22000	1.77	6.10	30	30	P6869-ND	5.35	45.24	329.00	1234.50	2303.00	2139.00/M	ECO-S1CP223DA
	27000	1.97	6.31	25	45	P6870-ND	5.61	47.49	345.40	1296.00	2418.00	2245.00/M	ECO-S1CP273CA
	27000	1.97	6.31	30	35	P6871-ND	6.06	51.29	373.00	1399.50	2611.00	2425.00/M	ECO-S1CP273DA
	33000	2.17	6.84	25	50	P6872-ND	6.55	55.41	403.00	1512.50	2821.00	2620.00/M	ECO-S1CP333CA
	33000	2.17	6.84	35	30	P6873-ND	7.19	60.80	442.20	1659.50	3095.00	2874.00/M	ECO-S1CP333EA
	39000	2.36	6.94	30	45	P6874-ND	7.53	63.69	463.20	1738.00	3242.00	3011.00/M	ECO-S1CP393DA
	39000	2.36	6.94	35	35	P6875-ND	7.68	64.96	472.40	1772.50	3307.00	3071.00/M	ECO-S1CP393EA
	47000	2.60	7.47	30	50	P6876-ND	8.65	73.21	532.40	1998.00	3727.00	3461.00/M	ECO-S1CP473DA
	47000	2.60	7.47	35	40	P6877-ND	8.84	74.80	544.00	2041.50	3808.00	3536.00/M	ECO-S1CP473EA
	56000	2.83	8.73	35	45	P6878-ND	10.04	84.95	617.80	2318.50	4325.00	4016.00/M	ECO-S1CP563EA
	68000	3.12	9.05	35	50	P6879-ND	11.69	98.95	719.60	2700.50	5037.00	4677.00/M	ECO-S1CP683EA
25	4700	1.02	3.05	20	25	P6880-ND	3.47	29.37	213.60	801.50	1495.00	1388.00/M	ECO-S1EP472AA
	5600	1.12	3.36	20	30	P6881-ND	3.55	30.00	218.20	819.00	1527.00	1418.00/M	ECO-S1EP562AA
	6800	1.23	3.47	20	35	P6882-ND	3.73	31.57	229.60	861.50	1607.00	1492.00/M	ECO-S1EP682AA
	6800	1.23	3.47	25	25	P6883-ND	3.06	25.91	188.40	707.00	1319.00	1225.00/M	ECO-S1EP682CA
	8200	1.35	3.57	20	40	P6884-ND	4.00	33.85	246.20	924.00	1723.00	1600.00/M	ECO-S1EP822AA
	8200	1.35	3.57	25	25	P6885-ND	3.32	28.11	204.40	767.00	1431.00	1329.00/M	ECO-S1EP822CA
	10000	1.50	3.78	22	35	P6886-ND	3.47	29.37	213.60	801.50	1495.00	1388.00/M	ECO-S1EP103BA
	10000	1.50	3.78	30	25	P6887-ND	4.00	33.85	246.20	924.00	1723.00	1600.00/M	ECO-S1EP103DA
	12000	1.64	4.10	22	40	P6888-ND	4.00	33.85	246.20	924.00	1723.00	1600.00/M	ECO-S1EP123BA
	12000	1.64	4.10	30	30	P6889-ND	4.52	38.28	278.40	1044.50	1949.00	1810.00/M	ECO-S1EP123DA
	15000	1.83	4.63	22	50	P6890-ND	4.71	39.82	289.60	1086.50	2027.00	1882.00/M	ECO-S1EP153BA
	15000	1.83	4.63	30	30	P6891-ND	5.20	44.00	320.00	1201.00	2240.00	2080.00/M	ECO-S1EP153DA
	18000	2.01	5.47	25	45	P6892-ND	5.46	46.20	336.00	1261.00	2352.00	2184.00/M	ECO-S1EP183CA
	18000	2.01	5.47	30	35	P6893-ND	5.88	49.72	361.60	1357.00	2531.00	2350.00/M	ECO-S1EP183DA
	22000	2.22	6.10	25	50	P6894-ND	6.32	53.52	389.20	1460.50	2724.00	2530.00/M	ECO-S1EP223CA
	22000	2.22	6.10	30	40	P6895-ND	6.74	57.01	414.60	1556.00	2902.00	2695.00/M	ECO-S1EP223DA
	27000	2.46	6.21	30	45	P6896-ND	7.53	63.69	463.20	1738.00	3242.00	3011.00/M	ECO-S1EP273DA
	27000	2.46	6.21	35	35	P6897-ND	7.71	65.26	474.60	1781.00	3322.00	3085.00/M	ECO-S1EP273EA
	33000	2.72	6.84	30	50	P6898-ND	8.91	75.41	548.40	2058.00	3839.00	3565.00/M	ECO-S1EP333DA
	33000	2.72	6.84	35	40	P6899-ND	9.29	78.60	571.60	2145.00	4001.00	3715.00/M	ECO-S1EP333EA
	39000	2.96	7.36	35	45	P6900-ND	10.53	89.07	647.80	2431.00	4535.00	4211.00/M	ECO-S1EP393EA
	47000	3.25	8.00	35	50	P6901-ND	12.18	103.04	749.40	2812.00	5246.00	4871.00/M	ECO-S1EP473EA

Panasonic® TS-Series Large Aluminum Electrolytic Capacitors

Working Voltage DC	Cap. (µF)	Max. DC (mA) Leakage Current	85° (rms) Ripple Current (120Hz) A	Dimensions in mm		Digi-Key Part No.	Pricing						Panasonic Part No.
				D	L		1	10	100	500	1,000	5,000	
35	3300	1.01	2.73	20	25	P6902-ND	3.40	28.74	209.00	784.50	1463.00	1359.00/M	ECO-S1VP332AA
	3900	1.10	2.94	20	30	P6903-ND	3.43	29.04	211.20	792.50	1478.00	1373.00/M	ECO-S1VP392AA
	4700	1.21	3.26	20	35	P6904-ND	3.51	29.67	215.80	810.00	1511.00	1403.00/M	ECO-S1VP472AA
	4700	1.21	3.26	25	25	P6905-ND	2.87	24.28	176.60	662.50	1236.00	1148.00/M	ECO-S1VP472CA
	5600	1.32	3.36	20	40	P6906-ND	3.85	32.56	236.80	888.50	1658.00	1539.00/M	ECO-S1VP562AA
	5600	1.32	3.36	25	25	P6907-ND	3.17	26.81	195.00	731.50	1365.00	1268.00/M	ECO-S1VP562CA
	6800	1.46	3.68	22	35	P6908-ND	3.29	27.80	202.20	759.00	1415.00	1314.00/M	ECO-S1VP682BA
	6800	1.46	3.68	25	30	P6909-ND	3.43	29.04	211.20	792.50	1478.00	1373.00/M	ECO-S1VP682CA
	8200	1.60	4.00	22	40	P6910-ND	3.77	31.93	232.20	871.50	1625.00	1509.00/M	ECO-S1VP822BA
	8200	1.60	4.00	25	35	P6911-ND	3.96	33.52	243.80	915.00	1707.00	1585.00/M	ECO-S1VP822CA
	10000	1.77	4.42	22	45	P6913-ND	4.30	36.36	264.40	992.00	1851.00	1719.00/M	ECO-S1VP103BA
	10000	1.77	4.42	35	25	P6914-ND	4.94	41.77	303.80	1140.00	2127.00	1975.00/M	ECO-S1VP103EA
	12000	1.94	5.05	25	45	P6915-ND	5.08	43.01	312.80	1174.00	2190.00	2033.00/M	ECO-S1VP123CA
	12000	1.94	5.05	35	30	P6916-ND	5.69	48.13	350.00	1313.50	2450.00	2275.00/M	ECO-S1VP123EA
	15000	2.17	5.57	25	50	P6917-ND	6.10	51.62	375.40	1408.50	2628.00	2440.00/M	ECO-S1VP153CA
	15000	2.17	5.57	35	30	P6918-ND	6.70	56.68	412.20	1547.00	2885.00	2679.00/M	ECO-S1VP153EA
	18000	2.38	5.68	30	45	P6919-ND	7.26	61.44	446.80	1676.50	3128.00	2904.00/M	ECO-S1VP183DA
	18000	2.38	5.68	35	35	P6920-ND	7.41	62.73	456.20	1712.00	3193.00	2965.00/M	ECO-S1VP183EA
	22000	2.63	6.10	30	50	P6921-ND	8.91	75.41	548.40	2058.00	3839.00	3565.00/M	ECO-S1VP223DA
	22000	2.63	6.10	35	40	P6922-ND	9.06	76.70	557.80	2093.00	3905.00	3626.00/M	ECO-S1VP223EA
	27000	2.91	6.84	35	45	P6923-ND	10.86	91.91	668.40	2508.00	4679.00	4345.00/M	ECO-S1VP273EA
	33000	3.22	7.15	35	50	P6924-ND	13.64	115.45	839.60	3150.50	5877.00	5457.00/M	ECO-S1VP333EA
50	2200	0.99	2.26	20	25	P6925-ND	3.75	31.76	231.00	867.00	1617.00	1502.00/M	ECO-S1HP222AA
	2700	1.10	2.52	20	30	P6926-ND	3.98	33.69	245.00	919.50	1715.00	1593.00/M	ECO-S1HP272AA
	3300	1.21	2.73	20	35	P6927-ND	4.09	34.60	251.60	944.00	1761.00	1635.00/M	ECO-S1HP332AA
	3300	1.21	2.73	25	25	P6928-ND	3.34	28.27	205.60	771.50	1439.00	1336.00/M	ECO-S1HP332CA
	3900	1.32	2.75	20	40	P6929-ND	4.39	37.15	270.20	1014.00	1891.00	1756.00/M	ECO-S1HP392AA
	3900	1.32	2.75	25	25	P6930-ND	3.64	30.83	224.20	841.50	1569.00	1457.00/M	ECO-S1HP392CA
	4700	1.45	3.03	22	35	P6931-ND	3.83	32.40	235.60	884.00	1649.00	1531.00/M	ECO-S1HP472BA
	4700	1.45	3.03	30	25	P6932-ND	4.39	37.15	270.20	1014.00	1891.00	1756.00/M	ECO-S1HP472DA
	5600	1.58	3.42	22	40	P6933-ND	4.28	36.22	263.40	988.50	1844.00	1712.00/M	ECO-S1HP562BA
	5600	1.58	3.42	30	30	P6934-ND	4.84	40.98	298.00	1118.00	2086.00	1937.00/M	ECO-S1HP562DA
	6800	1.74	3.85	22	50	P6935-ND	4.92	41.64	302.80	1136.50	2120.00	1968.00/M	ECO-S1HP682BA
	6800	1.74	3.85	30	30	P6936-ND	5.48	46.37	337.20	1265.50	2360.00	2192.00/M	ECO-S1HP682DA
	8200	1.92	4.41	25	45	P6937-ND	5.70	48.26	351.00	1317.00	2457.00	2282.00/M	ECO-S1HP822CA
	8200	1.92	4.41	30	35	P6938-ND	6.16	52.09	378.80	1421.50	2652.00	2462.00/M	ECO-S1HP822DA
	10000	2.12	4.97	25	50	P6939-ND	6.64	56.21	408.80	1534.00	2862.00	2657.00/M	ECO-S1HP103CA
	10000	2.12	4.97	35	30	P6940-ND	7.32	61.93	450.40	1690.00	3153.00	2928.00/M	ECO-S1HP103EA
	12000	2.32	5.58	30	45	P6941-ND	8.00	67.65	492.00	1846.00	3444.00	3198.00/M	ECO-S1HP123DA
	12000	2.32	5.58	35	35	P6942-ND	8.18	69.25	503.60	1890.00	3525.00	3273.00/M	ECO-S1HP123EA
	15000	2.59	6.44	30	50	P6943-ND	9.83	83.19	605.00	2270.50	4235.00	3933.00/M	ECO-S1HP153DA
	15000	2.59	6.44	35	40	P6944-ND	10.02	84.78	616.60	2314.00	4316.00	4008.00/M	ECO-S1HP153EA
	18000	2.84	6.94	35	45	P6945-ND	12.08	102.25	743.60	2790.50	5205.00	4833.00/M	ECO-S1HP183EA
	22000	3.15	7.57	35	50	P6946-ND	14.71	124.47	905.20	3397.00	6336.00	5884.00/M	ECO-S1HP223EA
100	1000	0.94	1.96	20	35	P6947-ND	4.28	36.22	263.40	988.50	1844.00	1712.00/M	ECO-S2AP102AA
	1000	0.94	1.96	25	25	P6948-ND	4.18	35.34	257.04	964.54	1799.28	1670.76/M	ECO-S2AP102AA
	1200	1.03	2.31	20	40	P6949-ND	5.63	47.60	346.20	1299.00	2423.00	2250.00/M	ECO-S2AP122AA
	1200	1.03	2.31	25	30	P6990-ND	4.47	37.79	274.80	1031.00	1924.00	1786.00/M	ECO-S2AP122CA
	1500	1.16	2.57	22	40	P6991-ND	4.99	42.21	307.00	1152.00	2149.00	1996.00/M	ECO-S2AP152BA
	1500	1.16	2.57	30	25	P6992-ND	5.56	47.03	342.00	1283.50	2394.00	2223.00/M	ECO-S2AP152DA
	1800	1.27	2.84	22	45	P6993-ND	5.56	47.03	342.00	1283.50	2394.00	2223.00/M	ECO-S2AP182BA
	1800	1.27	2.84	30	30	P6101-ND	6.12	51.78	376.60	1413.00	2636.00	2448.00/M	ECO-S2AP182DA
	2200	1.40	3.14	22	50	P6102-ND	6.23	52.72	383.40	1438.50	2684.00	2492.00/M	ECO-S2AP222BA
	2200	1.40	3.14	30	30	P6103-ND	6.79	57.48	418.00	1568.50	2926.00	2717.00/M	ECO-S2AP222DA
	2700	1.55	3.71	25	45	P6104-ND	7.32	61.93	450.40	1690.00	3153.00	2928.00/M	ECO-S2AP272CA
	2700	1.55	3.71	30	35	P6105-ND	7.77	65.73	478.00	1793.50	3346.00	3107.00/M	ECO-S2AP272DA
	3300	1.72	4.06	25	50	P6106-ND	8.52	72.11	524.40	1968.00	3671.00	3409.00/M	ECO-S2AP332CA
	3300	1.72	4.06	30	40	P6107-ND	8.97	75.90	552.00	2071.50	3864.00	3588.00/M	ECO-S2AP332DA
	3900	1.87	4.54	30	45	P6108-ND	10.14	85.77	623.80	2341.00	4367.00	4055.00/M	ECO-S2AP392DA
	3900	1.87	4.54	35	35	P6109-ND	10.32	87.34	635.20	2383.50	4446.00	4129.00/M	ECO-S2AP392EA
	4700	2.05	5.13	30	50	P6110-ND	11.82	100.02	727.40	2729.50	5092.00	4728.00/M	ECO-S2AP472DA
	4700	2.05	5.13	35	40	P6111-ND	12.01	101.61	739.00	2773.00	5173.00	4804.00/M	ECO-S2AP472EA
	5600	2.24	5.75	35	45	P6112-ND	14.11	119.41	868.40	3258.50	6079.00	5645.00/M	ECO-S2AP562EA
	6800	2.47	6.60	35	50	P6113-ND	17.08	144.51	1051.00	3944.00	7357.00	6832.00/M	ECO-S2AP682EA
200	270	0.69	1.41	20	30	P6114-ND	3.86	32.70	237.80	892.50	1665.00	1546.00/M	ECO-S2DP271AA
	270	0.69	1.41	22	25	P6115-ND	2.93	24.78	180.20	676.00	1261.00	1171.00/M	ECO-S2DP271BA
	330	0.77	1.56	20	35	P6116-ND	4.13	34.93	254.00	953.00	1778.00	1651.00/M	ECO-S2DP331AA
	330	0.77	1.56	25	25	P6117-ND	3.38	28.57	207.80	780.00	1455.00	1351.00/M	ECO-S2DP331CA
	390	0.83	1.68	22	30	P6118-ND	3.49	29.54	214.80	806.00	1504.00	1396.00/M	ECO-S2DP391BA
	390	0.83	1.68	25	25	P6119-ND	3.60	30.50	221.80	832.50	1553.00	1442.00/M	ECO-S2DP391CA
	470	0.91	1.85	22	35	P6120-ND	3.83	32.40	235.60	884.00	1649.00	1531.00/M	ECO-S2DP471BA
	470	0.91	1.85	30	25	P6121-ND	4.01	33.96	247.00	927.00	1729.00	1606.00/M	ECO-S2DP471DA
	560	1.00	2.43	22	40	P6122-ND	4.32	36.52	265.60	996.50	1859.00	1726.00/M	ECO-S2DP561BA
	560	1.00	2.43	30	25	P6123-ND	4.88	41.28	300.20	1126.50	2101.00	1951.00/M	ECO-S2DP561DA
	680	1.10	2.68	22	45	P6124-ND	4.92	41.64	302.80	1136.50	2120.00	1968.00/M	ECO-S2DP681BA
	680	1.10	2.68	30	30	P6125-ND	5.48	46.37	337.20	1265.50	2360.00	2192.00/M	ECO-S2DP681DA
	820	1.21	2.93	25	45	P6126-ND	5.66	47.93	348.60	1308.00	2440.00	2266.00/M	ECO-S2DP821CA
	820	1.21	2.93	35	25	P6127-ND	6.34	53.65	390.20	1464.00	2731.00	2536.00/M	ECO-S2DP821EA
	1000	1.34	3.25	25	50	P6128-ND	6.64	56.21	408.80	1534.00	2862.00	2657.00/M	ECO-S2DP102CA

Panasonic® TS-Series Large Aluminum Electrolytic Capacitors

Working Voltage DC	Cap. (µF)	Max. DC (mA) Leakage Current	85° (rms) Ripple Current (120Hz) A	Dimensions in mm D	L	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000	Panasonic Part No.
200	1000	1.34	3.25	35	30	P6129-ND	7.32	61.93	450.40	1690.00	3153.00	2928.00/M	ECO-S2DP102EA
	1200	1.46	3.50	30	45	P6130-ND	7.73	65.42	475.80	1785.50	3331.00	3093.00/M	ECO-S2DP122DA
	1200	1.46	3.50	35	35	P6131-ND	7.92	66.99	487.20	1828.00	3410.00	3167.00/M	ECO-S2DP122EA
	1500	1.64	3.87	30	50	P6132-ND	9.35	79.09	575.20	2158.50	4026.00	3739.00/M	ECO-S2DP152DA
	1500	1.64	3.87	35	40	P6133-ND	9.53	80.66	586.60	2201.00	4106.00	3813.00/M	ECO-S2DP152EA
	1800	1.80	4.32	35	45	P6134-ND	11.00	93.06	676.80	2539.50	4738.00	4399.00/M	ECO-S2DP182EA
	2200	1.98	4.92	35	50	P6135-ND	13.13	111.13	808.20	3033.00	5657.00	5253.00/M	ECO-S2DP222EA
400	68	0.49	0.76	20	30	P6136-ND	3.98	33.69	245.00	919.50	1715.00	1593.00/M	ECO-S2GP680AA
	68	0.49	0.76	22	25	P6137-ND	3.04	25.74	187.20	702.50	1310.00	1217.00/M	ECO-S2GP680BA
	82	0.54	0.83	20	30	P6138-ND	4.21	35.59	258.80	971.00	1812.00	1682.00/M	ECO-S2GP820AA
	82	0.54	0.83	22	25	P6139-ND	3.27	27.64	201.00	754.50	1407.00	1307.00/M	ECO-S2GP820BA
	100	0.60	0.92	20	35	P6140-ND	4.34	36.76	267.33	1003.00	1871.00	1738.00/M	ECO-S2GP101AA
	100	0.60	0.92	25	25	P6141-ND	3.75	31.76	231.00	867.00	1617.00	1502.00/M	ECO-S2GP101CA
	120	0.65	1.02	20	40	P6142-ND	4.88	41.28	300.20	1126.50	2101.00	1951.00/M	ECO-S2GP121AA
	120	0.65	1.02	25	30	P6143-ND	4.13	34.93	254.00	953.00	1778.00	1651.00/M	ECO-S2GP121CA
	150	0.73	1.16	22	40	P6144-ND	4.43	37.46	272.40	1022.00	1907.00	1771.00/M	ECO-S2GP151BA
	150	0.73	1.16	30	25	P6145-ND	4.99	42.21	307.00	1152.00	2149.00	1996.00/M	ECO-S2GP151DA
	180	0.80	1.44	22	45	P6146-ND	5.03	42.54	309.40	1161.00	2166.00	2011.00/M	ECO-S2GP181BA
	180	0.80	1.44	30	30	P6147-ND	5.59	47.33	344.20	1291.50	2409.00	2237.00/M	ECO-S2GP181DA
	220	0.88	1.49	22	50	P6148-ND	5.78	48.90	355.60	1334.50	2489.00	2311.00/M	ECO-S2GP221BA
	220	0.88	1.49	30	30	P6149-ND	6.34	53.65	390.20	1464.00	2731.00	2536.00/M	ECO-S2GP221DA
	270	0.98	1.67	25	45	P6150-ND	6.87	58.14	422.80	1586.50	2960.00	2748.00/M	ECO-S2GP271CA
	270	0.98	1.67	35	30	P6151-ND	7.54	63.83	464.20	1742.00	3249.00	3017.00/M	ECO-S2GP271EA
	330	1.08	1.90	30	40	P6152-ND	8.03	67.98	494.40	1855.00	3461.00	3214.00/M	ECO-S2GP331DA
	330	1.08	1.90	35	35	P6153-ND	8.22	69.58	506.00	1899.00	3542.00	3289.00/M	ECO-S2GP331EA
	390	1.18	2.13	30	45	P6154-ND	9.27	78.43	570.40	2140.50	3993.00	3708.00/M	ECO-S2GP391DA
	390	1.18	2.13	35	40	P6155-ND	9.46	80.03	582.00	2184.00	4074.00	3783.00/M	ECO-S2GP391EA
	470	1.30	2.39	35	45	P6156-ND	10.96	92.73	674.40	2530.50	4721.00	4384.00/M	ECO-S2GP471EA
	560	1.41	2.69	35	50	P6157-ND	12.84	108.63	790.00	2964.50	5530.00	5135.00/M	ECO-S2GP561EA
TSNH Long Life and High Ripple Current +105°C													
16	4700	0.75	2.0*	22	31.5	P6450-ND	3.11	26.64	208.68	666.50	1243.00	1154.00/M	ECE-S1CG472E
	6800	0.98	2.4*	22	40	P6451-ND	3.30	28.32	221.84	708.50	1322.00	1227.00/M	ECE-S1CG682G
	10000	1.2	2.9*	25	40	P6452-ND	3.89	33.33	261.09	834.00	1555.00	1444.00/M	ECE-S1CG103M
	15000	1.46	3.5*	25	50	P6453-ND	4.86	41.64	326.18	1041.50	1943.00	1804.00/M	ECE-S1CG153N
	22000	1.77	4.2*	30	50	P6454-ND	6.80	58.29	456.61	1458.00	2720.00	2526.00/M	ECE-S1CG223U
	33000	2.17	4.8*	35	51	P6455-ND	9.91	84.93	665.29	2124.50	3963.00	3680.00/M	ECE-S1CG333Z
25	3300	.86	1.7*	22	31.5	P6456-ND	2.88	24.66	193.17	617.00	1151.00	1069.00/M	ECE-S1EG332E
	4700	1.02	2.2*	22	40	P6457-ND	3.11	26.64	208.68	666.50	1243.00	1154.00/M	ECE-S1EG472G
	6800	1.23	2.6*	25	40	P6458-ND	4.08	34.98	274.01	875.00	1632.00	1516.00/M	ECE-S1EG682M
	10000	1.50	3.1*	25	50	P6459-ND	5.05	43.32	339.34	1083.50	2022.00	1877.00/M	ECE-S1EG103N
	22000	2.22	4.0*	35	51	P6461-ND	10.30	88.26	691.37	2208.00	4119.00	3825.00/M	ECE-S1EG223Z
35	2200	.77	1.6*	22	31.5	P6462-ND	2.98	25.50	199.75	638.00	1190.00	1105.00/M	ECE-S1VG222E
	2200	.77	1.6*	25	25	P6589-ND	3.17	27.15	212.68	679.00	1267.00	1177.00/M	ECE-S1VG222J
	3300	1.01	1.8*	22	40	P6463-ND	3.11	26.64	208.68	666.50	1243.00	1154.00/M	ECE-S1VG332G
	4700	1.21	2.3*	25	40	P6464-ND	3.77	32.34	253.33	809.00	1509.00	1401.00/M	ECE-S1VG472M
	6800	1.46	2.9*	25	50	P6465-ND	4.59	39.33	308.09	984.00	1835.00	1704.00/M	ECE-S1VG682N
	10000	1.77	3.5*	30	50	P6466-ND	6.59	56.49	442.51	1413.00	2636.00	2448.00/M	ECE-S1VG103U
	15000	2.17	3.9*	35	51	P6467-ND	8.74	74.94	587.03	1874.50	3497.00	3247.00/M	ECE-S1VG153Z
50	2200	0.99	1.9*	22	40	P6469-ND	3.07	26.34	206.33	659.00	1229.00	1141.00/M	ECE-S1HG222G
	3300	1.21	2.3*	25	40	P6470-ND	3.77	32.34	253.33	809.00	1509.00	1401.00/M	ECE-S1HG332M
	4700	1.45	2.8*	25	50	P6471-ND	4.67	39.99	313.26	1000.50	1866.00	1733.00/M	ECE-S1HG472N
	6800	1.74	3.2*	30	50	P6472-ND	6.42	54.99	430.76	1375.50	2566.00	2383.00/M	ECE-S1HG682U
	10000	2.12	3.7*	35	51	P6473-ND	9.14	78.30	613.35	1959.00	3654.00	3393.00/M	ECE-S1HG103Z
63	1000	0.63	1.3*	22	31.5	P6534-ND	2.84	24.33	190.59	608.50	1135.00	1054.00/M	ECE-S1JG102E
	2200	1.11	2.0*	25	40	P6535-ND	3.77	32.34	253.33	809.00	1509.00	1401.00/M	ECE-S1JG222M
	3300	1.36	2.5*	25	50	P6536-ND	4.86	41.64	326.18	1041.50	1943.00	1804.00/M	ECE-S1JG332N
	4700	1.63	2.9*	30	50	P6537-ND	6.45	55.26	432.87	1382.50	2579.00	2395.00/M	ECE-S1JG472U
	6800	1.96	3.3*	35	51	P6538-ND	8.94	76.65	600.43	1917.50	3577.00	3322.00/M	ECE-S1JG682Z
100	470	0.47	1.2*	22	31.5	P6474-ND	3.11	26.64	208.68	666.50	1243.00	1154.00/M	ECE-S2AG471E
	680	0.68	1.4*	22	40	P6539-ND	3.58	30.66	240.17	767.00	1431.00	1329.00/M	ECE-S2AG681G
	1000	1.0	1.7*	25	40	P6476-ND	4.78	40.98	321.01	1025.00	1912.00	1776.00/M	ECE-S2AG102M
	2200	1.4	2.6*	30	50	P6478-ND	8.74	74.94	587.03	1874.50	3497.00	3247.00/M	ECE-S1AG222U
	3300	1.72	2.0*	35	51	P6479-ND	12.52	107.28	840.36	2684.00	5006.00	4649.00/M	ECE-S2AG332Z
200	220	0.62	1.0*	22	40	P6554-ND	3.34	28.65	224.43	716.50	1337.00	1242.00/M	ECE-S2DG221G
	330	0.77	1.2*	25	40	P6555-ND	4.08	34.98	274.01	875.00	1632.00	1516.00/M	ECE-S2DG331M
	470	0.91	1.4*	25	50	P6556-ND	4.86	41.64	326.18	1041.50	1943.00	1804.00/M	ECE-S2DG471N
	680	1.1	1.7*	30	50	P6557-ND	6.30	53.97	422.77	1350.00	2519.00	2339.00/M	ECE-S2DG681U
250	100	0.47	.72*	22	31.5	P6579-ND	2.99	25.62	200.69	641.00	1196.00	1110.00/M	ECE-S2EG101E
	220	0.7	1.05*	25	40	P6580-ND	4.35	37.32	292.34	933.50	1742.00	1617.00/M	ECE-S2EG221M
	330	0.86	1.25*	25	50	P6581-ND	5.25	44.97	352.27	1125.00	2099.00	1949.00/M	ECE-S2EG331N
	470	1.02	1.45*	30	50	P6582-ND	6.65	56.97	446.27	1425.00	2659.00	2469.00/M	ECE-S2EG471U
	680	1.23	1.8*	35	51	P6583-ND	8.47	72.63	568.94	1817.00	3389.00	3147.00/M	ECE-S2EG681Z

* Ripple Current at 105°C

Panasonic® TS-Series Large Aluminum Electrolytic Capacitors

Working Voltage DC	Cap. (µF)	Max. DC (mA) Leakage Current	85° (rms) Ripple Current (120Hz) A	Dimensions in mm D	L	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000	Panasonic Part No.
400	47	0.41	.47*	22	31.5	P6584-ND	3.27	27.99	219.26	700.00	1306.00	1213.00/M	ECE-S2GG470E
	68	0.49	.56*	22	40	P6585-ND	3.50	29.97	234.77	749.50	1399.00	1299.00/M	ECE-S2GG680G
	100	0.6	.69*	25	40	P6586-ND	4.16	35.64	279.18	891.50	1663.00	1544.00/M	ECE-S2GG101M
	220	0.88	1.0*	30	50	P6587-ND	7.58	64.98	509.01	1625.50	3032.00	2816.00/M	ECE-S2GG221U
	330	1.08	1.2*	35	51	P6588-ND	10.69	91.59	717.46	2291.50	4274.00	3969.00/M	ECE-S2GG331Z
TSHA Miniaturized Size, Long Life and High Ripple Current +105°C													
16	6800	0.98	2.20*	20	30	P6434-ND	3.92	33.19	241.40	906.00	1690.00	1569.00/M	ECO-S1CA682AA
	6800	0.98	2.20*	22	25	P6436-ND	2.99	25.27	183.80	689.50	1287.00	1195.00/M	ECO-S1CA682BA
	8200	1.08	2.40*	20	35	P6437-ND	4.00	33.85	246.20	924.00	1723.00	1600.00/M	ECO-S1CA822AA
	8200	1.08	2.40*	22	30	P6441-ND	3.06	25.91	188.40	707.00	1319.00	1225.00/M	ECO-S1CA822BA
	10000	1.20	2.60*	20	40	P6444-ND	4.22	35.72	259.80	975.00	1819.00	1689.00/M	ECO-S1CA103AA
	10000	1.20	2.60*	25	25	P6460-ND	3.47	29.37	213.60	801.50	1495.00	1388.00/M	ECO-S1CA103CA
	12000	1.31	2.90*	22	35	P6468-ND	3.51	29.67	215.80	810.00	1511.00	1403.00/M	ECO-S1CA123BA
	12000	1.31	2.90*	30	25	P6477-ND	4.07	34.43	250.40	939.50	1753.00	1628.00/M	ECO-S1CA123DA
	15000	1.46	3.20*	30	30	P6541-ND	4.49	37.95	276.00	1035.50	1932.00	1794.00/M	ECO-S1CA153DA
	18000	1.60	3.50*	22	45	P6543-ND	4.34	36.71	267.00	1002.00	1869.00	1736.00/M	ECO-S1CA183BA
	18000	1.60	3.50*	35	25	P6545-ND	5.27	44.61	324.40	1217.50	2271.00	2109.00/M	ECO-S1CA183EA
	22000	1.77	3.80*	25	45	P6547-ND	5.01	42.38	308.20	1156.50	2157.00	2003.00/M	ECO-S1CA223CA
	22000	1.77	3.80*	35	30	P6550-ND	5.69	48.13	350.00	1313.50	2450.00	2275.00/M	ECO-S1CA223EA
	27000	1.97	4.20*	25	50	P6552-ND	5.80	49.06	356.80	1339.00	2498.00	2319.00/M	ECO-S1CA273CA
	27000	1.97	4.20*	35	30	P6558-ND	6.48	54.81	398.60	1495.50	2790.00	2591.00/M	ECO-S1CA273EA
	33000	2.17	4.70*	30	45	P6559-ND	6.81	57.64	419.20	1573.00	2934.00	2725.00/M	ECO-S1CA333DA
	33000	2.17	4.70*	35	35	P6560-ND	7.00	59.21	430.60	1616.00	3014.00	2799.00/M	ECO-S1CA333EA
	39000	2.36	5.10*	30	50	P6561-ND	7.71	65.26	474.60	1781.00	3322.00	3085.00/M	ECO-S1CA393DA
	39000	2.36	5.10*	35	40	P6562-ND	7.90	66.83	486.00	1823.50	3402.00	3159.00/M	ECO-S1CA393EA
	47000	2.60	5.50*	35	45	P6563-ND	8.91	75.41	548.40	2058.00	3839.00	3565.00/M	ECO-S1CA473EA
	56000	2.83	6.00*	35	50	P6999-ND	10.30	87.18	634.00	2379.00	4438.00	4121.00/M	ECO-S1CA563EA
25	4700	1.02	2.00*	20	30	P6998-ND	3.90	33.03	240.20	901.50	1681.00	1561.00/M	ECO-S1EA472AA
	4700	1.02	2.00*	22	25	P6566-ND	2.96	25.08	182.40	684.50	1277.00	1186.00/M	ECO-S1EA472BA
	5600	1.12	2.20*	20	35	P6567-ND	3.94	33.33	242.40	909.50	1697.00	1576.00/M	ECO-S1EA562AA
	5600	1.12	2.20*	22	30	P6997-ND	3.01	25.44	185.00	694.00	1295.00	1203.00/M	ECO-S1EA562BA
	6800	1.23	2.40*	20	40	P6569-ND	4.09	34.60	251.60	944.00	1761.00	1635.00/M	ECO-S1EA682AA
	6800	1.23	2.40*	25	25	P6570-ND	3.34	28.27	205.60	771.50	1439.00	1336.00/M	ECO-S1EA682CA
	8200	1.35	2.70*	22	35	P6571-ND	3.45	29.21	212.40	797.00	1487.00	1381.00/M	ECO-S1EA822BA
	8200	1.35	2.70*	30	25	P6572-ND	4.01	33.96	247.00	927.00	1729.00	1606.00/M	ECO-S1EA822DA
	10000	1.50	3.00*	22	40	P6573-ND	3.83	32.40	235.60	884.00	1649.00	1531.00/M	ECO-S1EA103BA
	10000	1.50	3.00*	30	30	P6574-ND	4.39	37.15	270.20	1014.00	1891.00	1756.00/M	ECO-S1EA103DA
	12000	1.64	3.20*	22	45	P6575-ND	4.35	36.82	267.80	1005.00	1875.00	1741.00/M	ECO-S1EA123BA
	12000	1.64	3.20*	35	25	P6576-ND	5.29	44.80	325.80	1222.50	2281.00	2118.00/M	ECO-S1EA123EA
	15000	1.83	3.60*	25	45	P6577-ND	5.06	42.85	311.60	1169.50	2181.00	2025.00/M	ECO-S1EA153CA
	15000	1.83	3.60*	35	30	P6578-ND	5.74	48.59	353.40	1326.00	2474.00	2297.00/M	ECO-S1EA153EA
	18000	2.01	3.90*	25	50	P6996-ND	5.74	48.59	353.40	1326.00	2474.00	2297.00/M	ECO-S1EA183CA
	18000	2.01	3.90*	35	35	P6590-ND	6.42	54.29	394.80	1481.50	2764.00	2566.00/M	ECO-S1EA183EA
	22000	2.22	4.30*	30	45	P6591-ND	6.76	57.17	415.80	1560.50	2911.00	2703.00/M	ECO-S1EA223DA
	22000	2.22	4.30*	35	35	P6592-ND	6.94	58.74	427.20	1603.00	2990.00	2777.00/M	ECO-S1EA223EA
	27000	2.46	4.80*	35	45	P6593-ND	7.96	67.32	489.60	1837.00	3427.00	3182.00/M	ECO-S1EA273EA
	33000	2.72	5.50*	35	50	P6594-ND	9.46	80.03	582.00	2184.00	4074.00	3783.00/M	ECO-S1EA333EA
35	3300	1.01	1.90*	20	30	P6595-ND	3.81	32.23	234.40	879.50	1641.00	1524.00/M	ECO-S1VA332AA
	3300	1.01	1.90*	22	25	P6596-ND	2.87	24.28	176.60	662.50	1236.00	1148.00/M	ECO-S1VA332BA
	3900	1.10	2.00*	20	35	P6597-ND	3.92	33.19	241.40	906.00	1690.00	1569.00/M	ECO-S1VA392AA
	3900	1.10	2.00*	22	30	P6598-ND	2.99	25.27	183.80	689.50	1287.00	1195.00/M	ECO-S1VA392BA
	4700	1.21	2.20*	20	40	P6599-ND	4.11	34.76	252.80	948.50	1770.00	1643.00/M	ECO-S1VA472AA
	4700	1.21	2.20*	25	25	P6600-ND	3.36	28.44	206.80	776.00	1448.00	1344.00/M	ECO-S1VA472CA
	5600	1.32	2.40*	22	35	P6658-ND	3.43	29.04	211.20	792.50	1478.00	1373.00/M	ECO-S1VA562BA
	5600	1.32	2.40*	30	25	P6659-ND	4.00	33.85	246.20	924.00	1723.00	1600.00/M	ECO-S1VA562DA
	6800	1.46	2.60*	22	40	P6660-ND	3.77	31.93	232.20	871.50	1625.00	1509.00/M	ECO-S1VA682BA
	6800	1.46	2.60*	30	30	P6661-ND	4.34	36.71	267.00	1002.00	1869.00	1736.00/M	ECO-S1VA682DA
	8200	1.60	2.90*	22	50	P6662-ND	4.22	35.72	259.80	975.00	1819.00	1689.00/M	ECO-S1VA822BA
	8200	1.60	2.90*	35	25	P6663-ND	5.16	43.67	317.60	1192.00	2223.00	2064.00/M	ECO-S1VA822EA
	10000	1.77	3.20*	25	45	P6664-ND	4.90	41.44	301.40	1131.00	2110.00	1959.00/M	ECO-S1VA103CA
	10000	1.77	3.20*	35	30	P6665-ND	5.57	47.16	343.00	1287.00	2401.00	2230.00/M	ECO-S1VA103EA
	12000	1.94	3.50*	25	50	P6666-ND	5.65	47.77	347.40	1303.50	2432.00	2258.00/M	ECO-S1VA123CA
	12000	1.94	3.50*	35	30	P6667-ND	6.32	53.52	389.20	1460.50	2724.00	2530.00/M	ECO-S1VA123EA
	15000	2.17	3.90*	30	45	P6668-ND	6.70	56.68	412.20	1547.00	2885.00	2679.00/M	ECO-S1VA153DA
	15000	2.17	3.90*	35	35	P6669-ND	6.89	58.30	424.00	1591.00	2968.00	2756.00/M	ECO-S1VA153EA
	18000	2.38	4.30*	35	40	P6670-ND	7.83	66.22	481.60	1807.00	3371.00	3130.00/M	ECO-S1VA183EA
	22000	2.63	5.00*	35	50	P6671-ND	9.25	78.27	569.20	2136.00	3984.00	3700.00/M	ECO-S1VA223EA
50	1800	0.90	1.50*	20	30	P6672-ND	4.03	34.13	248.20	931.50	1737.00	1613.00/M	ECO-S1HA182AA
	1800	0.90	1.50*	22	25	P6673-ND	3.09	26.18	190.40	714.50	1333.00	1238.00/M	ECO-S1HA182BA
	2200	0.99	1.70*	20	35	P6674-ND	3.92	33.19	241.40	906.00	1690.00	1569.00/M	ECO-S1HA222AA
	2200	0.99	1.70*	22	30	P6675-ND	2.99	25.27	183.80	689.50	1287.00	1195.00/M	ECO-S1HA222BA
	2700	1.10	1.80*	20	40	P6676-ND	4.03	34.13	248.20	931.50	1737.00	1613.00/M	ECO-S1HA272AA
	2700	1.10	1.80*	25	25	P6677-ND	3.29	27.80	202.20	759.00	1415.00	1314.00/M	ECO-S1HA272CA
	3300	1.21	2.00*	22	35	P6678-ND	3.32	28.11	204.40	767.00	1431.00	1329.00/M	ECO-S1HA332BA
	3300	1.21	2.00*	25	30	P6679-ND	3.51	29.67	215.80	810.00	1511.00	1403.00/M	ECO-S1HA332CA
	3900	1.32	2.20*	22	40	P6680-ND	3.66	30.97	225.20	845.00	1576.00	1464.00/M	ECO-S1HA392BA
	3900	1.32	2.20*	30	25	P6681-ND	4.22	35.72	259.80	975.00	1819.00	1689.00/M	ECO-S1HA392DA

* Ripple Current at 105°C

Panasonic® TS-Series Large Aluminum Electrolytic Capacitors

Working Voltage DC	Cap. (µF)	Max. DC (mA) Leakage Current	85° (rms) Ripple Current (120Hz) A	Dimensions in mm		Digi-Key Part No.	Pricing						Panasonic Part No.
				D	L		1	10	100	500	1,000	5,000	
50	4700	1.45	2.50*	22	45	P6682-ND	4.07	34.43	250.40	939.50	1753.00	1628.00/M	ECO-S1HA472BA
	4700	1.45	2.50*	35	25	P6683-ND	5.01	42.38	308.20	1156.50	2157.00	2003.00/M	ECO-S1HA472EA
	5600	1.58	2.80*	22	50	P6684-ND	4.60	38.91	283.00	1062.00	1981.00	1840.00/M	ECO-S1HA562BA
	5600	1.58	2.80*	35	30	P6685-ND	5.54	46.86	340.80	1279.00	2386.00	2215.00/M	ECO-S1HA562EA
	6800	1.74	3.30*	25	50	P6686-ND	5.35	45.24	329.00	1234.50	2303.00	2139.00/M	ECO-S1HA682CA
	6800	1.74	3.30*	35	30	P6687-ND	6.02	50.96	370.60	1390.50	2594.00	2409.00/M	ECO-S1HA682EA
	8200	1.92	3.60*	30	45	P6688-ND	6.32	53.52	389.20	1460.50	2724.00	2530.00/M	ECO-S1HA822DA
	8200	1.92	3.60*	35	35	P6689-ND	6.51	55.11	400.80	1504.00	2806.00	2605.00/M	ECO-S1HA822EA
	10000	2.12	4.00*	30	50	P6690-ND	7.34	62.07	451.40	1694.00	3160.00	2934.00/M	ECO-S1HA103DA
	10000	2.12	4.00*	35	40	P6691-ND	7.53	63.69	463.20	1738.00	3242.00	3011.00/M	ECO-S1HA103EA
	12000	2.32	4.50*	35	45	P6692-ND	8.50	71.94	523.20	1963.50	3662.00	3401.00/M	ECO-S1HA123EA
	15000	2.59	4.80*	35	50	P6693-ND	10.12	85.61	622.60	2336.50	4358.00	4047.00/M	ECO-S1HA153EA
100	560	0.70	1.10*	20	30	P6694-ND	4.30	36.36	264.40	992.00	1851.00	1719.00/M	ECO-S2AA561AA
	560	0.70	1.10*	22	25	P6695-ND	3.36	28.44	206.80	776.00	1448.00	1344.00/M	ECO-S2AA561BA
	820	0.85	1.40*	20	35	P6696-ND	4.30	36.36	264.40	992.00	1851.00	1719.00/M	ECO-S2AA821AA
	820	0.85	1.40*	25	25	P6697-ND	3.55	30.00	218.20	819.00	1527.00	1418.00/M	ECO-S2AA821CA
	1000	0.94	1.70*	20	40	P6698-ND	4.49	37.95	276.00	1035.50	1932.00	1794.00/M	ECO-S2AA102AA
	1000	0.94	1.70*	25	30	P6699-ND	3.92	33.19	241.40	906.00	1690.00	1569.00/M	ECO-S2AA102CA
	1200	1.03	1.80*	22	40	P6700-ND	4.35	36.82	267.80	1005.00	1875.00	1741.00/M	ECO-S2AA122BA
	1200	1.03	1.80*	30	25	P6701-ND	4.92	41.64	302.80	1136.50	2120.00	1968.00/M	ECO-S2AA122DA
	1500	1.16	2.10*	22	45	P6702-ND	5.40	45.73	332.60	1248.00	2328.00	2162.00/M	ECO-S2AA152BA
	1500	1.16	2.10*	35	25	P6712-ND	6.16	52.09	378.80	1421.50	2652.00	2462.00/M	ECO-S2AA152EA
	1800	1.27	2.30*	25	45	P6728-ND	6.23	52.72	383.40	1438.50	2684.00	2492.00/M	ECO-S2AA182CA
	1800	1.27	2.30*	35	30	P6806-ND	6.94	58.74	427.20	1603.00	2990.00	2777.00/M	ECO-S2AA182EA
	2200	1.40	2.60*	25	50	P6994-ND	7.02	59.37	431.80	1620.50	3023.00	2807.00/M	ECO-S2AA222CA
	2200	1.40	2.60*	35	30	P6995-ND	7.69	65.09	473.40	1776.50	3314.00	3077.00/M	ECO-S2AA222EA
	2700	1.55	2.90*	30	45	P6807-ND	8.74	73.98	538.00	2019.00	3766.00	3497.00/M	ECO-S2AA272DA
	2700	1.55	2.90*	35	35	P6808-ND	8.93	75.57	549.60	2062.50	3847.00	3572.00/M	ECO-S2AA272EA
	3300	1.72	3.20*	30	50	P6809-ND	10.32	87.34	635.20	2383.50	4446.00	4129.00/M	ECO-S2AA332DA
	3300	1.72	3.20*	35	40	P6810-ND	10.51	88.94	646.80	2427.00	4528.00	4204.00/M	ECO-S2AA332EA
	3900	1.87	3.60*	35	45	P6811-ND	12.08	102.25	743.60	2790.50	5205.00	4833.00/M	ECO-S2AA392EA
	4700	2.05	3.80*	35	50	P6812-ND	14.41	121.94	886.80	3327.50	6208.00	5764.00/M	ECO-S2AA472EA
200	220	0.62	1.00*	20	30	P6813-ND	4.11	34.76	252.80	948.50	1770.00	1643.00/M	ECO-S2DA221AA
	220	0.62	1.00*	22	25	P6814-ND	3.17	26.81	195.00	731.50	1365.00	1268.00/M	ECO-S2DA221BA
	270	0.69	1.10*	20	35	P6815-ND	4.37	36.99	269.00	1009.50	1883.00	1749.00/M	ECO-S2DA271AA
	270	0.69	1.10*	25	25	P6816-ND	3.62	30.66	223.00	837.00	1561.00	1450.00/M	ECO-S2DA271CA
	330	0.77	1.20*	20	40	P6817-ND	4.64	39.24	285.40	1071.00	1998.00	1855.00/M	ECO-S2DA331AA
	330	0.77	1.20*	25	25	P6818-ND	3.88	32.86	239.00	897.00	1673.00	1554.00/M	ECO-S2DA331CA
	390	0.83	1.30*	22	35	P6819-ND	4.00	33.85	246.20	924.00	1723.00	1600.00/M	ECO-S2DA391BA
	390	0.83	1.30*	30	25	P6820-ND	4.56	38.61	280.80	1053.50	1966.00	1825.00/M	ECO-S2DA391DA
	470	0.91	1.40*	22	40	P6821-ND	4.45	37.62	273.60	1026.50	1915.00	1778.00/M	ECO-S2DA471BA
	470	0.91	1.40*	30	25	P6822-ND	5.01	42.38	308.20	1156.50	2157.00	2003.00/M	ECO-S2DA471DA
	560	1.00	1.50*	22	45	P6823-ND	5.05	42.71	310.60	1165.50	2174.00	2019.00/M	ECO-S2DA561BA
	560	1.00	1.50*	30	30	P6824-ND	5.61	47.49	345.40	1296.00	2418.00	2245.00/M	ECO-S2DA561DA
	680	1.10	1.70*	25	40	P6825-ND	5.76	48.76	354.60	1330.50	2482.00	2305.00/M	ECO-S2DA681CA
	680	1.10	1.70*	30	30	P6826-ND	6.21	52.55	382.20	1434.00	2675.00	2484.00/M	ECO-S2DA681DA
	820	1.21	2.00*	25	50	P6829-ND	6.51	55.11	400.80	1504.00	2806.00	2605.00/M	ECO-S2DA821CA
	820	1.21	2.00*	35	30	P6830-ND	7.19	60.80	442.20	1659.50	3095.00	2874.00/M	ECO-S2DA821EA
	1000	1.34	2.20*	30	45	P6831-ND	7.68	64.96	472.40	1772.50	3307.00	3071.00/M	ECO-S2DA102DA
	1000	1.34	2.20*	35	35	P6832-ND	7.87	66.55	484.00	1816.00	3388.00	3146.00/M	ECO-S2DA102EA
	1200	1.46	2.30*	30	50	P6833-ND	8.99	76.07	553.20	2076.00	3872.00	3596.00/M	ECO-S2DA122DA
	1200	1.46	2.30*	35	40	P6834-ND	9.17	77.63	564.60	2118.50	3952.00	3670.00/M	ECO-S2DA122EA
	1500	1.64	2.50*	35	50	P6835-ND	10.90	92.26	671.00	2518.00	4697.00	4362.00/M	ECO-S2DA152EA
400	56	0.44	0.51*	20	30	P6836-ND	4.28	36.22	263.40	988.50	1844.00	1712.00/M	ECO-S2GA560AA
	56	0.44	0.51*	22	25	P6837-ND	3.34	28.27	205.60	771.50	1439.00	1336.00/M	ECO-S2GA560BA
	68	0.49	0.56*	20	35	P6838-ND	4.39	37.15	270.20	1014.00	1891.00	1756.00/M	ECO-S2GA680AA
	68	0.49	0.56*	25	25	P6839-ND	3.64	30.83	224.20	841.50	1569.00	1457.00/M	ECO-S2GA680CA
	82	0.54	0.64*	20	40	P6840-ND	4.58	38.75	281.80	1057.50	1973.00	1832.00/M	ECO-S2GA820AA
	82	0.54	0.64*	25	25	P6841-ND	3.83	32.40	235.60	884.00	1649.00	1531.00/M	ECO-S2GA820CA
	100	0.60	0.69*	22	35	P6842-ND	3.98	33.69	245.00	919.50	1715.00	1593.00/M	ECO-S2GA101BA
	100	0.60	0.69*	25	30	P6843-ND	4.17	35.26	256.40	962.00	1795.00	1667.00/M	ECO-S2GA101CA
	120	0.65	0.75*	22	40	P6844-ND	4.54	38.45	279.60	1049.00	1957.00	1817.00/M	ECO-S2GA121BA
	120	0.65	0.75*	30	25	P6845-ND	5.11	43.20	314.20	1179.00	2199.00	2042.00/M	ECO-S2GA121DA
	150	0.73	0.82*	22	50	P6846-ND	5.33	45.13	328.20	1231.50	2297.00	2133.00/M	ECO-S2GA151BA
	150	0.73	0.82*	30	30	P6847-ND	5.90	49.89	362.80	1361.50	2540.00	2358.00/M	ECO-S2GA151DA
	180	0.80	0.90*	25	45	P6848-ND	6.19	52.42	381.20	1430.50	2668.00	2478.00/M	ECO-S2GA181CA
	180	0.80	0.90*	35	25	P6849-ND	6.87	58.14	422.80	1586.50	2960.00	2748.00/M	ECO-S2GA181EA
	220	0.88	1.00*	25	50	P6850-ND	7.32	61.93	450.40	1690.00	3153.00	2928.00/M	ECO-S2GA221CA
	220	0.88	1.00*	35	30	P6851-ND	8.00	67.65	492.00	1846.00	3444.00	3198.00/M	ECO-S2GA221EA
	270	0.98	1.10*	30	45	P6852-ND	8.74	73.98	538.00	2019.00	3766.00	3497.00/M	ECO-S2GA271DA
	270	0.98	1.10*	35	35	P6853-ND	8.93	75.57	549.60	2062.50	3847.00	3572.00/M	ECO-S2GA271EA
	330	1.08	1.20*	30	50	P6854-ND	10.21	86.38	628.20	2357.50	4397.00	4083.00/M	ECO-S2GA331DA
	330	1.08	1.20*	35	40	P6855-ND	10.40	87.97	639.80	2401.00	4479.00	4159.00/M	ECO-S2GA331EA
	390	1.18	1.30*	35	45	P6856-ND	11.82	100.02	727.40	2729.50	5092.00	4728.00/M	ECO-S2GA391EA
	470	1.30	1.40*	35	50	P6857-ND	13.66	115.61	840.80	3155.00	5886.00	5465.00/M	ECO-S2GA471EA

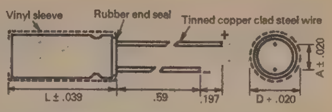
* Ripple Current at 105°C

Panasonic® KA-Series Miniature Aluminum Electrolytic Capacitors

Rating		Dimensions			Digi-Key	Pricing						Panasonic
WV DC	µF	D	L	A	Part No.	1	10	100	1,000	5,000	10,000	Part No.
6.3	22	.157	.276	.059	P800-ND	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A0JKA220
	33	.157	.276	.059	P801-ND	.14	1.17	9.17	59.00	55.00/M	51.00/M	ECE-A0JKA330
	47	.157	.276	.059	P802-ND	.16	1.38	10.81	69.00	65.00/M	60.00/M	ECE-A0JKA470
	100	.197	.276	.079	P803-ND*	.17	1.47	11.52	74.00	69.00/M	64.00/M	ECE-A0JKA101
	220	.248	.276	.098	P829-ND	.22	1.86	14.57	93.00	87.00/M	81.00/M	ECE-A0JKA221
	330	.315	.276	.138	P830-ND	.26	2.22	17.39	111.00	104.00/M	97.00/M	ECE-A0JKA331
10	22	.157	.276	.059	P804-ND	.14	1.17	9.17	59.00	55.00/M	51.00/M	ECE-A1AKA220
	33	.157	.276	.059	P805-ND	.15	1.29	10.11	65.00	61.00/M	56.00/M	ECE-A1AKA330
	47	.197	.276	.079	P806-ND	.16	1.38	10.81	69.00	65.00/M	60.00/M	ECE-A1AKA470
	100	.248	.276	.098	P831-ND	.19	1.62	12.69	81.00	76.00/M	71.00/M	ECE-A1AKA101
	220	.315	.276	.138	P832-ND	.26	2.19	17.16	110.00	103.00/M	95.00/M	ECE-A1AKA221
16	10	.157	.276	.059	P807-ND	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1CKA100
	22	.157	.276	.059	P808-ND	.15	1.32	10.34	66.00	62.00/M	58.00/M	ECE-A1CKA220
	33	.197	.276	.079	P809-ND*	.17	1.44	11.28	72.00	68.00/M	63.00/M	ECE-A1CKA330
	47	.197	.276	.079	P810-ND*	.18	1.50	11.75	75.00	70.00/M	65.00/M	ECE-A1CKA470
	100	.248	.276	.098	P833-ND	.22	1.89	14.81	95.00	89.00/M	82.00/M	ECE-A1CKA101
25	4.7	.157	.276	.059	P812-ND*	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1EKA4R7
	10	.157	.276	.059	P813-ND	.14	1.17	9.17	59.00	55.00/M	51.00/M	ECE-A1EKA100
	22	.197	.276	.079	P814-ND	.17	1.44	11.28	72.00	68.00/M	63.00/M	ECE-A1EKA220
	33	.248	.276	.098	P815-ND	.18	1.50	11.75	75.00	70.00/M	65.00/M	ECE-A1EKA330
	47	.248	.276	.098	P834-ND	.22	1.89	14.81	95.00	89.00/M	82.00/M	ECE-A1EKA470
35	4.7	.157	.276	.059	P817-ND*	.13	1.14	8.93	57.00	54.00/M	50.00/M	ECE-A1VKA4R7
	10	.197	.276	.079	P818-ND*	.15	1.26	9.87	63.00	59.00/M	55.00/M	ECE-A1VKA100
	22	.248	.276	.098	P819-ND*	.17	1.44	11.28	72.00	68.00/M	63.00/M	ECE-A1VKA220
	33	.248	.276	.098	P835-ND	.22	1.89	14.81	95.00	89.00/M	82.00/M	ECE-A1VKA330
	47	.315	.276	.138	P836-ND	.26	2.22	17.39	111.00	104.00/M	97.00/M	ECE-A1VKA470
50	0.1	.157	.276	.059	P820-ND*	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1HKA0R1
	0.22	.157	.276	.059	P821-ND*	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1HKAR22
	0.33	.157	.276	.059	P822-ND*	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1HKAR33
	0.47	.157	.276	.059	P823-ND*	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1HKAR47
	1.0	.157	.276	.059	P824-ND*	.12	1.02	7.99	51.00	48.00/M	44.00/M	ECE-A1HKA010
	2.2	.157	.276	.059	P825-ND*	.13	1.14	8.93	57.00	54.00/M	50.00/M	ECE-A1HKA2R2
	3.3	.157	.276	.059	P826-ND*	.13	1.14	8.93	57.00	54.00/M	50.00/M	ECE-A1HKA3R3
	4.7	.157	.276	.059	P827-ND*	.14	1.17	9.17	59.00	55.00/M	51.00/M	ECE-A1HKA4R7
	10	.197	.276	.079	P828-ND*	.16	1.41	11.05	71.00	66.00/M	61.00/M	ECE-A1HKA100
	22	.248	.276	.098	P837-ND	.22	1.89	14.81	95.00	89.00/M	82.00/M	ECE-A1HKA220
	33	.315	.276	.138	P838-ND	.26	2.22	17.39	111.00	104.00/M	97.00/M	ECE-A1HKA330

*** P835-KIT-ND** 10 each of parts indicated. (160 total pieces) Notebook style storage case **$29.95**

The KA-Series is a tantalum substitute for many applications.



- **Operating Temperature Range:** −40 to +85°C.
- **Rated d.c. Voltage Range:** 6.3 to 63VDC.
- **Rated Capacitance Range:** 1.0 to 100µF.
- **Capacitance Tolerance:** ±20%.
- **Tan δ:** Max. at 120Hz.

W.V.	6.3	10	16	25	35	50	63
Tan	0.24	0.2	0.16	0.14	0.12	0.10	0.08

- **D.C. Leakage Current, Max.:** After 5 minutes application of the d.c. working voltage, I=0.01 C V or 3µA, whichever is greater.
- **Load Life:** 1,000 hours application of the rated d.c. working voltage at +85°C, the capacitor shall meet the following limits:

Capacitance Change	Within ±20% of the initial measured value
Tan δ	Less than 200% of the initial specified value
DC Leakage Current	Less than the initial specified value

- **Stability at Low and High Temperature:** Impedance ratio at 120Hz −25/20°C, −40/20°C.

W.V.	6.3	10	16	25	35	50
−25/20°C	4	3	2	2	2	2
−40/20°C	8	6	4	4	3	3

- **Shelf Life:** After 1,000 hours storage without load at +85°C. the capacitor shall meet the above "Load life."
- **Others shall be in accordance with JIS-C-5141 (1976).**

PANASONIC K CROSS REFERENCES:

Elna: RC2, **IC:** RSS, **Marcon:** SSM, **Nichicon:** SR/SA, **Rubycon:** MS7, **UCC:** SRG/SRA

Panasonic® KG-Series Miniature Aluminum Electrolytic Capacitors 105°C

Rating		Size	Digi-Key	Pricing						Panasonic
WV/DC	µF	Code	Part No.	1	10	100	1,000	5,000	10,000	Part No.
6.3	22	A	P900-ND	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A0JKG220
	33	B	P901-ND	.23	1.86	14.58	79.00	75.00/M	69.00/M	ECE-A0JKG330
	47	B	P902-ND	.23	1.89	14.85	81.00	77.00/M	70.00/M	ECE-A0JKG470
	68	C	P903-ND	.26	2.14	16.78	91.00	87.00/M	79.00/M	ECE-A0JKG680
	100	C	P904-ND•	.29	2.42	18.98	103.00	98.00/M	90.00/M	ECE-A0JKG101
	220	D	P941-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A0JKG221
10	22	A	P905-ND	.23	1.86	14.58	79.00	75.00/M	69.00/M	ECE-A1AKG220
	33	B	P906-ND	.24	2.00	15.68	85.00	81.00/M	74.00/M	ECE-A1AKG330
	47	C	P907-ND	.26	2.17	17.05	93.00	88.00/M	81.00/M	ECE-A1AKG470
	68	C	P908-ND	.29	2.42	18.98	103.00	98.00/M	90.00/M	ECE-A1AKG680
	100	C	P942-ND	.36	2.98	23.38	127.00	121.00/M	110.00/M	ECE-A1AKG101
16	6.8	A	P909-ND	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1CKG6R8
	10	A	P910-ND	.22	1.82	14.30	78.00	74.00/M	68.00/M	ECE-A1CKG100
	15	A	P911-ND	.22	1.82	14.30	78.00	74.00/M	68.00/M	ECE-A1CKG150
	22	B	P912-ND	.24	2.00	15.68	85.00	81.00/M	74.00/M	ECE-A1CKG220
	33	C	P913-ND•	.27	2.21	17.33	94.00	89.00/M	82.00/M	ECE-A1CKG330
	47	C	P914-ND•	.28	2.35	18.43	100.00	95.00/M	87.00/M	ECE-A1CKG470
	68	D	P943-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1CKG680
	100	D	P944-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1CKG101
25	6.8	A	P915-ND•	.22	1.82	14.30	78.00	74.00/M	68.00/M	ECE-A1EKG6R8
	10	A	P916-ND•	.23	1.86	14.58	79.00	75.00/M	69.00/M	ECE-A1EKG100
	15	B	P917-ND	.25	2.07	16.23	88.00	84.00/M	77.00/M	ECE-A1EKG150
	22	B	P918-ND•	.26	2.14	16.78	91.00	87.00/M	79.00/M	ECE-A1EKG220
	33	C	P919-ND	.31	2.56	20.08	109.00	104.00/M	95.00/M	ECE-A1EKG330
	47	D	P945-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1EKG470
	68	D	P946-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1EKG680
35	4.7	A	P920-ND•	.22	1.82	14.30	78.00	74.00/M	68.00/M	ECE-A1VKG4R7
	6.8	A	P921-ND	.24	2.00	15.68	85.00	81.00/M	74.00/M	ECE-A1VKG6R8
	10	B	P922-ND•	.23	1.93	15.13	82.00	78.00/M	71.00/M	ECE-A1VKG100
	15	C	P923-ND	.30	2.49	19.53	106.00	101.00/M	92.00/M	ECE-A1VKG150
	22	C	P924-ND•	.31	2.52	19.80	108.00	102.00/M	94.00/M	ECE-A1VKG220
	33	D	P947-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1VKG330
	47	D	P948-ND	.56	4.59	36.04	196.00	186.00/M	170.00/M	ECE-A1VKG470
50	0.1	A	P925-ND•	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKG0R1
	0.15	A	P926-ND	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKGR15
	0.22	A	P927-ND•	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKGR22
	0.33	A	P928-ND•	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKGR33
	0.47	A	P929-ND•	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKGR47
	0.68	A	P930-ND	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKGR68
	1	A	P931-ND•	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKG010
	1.5	A	P932-ND	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKG1R5
	2.2	A	P933-ND•	.21	1.75	13.75	75.00	71.00/M	65.00/M	ECE-A1HKG2R2
	3.3	A	P934-ND•	.22	1.82	14.30	78.00	74.00/M	68.00/M	ECE-A1HKG3R3
	4.7	A	P935-ND•	.23	1.86	14.58	79.00	75.00/M	69.00/M	ECE-A1HKG4R7
	6.8	B	P936-ND	.25	2.07	16.23	88.00	84.00/M	77.00/M	ECE-A1HKG6R8
	10	C	P937-ND•	.31	2.59	20.35	111.00	105.00/M	96.00/M	ECE-A1HKG100
	15	C	P938-ND	.32	2.66	20.90	114.00	108.00/M	99.00/M	ECE-A1HKG150
	22	D	P939-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1HKG220
	33	D	P940-ND	.51	4.24	33.28	181.00	172.00/M	157.00/M	ECE-A1HKG330

• **P900-KIT-ND** 10 each of parts indicated. (180 pieces total) Notebook style storage case **$34.95**

The KG-Series is a tantalum substitute for many applications.

Features: • Height is 7mm. • Anti-solvent in Freon.

Operating Temperature Range: −55 ~ +105°C.

Capacitance Tolerance: ±20% at 120Hz, +20°C.

DC Leakage Current: I◀0.01CV or 3[µA] after 2 min. (whichever is the greater).

tan δ (120Hz/1208C):

W.V.	6.3	10	16	25	35	50
tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10

Low Temperature Impedance Stability at 120Hz:

W.V.	6.3	10	16	25	35	50
Z(−25°C)/Z(+20°C)	3	2	2	2	2	2
Z(−40°C)/Z(+20°C)	6	5	3	3	3	3
Z(−55°C)/Z(+20°C)	8	6	4	4	4	4

Load Life: After 1,000 hours application of DC rated working voltage at +105°C, the capacitor shall meet the following limits.

Capacitance change: ◀ ±20% of the initial measured value.

tan δ: ◀ 200% of the initial specified value.

DC leakage current: ◀ the initial specified value.

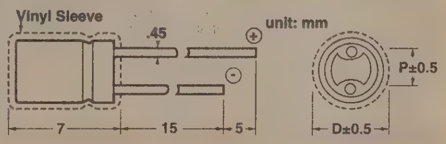
Anti-solvent: Can withstand circuit-board cleaning within 5 minutes in Freon TE, TES, or TP-35 at +40°C by dipping, steaming, or ultrasonic.

unit mm(in)

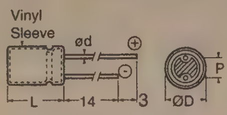
Size Code	Body Dia. D	x	Body Length L
A	4 (.157)	x	7 (.276)
B	5 (.197)	x	7 (.276)
C	6.3 (.248)	x	7 (.276)
D	8 (.315)	x	7 (.276)

(mm)

Body Dia. ϕD	4	5	6.3	8
Lead Space P	1.5	2	2.5	3.5



Panasonic® KS Capacitors



Body dia. D	3	4	5	6.3	8
Lead dia. d	0.4	0.45	0.45	0.45	0.45
Lead space P	1.0	1.5	2.0	2.5	2.5

Features: • Low profile 5mm height for ϕ3 ~ ϕ8 mm

Specifications: • **Operating Temperature Range:** -40° to +85°C • **Rated Working Voltage Range:** 4 to 50V DC • **Nominal Capacitance Range:** 0.1 to 330µF • **Capacitance Tolerance:** ±20% (120Hz, +20°C) • **Leakage Current:** I ≤ 0.01CV or 3 (µA), whichever is greater measured after 2 minutes application of rated working voltage at +20°C

Endurance:

• Test conditions — • Duration: 1000 hours • Ambient temperature: +85°C • Applied voltage: Rated DC working voltage • Post test requirements at +20°C — • Leakage current: ≤ Initial specified value • Capacitance change: ±20% of initial measured value (4V: ±30%) • tan δ: ≤ 200% of initial specified value

• **tan δ:** (120Hz, +20°C)

Working voltage (V)	4	6.3	10	16	25	35	50
tan δ max.	0.35	0.24	0.20	0.16	0.14	0.12	0.10

• **Characteristics at Low Temperature:** Impedance ratio max. at 120Hz

Working voltage (V)	4	6.3	10	16	25	35	50
-25°C/+25°C	7	4	3	2	2	2	2
-40°C/+20°C	15	8	6	4	4	3	3

Shelf Life:

• Test conditions — • Duration: 1000 hours • Ambient temperature: +85°C • Applied voltage: (None). Post test requirements at +20°C, same limits for "Endurance"

Panasonic KS Cross Reference: Nippon Chemi-Con: SRE, Nichicon: MA, Elna: RC3, Rubycon: MS5, Marcon: LSM

Recommended Applications: AV (TV, Audio, Video), Office, Home Appliance

W.V (V.DC)	Cap. (µF)	D.C.L. (+20°C/2 min)	tan δ (120Hz/+20°C)	Ripple Current	Dimensions(mm) ϕD	L	P	Digi-Key Part No.	Pricing 10	100	1000	5000	Panasonic Part No.
4	22	3.0	0.35	19	3	5	1.0	P950-ND	2.17	17.05	93.00	88.00/M	ECE-A0GKK220
	33	3.0	0.35	26	4	5	1.5	P951-ND	1.51	11.83	64.00	61.00/M	ECE-A0GKS330
	47	3.0	0.35	34	4	5	1.5	P952-ND	1.51	11.83	64.00	61.00/M	ECE-A0GKS470
	100	4.0	0.35	61	5	5	2.0	P953-ND	1.72	13.48	73.00	70.00/M	ECE-A0GKS101
	220	8.8	0.35	82	6.3	5	2.5	P954-ND	1.86	14.58	79.00	75.00/M	ECE-A0GKS221
6.3	22	3.0	0.24	29	4	5	1.5	P955-ND	1.51	11.83	64.00	61.00/M	ECEA0JKS220
	33	3.0	0.24	38	5	5	2.0	P956-ND	1.72	13.48	73.00	70.00/M	ECE-A0JKS330
	47	3.0	0.24	46	5	5	2.0	P957-ND	1.72	13.48	73.00	70.00/M	ECE-A0JKS470
	100	6.3	0.24	71	6.3	5	2.5	P958-ND	1.89	14.85	81.00	77.00/M	ECE-A0JKS101
	330	20.7	0.24	130	8	5	2.5	P959-ND	3.08	24.20	132.00	125.00/M	ECE-A0JKS331
10	22	3.0	0.20	35	5	5	2.0	P960-ND	1.72	13.48	73.00	70.00/M	ECE-A1AKS220
	33	3.3	0.20	43	5	5	2.0	P961-ND	1.72	13.48	73.00	70.00/M	ECE-A1AKS330
	47	4.7	0.20	65	6.3	5	2.5	P962-ND	1.89	14.85	81.00	77.00/M	ECE-A1AKS470
	100	10.0	0.20	80	6.3	5	2.5	P963-ND	1.96	15.40	84.00	79.00/M	ECE-A1AKS101
	220	22.0	0.20	120	8	5	2.5	P964-ND	3.26	25.58	139.00	132.00/M	ECE-A1AKS221
16	10	3.0	0.16	20	3	5	1.0	P965-ND	2.17	17.05	93.00	88.00/M	ECE-A1CKK100
	10	3.0	0.16	28	4	5	1.5	P966-ND	1.51	11.83	64.00	61.00/M	ECE-A1CKS100
	22	3.5	0.16	39	5	5	2.0	P967-ND	1.51	11.83	64.00	61.00/M	ECE-A1CKS220
	33	5.2	0.16	60	6.3	5	2.5	P968-ND	1.89	14.85	81.00	77.00/M	ECE-A1CKS330
	47	7.5	0.16	70	6.3	5	2.5	P969-ND	1.89	14.85	81.00	77.00/M	ECE-A1CKS470
	100	16.0	0.16	91	8	5	2.5	P970-ND	3.12	24.48	133.00	126.00/M	ECE-A1CKS101
25	2.2	3.0	0.14	8	3	5	1.0	P971-ND	2.17	17.05	93.00	88.00/M	ECE-A1EKK2R2
	3.3	3.0	0.14	10	3	5	1.0	P972-ND	2.17	17.05	93.00	88.00/M	ECE-A1EKK3R3
	4.7	3.0	0.14	12	3	5	1.0	P973-ND	2.17	17.05	93.00	88.00/M	ECE-A1EKK4R7
	4.7	3.0	0.14	22	4	5	1.5	P974-ND	1.51	11.83	64.00	61.00/M	ECE-A1EKS4R7
	10	3.0	0.14	28	5	5	2.0	P975-ND	1.72	13.48	73.00	70.00/M	ECE-A1EKS100
	22	5.5	0.14	55	6.3	5	2.5	P976-ND	1.89	14.85	81.00	77.00/M	ECE-A1EKS220
	33	8.2	0.14	65	6.3	5	2.5	P977-ND	1.89	14.85	81.00	77.00/M	ECE-A1EKS330
35	3.3	3.0	0.12	16	4	5	1.5	P978-ND	1.51	11.83	64.00	61.00/M	ECE-A1VKS3R3
	4.7	3.0	0.12	22	4	5	1.5	P979-ND	1.51	11.83	64.00	61.00/M	ECE-A1VKS4R7
	10	3.5	0.12	30	5	5	2.0	P980-ND	1.72	13.48	73.00	70.00/M	ECE-A1VKS100
	22	7.7	0.12	60	6.3	5	2.5	P981-ND	1.89	14.85	81.00	77.00/M	ECE-A1VKS220
	33	11.6	0.12	65	8	5	2.5	P982-ND	3.33	26.13	142.00	135.00/M	ECE-A1VKS330
	47	16.4	0.12	85	8	5	2.5	P983-ND	3.43	26.95	147.00	139.00/M	ECE-A1VKS470
50	0.1	3.0	0.10	1	4	5	1.5	P984-ND	1.65	12.93	70.00	67.00/M	ECE-A1HKS0R1
	0.1	3.0	0.10	1	3	5	1.0	P985-ND	2.17	17.05	93.00	88.00/M	ECE-A1HKK0R1
	0.22	3.0	0.10	2	4	5	1.5	P986-ND	1.51	11.83	64.00	61.00/M	ECE-A1HKSR22
	0.22	3.0	0.10	2	3	5	1.0	P987-ND	2.17	17.05	93.00	88.00/M	ECE-A1HKKR22
	0.33	3.0	0.10	3	4	5	1.5	P988-ND	1.51	11.83	64.00	61.00/M	ECE-A1HKSR33
	0.33	3.0	0.10	3	3	5	1.0	P989-ND	2.17	17.05	93.00	88.00/M	ECE-A1HKKR33
	0.47	3.0	0.10	5	4	5	1.5	P990-ND	1.65	12.93	70.00	67.00/M	ECE-A1HKSR47
	0.47	3.0	0.10	5	3	5	1.0	P991-ND	2.42	18.98	103.00	98.00/M	ECE-A1HKKR47
	1.0	3.0	0.10	8	3	5	1.0	P992-ND	2.17	17.05	93.00	88.00/M	ECE-A1HKK010
	1.0	3.0	0.10	10	4	5	1.5	P993-ND	1.51	11.83	64.00	61.00/M	ECE-A1HKS010
	2.2	3.0	0.10	16	4	5	1.5	P994-ND	1.51	11.83	64.00	61.00/M	ECE-A1HKS2R2
	3.3	3.0	0.10	16	4	5	1.5	P995-ND	1.51	11.83	64.00	61.00/M	ECE-A1HKS3R3
	4.7	3.0	0.10	23	5	5	2.0	P996-ND	1.72	13.48	73.00	70.00/M	ECE-A1HKS4R7
	10	5.0	0.10	35	6.3	5	2.5	P997-ND	1.89	14.85	81.00	77.00/M	ECE-A1HKS100
	22	11.0	0.10	60	8	5	2.5	P998-ND	2.70	21.18	115.00	109.00/M	ECE-A1HKS220

PLESSEY "Minibox" Metallized Polyester Capacitor 10% Tolerance

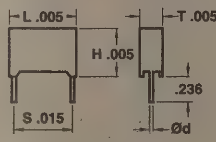
Electrical Characteristics:

Temperature Range: −55 to +125° with voltage derating over 85°C; **Temperature Coefficient:** +400 (±200) PPM/°C; **Dielectric Strength:** 1.6 times rated DC voltage applied for one minute at 25°C; **Dissipation Factor (D.F.):** 1% at 1 KHz; **Insulation Resistance (I.R.):** 30,000 MΩ for C .33µF and Vn 100V DC, 10,000 MΩ µF for C .33µF and Vn; **Maximum Pulse Rise Time:** 10V/usec for Vn – 100V DC, 15V/usec for Vn – 160, 250V DC, 20V/usec for Vn – 400V DC, 25V/usec for Vn – 630V DC, 50V/usec for Vn – 1000 VDC, 100V DC.

Mechanical Characteristics:

Molded, flame-retardant case with epoxy fill. Capacitors are marked in black with capacitance, tolerance and DC voltage.

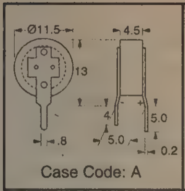
Capacitance µF/Voltage	Case Type	Digi-Key Part No.	Pricing 1	10	100	500	1,000
.001/1000V	C	3000P-ND	.20	1.58	13.11	59.25	110.60
.0047/630V	C	3008P-ND	.22	1.76	14.61	66.00	123.20
.033/250V	C	3016P-ND	.20	1.58	13.11	59.25	110.60
.33/100V	F	3029P-ND	.44	3.52	29.22	132.00	246.40



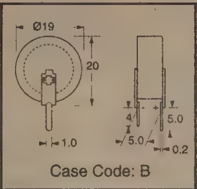
Case Code	Dimensions (Inches) L	T	H	S	d
C	.512	.157	.354	.394	.031
F	.709	.197	.433	.591	.031

Panasonic® SG Series Gold Capacitors

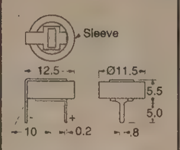
Electric Double Layer Capacitors



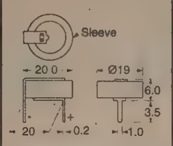
Case Code: A



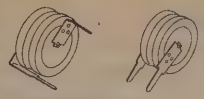
Case Code: B



Case Code: C



Case Code: D



Loading with Moisture:
The capacitor shall meet the limits for "High Temperature Loading" after 500 hours exposure at +55°C/90 to 95%RH with 5.5V DC applied.

Shelf Life:
The capacitor shall meet the limits for "High Temperature Loading" after 1,000 hours exposure at +70°C with no voltage applied.

Specifications:

Operating Temp. Range:	-25 to +70°C
Rated Working Voltage:	5.5V DC
Nom. Capacitance Range:	0.022F to 1.0F (+20°C)
Capacitance Tolerance:	-20% to +80%

Temperature Characteristics:

Capacitance Change -25°C & 70°C:	≤±30% at 20°C
Internal Resistance – 25°C:	≤5X at 20°C
Inflow Current at 70°C:	≤4X at 20°C

Load Life Characteristics:
(after 1000 hrs. with rated voltage of 5.5V DC applied at 70°C.)

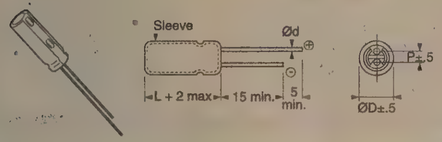
Capacitance Change:	≤±30% of initial measured value
Internal Resistance:	≤4X of initial specified value
Inflow Current:	≤2X of initial specified value

WV DC	Nominal Capacitance (F)	Inflow Current (µA)	Internal Resistance Ω (1KHz)	Case Code	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
						Vertical						
5.5	0.022	40	150	A	P6970-ND	2.55	21.87	171.32	1096.00	1020.00/M	953.00/M	EEC-S5R5V223
5.5	0.047	70	120	A	P6971-ND	2.74	23.46	183.77	1176.00	1094.00/M	1022.00/M	EEC-S5R5V473
5.5	0.10	100	75	A	P6972-ND	2.74	23.46	183.77	1176.00	1094.00/M	1022.00/M	EEC-S5R5V104
5.5	0.22	165	75	A	P6973-ND	2.98	25.50	199.75	1278.00	1189.00/M	1111.00/M	EEC-S5R5V224
5.5	0.47	215	30	B	P6974-ND	7.39	63.30	495.85	3173.00	2951.00/M	2758.00/M	EEC-S5R5V474
5.5	1.0	315	30	B	P6975-ND	7.39	63.30	495.85	3173.00	2951.00/M	2758.00/M	EEC-S5R5V105
						Horizontal						
5.5	0.022	40	150	C	P6976-ND	2.55	21.87	171.32	1096.00	1020.00/M	953.00/M	EEC-S5R5H223
5.5	0.047	70	120	C	P6977-ND	2.74	23.46	183.77	1176.00	1094.00/M	1022.00/M	EEC-S5R5H473
5.5	0.10	100	75	C	P6978-ND	2.74	23.46	183.77	1176.00	1094.00/M	1022.00/M	EEC-S5R5H104
5.5	0.22	165	75	C	P6979-ND	2.98	25.50	199.75	1278.00	1189.00/M	1111.00/M	EEC-S5R5H224
5.5	0.47	215	30	D	P6980-ND	7.39	63.30	495.85	3173.00	2951.00/M	2758.00/M	EEC-S5R5H474
5.5	1.0	315	30	D	P6981-ND	7.39	63.30	495.85	3173.00	2951.00/M	2758.00/M	EEC-S5R5H105

* Inflow current is measured after 30 minutes application of rated working voltage. In use, current will decrease to several µA level after approx. 10 hrs. application of rated working voltage.

Panasonic® AL Series Gold Capacitors

Electric Double Layer Capacitors



Specifications:

Operating Temp. Range:	-40 to +70°C
Rated Working Voltage:	2.5V DC
Nom. Capacitance Range:	0.22F to 10F (+20°C)
Capacitance Tolerance:	-20% to +80%

Temperature Characteristics:

Capacitance Change -25°C & 70°C:	≤±30% at 20°C
Internal Resistance – 40°C:	≤3X at 20°C
Inflow Current at 70°C:	≤3X at 20°C

Load Life Characteristics:
(after 1000 hrs. with rated voltage of 2.5V DC applied at 70°C.)

Capacitance Change:	≤±30% of initial measured value
Internal Resistance:	≤2X of initial specified value
Inflow Current:	≤2X of initial specified value

Shelf Life:
The capacitor shall meet the limits for "High Temperature Loading" after 1,000 hours exposure at +70°C with no voltage applied.

Loading with Moisture:
The capacitor shall meet the limits for "High Temperature Loading" after 500 hours exposure at +55°C/90 to 95%RH with 2.5V DC applied.

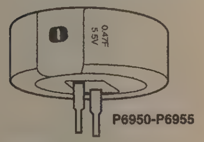
WV DC	Capacitance (F)	Inflow Current* (mA)	Internal Resistance Ω (1KHz)	Dimensions (mm) øD	L	ød	P	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
2.5	0.22	0.10	2.6	6.8	21	0.7	2.5	P6960-ND	3.17	27.18	212.93	1362.00	1267.00/M	1184.00/M	EEC-A0EL224
2.5	0.33	0.12	1.7	6.8	21	0.7	2.5	P6961-ND	3.25	27.84	218.08	1395.00	1298.00/M	1213.00/M	EEC-A0EL334
2.5	0.47	0.14	1.3	8.0	22	0.7	3.5	P6962-ND	3.48	29.84	233.72	1496.00	1391.00/M	1300.00/M	EEC-A0EL474
2.5	1.0	0.18	1.0	8.0	22	0.7	3.5	P6963-ND	3.56	30.48	238.76	1528.00	1421.00/M	1328.00/M	EEC-A0EL105
2.5	1.5	0.20	0.7	12.5	23	0.8	5.0	P6964-ND	3.91	33.53	262.67	1681.00	1563.00/M	1461.00/M	EEC-A0EL155
2.5	2.2	0.23	0.5	12.5	23	0.8	5.0	P6965-ND	4.13	35.41	277.41	1775.00	1651.00/M	1543.00/M	EEC-A0EL225
2.5	3.3	0.30	0.3	12.5	23	0.8	5.0	P6966-ND	4.48	38.37	300.57	1923.00	1789.00/M	1672.00/M	EEC-A0EL335
2.5	4.7	0.44	0.2	12.5	35	0.8	5.0	P6967-ND	5.24	44.94	352.03	2253.00	2095.00/M	1958.00/M	EEC-A0EL475
2.5	10	0.60	0.1	18.0	35	0.8	7.5	P6969-ND	7.47	64.02	501.49	3209.00	2985.00/M	2789.00/M	EEC-A0EL106

* Inflow current is measured after 90 minutes application of rated working voltage. In use, current will decrease to several µA level after approx. 10 hrs. application of rated working voltage.

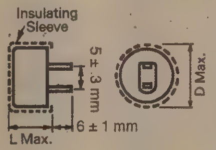
Panasonic® NF Series Gold Capacitors

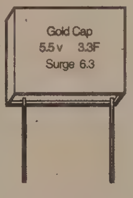
Wet Type Electric Double Layer Capacitors

Gold capacitors provide super large capacitance by unique electrode and miniaturization technology meeting the trend of compactness. Suitable for a memory back-up for CMOS type RAM in microcomputers.



P6950-P6955



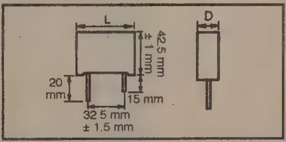


P6956

Features:
- A long period memory backup is available by excellent self-discharging characteristics.
- Low profile design is 9.5 mm maximum in height and has a standardized 5 mm terminal spacing.
- Superior to primary or secondary batteries in operating temperature range, charge/discharge characteristics, long time reliability and performance stability.

Features:
- Can be added in most typical microcomputer circuits.
- Memory backup from a second up to a month.
- Minimum self-discharging.
- High reliability, and more convenience than batteries.
- Cubic shape design. Compact design allows maximum density, easy mounting on PC Board.
- Very good stability over repeated charge/discharge cycles.

Dimensions (mm)



Specifications:

	P6950-P6955	P6956
Operating Temp. Range:	–25° ~ +70°C	–25° ~ +70°C
Surge Voltage:	6.3 VDC	6.3 VDC
Capacitance Tolerance:	–20 ~ +80%	–20 ~ +40%

Temperature Characteristics:

	P6950-P6955	P6956
Capacitance Change:	±30% at 20°C	±30% at 20°C
Internal Resistance –25°C:	less than 5x at 20°C	less than 3x at 20°C
Leakage Current at 70°C:	less than 4x at 20°C	less than 3x at 20°C

Load Life Characteristics:
(after 1000 hrs. with rated voltage applied at 70°C.)

	P6950-P6955	P6956
Capacitance Change:	±30%	±30%
Internal Resistance:	less than 4x	less than 2x
Leakage Current:	less than 2x	less than 2x

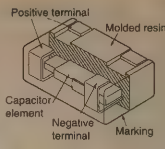
WV DC	Cap. Farads	Cap. Range	Inflow Current µA (30 min.)	Internal Resistance V (1KHz)	Dimensions (mm) L	D	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
5.5	0.033	0.0264 ~ 0.0594	57	150	7.5	13.5	P6950-ND	2.93	25.14	196.93	1260.00	1172.00/M	1095.00/M	EEC-F5R5U333
5.5	0.047	0.0376 ~ 0.0846	69	120	7.5	13.5	P6951-ND	2.93	25.14	196.93	1260.00	1172.00/M	1095.00/M	EEC-F5R5U473
5.5	0.1	0.08 ~ 0.18	100	75	7.5	13.5	P6952-ND	3.14	26.94	211.03	1350.00	1256.00/M	1174.00/M	EEC-F5R5U104
5.5	0.33	0.264 ~ 0.594	182	40	8.0	21.5	P6953-ND	6.36	54.48	426.76	2731.00	2540.00/M	2374.00/M	EEC-F5R5U334
5.5	0.47	0.376 ~ 0.846	216	30	8.0	21.5	P6954-ND	6.36	54.48	426.76	2731.00	2540.00/M	2374.00/M	EEC-F5R5U474
5.5	1.0	0.8 ~ 1.8	315	30	8.0	21.5	P6955-ND	6.36	54.48	426.76	2731.00	2540.00/M	2374.00/M	EEC-F5R5U105
5.5	3.3	2.64 ~ 4.62	440*	2.5	42.5	15.0	P6956-ND	11.98	102.72	804.60	5148.00	4789.00/M	4475.00/M	EEC-W5R5D335

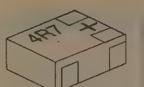
* Inflow current after 60 minutes.

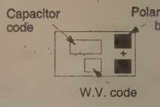
Panasonic® SP/CA Series

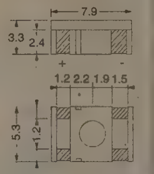
Speciality Polymer Aluminum Electrolytic Capacitors, Surface Mount Type

FEATURES: • Ideal low impedance at high frequency (300kHz to 10MHz)(Reduced ESR due to an applying speciality polymer with high conductivity) • Excellent noise-absorbent characteristics • Very stable capacitance against temperature and frequency • Excellent endurance characteristics due to an adoption of solid electrolyte • 4-terminal-construction realize further low impedance. **SPECIFICATIONS:** • **Operating Temp. Range:** –40°C to +105°C. • **Capacitance Tolerance:** ±20% (120Hz, +20°C). • **Leakage Current:** 1≤ 3µA after 2 min. • **Tan:** ≤0.06 (120kHz/+20°C). • **Impedance:** ≤0.4Ω (400kHz/+20°C). • **Permissible Ripple Current:** 1A rms max. (100kHz/+85°C). • **Surge Voltage:** Rated working voltage x 1.15.









Rated W.V. (VDC)	Nom. Cap. (µF)	Digi-Key Part No.	Pricing 1	10	100	1000	3000	6000	12,000	24,000	Panasonic Part No.
						Bulk					
8	8.2	PCE2100BK-ND	2.70	22.51	202.58	1800.68	—	—	—	—	ECG-C0KA8R2
12.5	4.7	PCE2101BK-ND	2.70	22.51	202.58	1800.68	—	—	—	—	ECG-C1BA4R7
16	2.7	PCE2102BK-ND	2.70	22.51	202.58	1800.68	—	—	—	—	ECG-C1CA2R7
						Tape and Reel					
8	8.2	PCE2100TR-ND	—	—	—	—	1354.00/M	1268.00/M	1177.00/M	1105.00/M	ECG-C0KA8R2R
12.5	4.7	PCE2101TR-ND	—	—	—	—	1354.00/M	1268.00/M	1177.00/M	1105.00/M	ECG-C1BA4R7R
16	2.7	PCE2102TR-ND	—	—	—	—	1354.00/M	1268.00/M	1177.00/M	1105.00/M	ECG-C1CA2R7R

Panasonic® SP/CB Series

Speciality Polymer Aluminum Electrolytic Capacitors, Surface Mount Type

FEATURES: • Excellent noise-absorbent characteristics • Surface mountable (Flow and relflow soldering method available) • Very stable capacitance, impedance and ESR against temperature • Excellent endurance characteristics due to an adoption of solid electrolyte **SPECIFICATIONS:** • **Operating Temp. Range:** –40°C to +105°C. • **Capacitance Tolerance:** ±20% (120Hz, +20°C). • **Leakage Current:** 1≤ 0.04 CV or 3µA after 2 min. • **Tan:** ≤0.06 (120kHz/+20°C). • **Permissible Current Between Terminals with Same Polarity:** 2A DC max (This shall be applicable only when each terminal is landed individually as shown in Fig. 2.) • **Surge Voltage:** Rated working voltage x 1.25. • **Endurance:** After applying rated working voltage for 1000 hours at +105°C, and then being stabilized at +20°C, capacitor shall meet the following limits: Capacitance Change (±10% of initial measured value); Tan, Impedance and DC Leakage Current (Initial specified value)

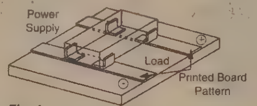


Fig. 1

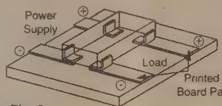
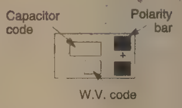
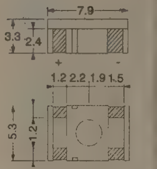
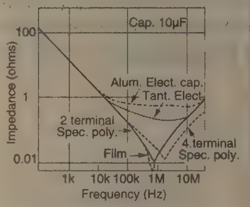


Fig. 2





Rated W.V. (VDC)	Nom. Cap. (µF)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape and Reel Pricing 3000	6000	12,000	Panasonic Part No.
6.3	10	PCS1100BCT-ND	2.24	18.64	161.53	PCS1100BTR-ND	747.00/M	700 00/M	650.00/M	ECG-C0JB100R
6.3	22	PCS1220JBCT-ND	2.72	22.65	196.30	PCS1220JBTR-ND	908.00/M	851.00/M	790.00/M	ECG-C0JB220R
6.3	33	PCS1330BCT-ND	3.30	27.49	238.23	PCS1330BTR-ND	1102.00/M	1032.00/M	958.00/M	ECG-C0JB330R
8	8.2	PCS18R2BCT-ND	2.24	18.64	161.53	PCS18R2BTR-ND	747.00/M	700.00/M	650.00/M	ECG-C0KB8R2R
8	15	PCS1150BCT-ND	2 72	22.65	196 30	PCS1150BTR-ND	908.00/M	851.00/M	790.00/M	ECG-C0KB150R
8	22	PCS1220BCT-ND	3.30	27.49	238.23	PCS1220BTR-ND	1102.00/M	1032.00/M	958.00/M	ECG-C0KB220R
16	4.7	PCS34R7BCT-ND	2.72	22.65	196.30	PCS34R7BTR-ND	908.00/M	851.00/M	790.00/M	ECG-C1CB4R7R
16	6.8	PCS36R8BCT-ND	3.30	27.49	238.23	PCS36R8BTR-ND	1102.00/M	1032.00/M	958.00/M	ECG-C1CB6R8R

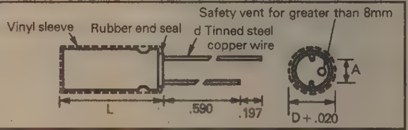


Panasonic® Bi-Polar Aluminum Electrolytic Capacitors

This bi-polar miniature aluminum electrolytic capacitor is ideal for reversal circuit of DC voltage. This series is the miniaturized case size and expanded products range from previous series.

● Close capacitance tolerance (±20%). ● Compact size. ● Stable characteristics at −40 ~ +85°C.

Specifications:
● Operating temperature range: −40 ~ +85°C ● Rated DC working voltage range: 6.3 ~ 50V DC ● Rated capacitance range: 0.47 ~ 1000 µF ● Capacitance tolerance: ±20% ● DC leakage current: I = 0.03 CV +3 (µA) (After 5 minutes application of DC working voltage at +20°C) ●Tan δ: max. at 120 Hz/20°C



WV	Cap. (µF)	Max. Leakage (µA)	Tan d (120Hz/207C)	Ripple Current (mA) rms	Dimensions D	L	A	d	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
6.3	33	9.3	0.30	60	5	11	2	0.5	P1100-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A0JN330S
	47	11.9	0.30	100	6.3	11.2	2.5	0.6	P1101-ND	.47	4.03	31.58	201.00	187.00/M	175.00/M	ECE-A0JN470S
	100	21.9	0.30	160	8	11.5	3.5	0.6	P1102-ND	.53	4.57	35.80	227.00	212.00/M	198.00/M	ECE-A0JN101S
	220	44.6	0.30	250	10	12.5	5	0.6	P1103-ND	.83	7.12	55.80	354.00	330.00/M	308.00/M	ECE-A0JN221S
	330	65.4	0.30	320	10	16	5	0.6	P1104-ND	.88	7.53	58.96	374.00	348.00/M	326.00/M	ECE-A0JN331S
	470	91.9	0.30	380	10	20	5	0.6	P1105-ND	1.09	9.37	73.43	466.00	434.00/M	406.00/M	ECE-A0JN471S
	1000	192.0	0.30	530	12.5	25	5	0.6	P1106-ND	1.49	12.80	100.28	637.00	593.00/M	554.00/M	ECE-A0JN102S
10	22	9.6	0.25	60	5	11	2	0.5	P1107-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1AN220S
	33	12.9	0.25	80	6.3	11.2	2.5	0.6	P1108-ND	.47	4.00	31.32	199.00	185.00/M	173.00/M	ECE-A1AN330S
	47	17.7	0.25	100	6.3	11.2	2.5	0.6	P1109-ND	.49	4.20	32.90	209.00	194.00/M	182.00/M	ECE-A1AN470S
	100	33.0	0.25	160	10	12.5	5	0.6	P1110-ND	.62	5.34	41.85	266.00	247.00/M	231.00/M	ECE-A1AN101S
	220	69.0	0.25	250	10	16	5	0.6	P1111-ND	.91	7.83	61.33	389.00	362.00/M	339.00/M	ECE-A1AN221S
	330	102.0	0.25	340	10	20	5	0.6	P1112-ND	.95	8.16	63.96	406.00	378.00/M	353.00/M	ECE-A1AN331S
	470	144.0	0.25	400	12.5	20	5	0.6	P1113-ND	1.29	11.05	86.59	550.00	512.00/M	479.00/M	ECE-A1AN471S
	1000	303.0	0.25	580	16	25	7.5	0.8	P1114-ND	1.66	14.21	111.33	707.00	658.00/M	615.00/M	ECE-A1AN102S
16	10	7.8	0.20	40	5	11	2	0.5	P1115-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1CN100S
	22	13.6	0.20	70	6.3	11.2	2.5	0.6	P1116-ND	.47	4.00	31.32	199.00	185.00/M	173.00/M	ECE-A1CN220S
	33	18.9	0.20	90	6.3	11.2	2.5	0.6	P1117-ND	.50	4.30	33.69	214.00	199.00/M	186.00/M	ECE-A1CN330S
	47	25.6	0.20	110	8	11.5	3.5	0.6	P1118-ND	.55	4.70	36.85	234.00	218.00/M	204.00/M	ECE-A1CN470S
	100	51.0	0.20	200	10	12.5	5	0.6	P1119-ND	.83	7.12	55.80	354.00	330.00/M	308.00/M	ECE-A1CN101S
	220	108.6	0.20	320	10	20	5	0.6	P1120-ND	.95	8.16	63.96	406.00	378.00/M	353.00/M	ECE-A1CN221S
	330	161.4	0.20	405	12.5	20	5	0.6	P1121-ND*	1.29	11.05	86.59	550.00	512.00/M	479.00/M	ECE-A1CN331S
	470	228.6	0.20	480	12.5	25	5	0.6	P1122-ND*	1.49	12.80	100.28	637.00	593.00/M	554.00/M	ECE-A1CN471S
	1000	483.0	0.20	700	16	25	7.5	0.8	P1123-ND*	2.29	19.66	153.97	978.00	910.00/M	851.00/M	ECE-A1CN102S
25	4.7	6.6	0.15	25	5	11	2	0.5	P1124-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1EN4R7S
	10	10.5	0.15	45	5	11	2	0.5	P1125-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1EN100S
	22	19.5	0.15	80	6.3	11.2	2.5	0.6	P1126-ND	.51	4.38	34.31	218.00	203.00/M	190.00/M	ECE-A1EN220S
	33	27.8	0.15	110	8	11.5	3.5	0.6	P1127-ND	.55	4.70	36.85	234.00	218.00/M	204.00/M	ECE-A1EN330S
	47	38.3	0.15	140	10	12.5	5	0.6	P1128-ND	.68	5.85	45.80	291.00	271.00/M	253.00/M	ECE-A1EN470S
	100	78.0	0.15	230	10	16	5	0.6	P1129-ND	.81	6.96	54.48	346.00	322.00/M	301.00/M	ECE-A1EN101S
	220	168.0	0.15	400	12.5	25	5	0.6	P1130-ND*	1.24	10.65	83.43	530.00	493.00/M	461.00/M	ECE-A1EN221S
50	0.47	3.7	0.15	10	5	11	2	0.5	P1131-ND*	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HNR47S
	1.0	4.5	0.15	10	5	11	2	0.5	P1132-ND*	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HN010S
	2.2	6.3	0.15	18	5	11	2	0.5	P1133-ND*	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HN2R2S
	3.3	8.0	0.15	25	5	11	2	0.5	P1134-ND*	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HN3R3S
	4.7	10.0	0.15	35	6.3	11.2	2.5	0.6	P1135-ND*	.48	4.13	32.37	206.00	191.00/M	179.00/M	ECE-A1HN4R7S
	10	18.0	0.15	60	8	11.5	3.5	0.6	P1136-ND*	.62	5.34	41.85	266.00	247.00/M	231.00/M	ECE-A1HN100S
	22	36.0	0.15	100	10	12.5	5	0.6	P1137-ND*	.81	6.96	54.48	346.00	322.00/M	301.00/M	ECE-A1HN220S
	33	52.5	0.15	140	10	16	5	0.6	P1138-ND*	.91	7.83	61.33	389.00	362.00/M	339.00/M	ECE-A1HN330S
	47	73.5	0.15	180	10	20	5	0.6	P1139-ND*	.95	8.16	63.96	406.00	378.00/M	353.00/M	ECE-A1HN470S
	100	153.0	0.15	320	12.5	25	5	0.6	P1140-ND*	1.45	12.47	97.65	620.00	577.00/M	540.00/M	ECE-A1HN101S

***P1141-KIT-ND** 10 each of parts listed above. Notebook style storage case and bin storage guide included **$89.95**

Panasonic® Bi-Polar Series SU Capacitors

FEATURES:

- Ideal for circuits where polarity is not constant or reverse voltage is applied when switches are turned on or off.
- Life: 2000 hours at +85°C.

SPECIFICATIONS:

Operating Temp. Range: –40°C to +85°C.

Capacitance Tolerance: ±20% (120Hz, +20°C).

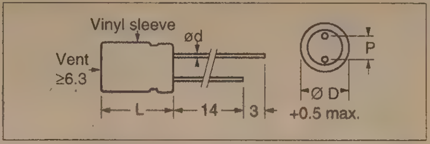
Leakage Current: I ≤ 0.03CV + 3(µA) after 5 minutes application of rated working voltage at +20°C.

Low Temperature Characteristics: Impedance ratio max. at 120Hz. Following specified values.

Working Volt.		6.3V	10V	16V	25V	35V	50V
Impedance	-25°C/+20°C	4	3	2	2	2	2
	-40°C/+20°C	8	6	4	4	4	3

ENDURANCE:

Test Conditions: Duration: 2000 hours. Ambient Temperature: +85°C. Applied Voltage: Rated DC working voltage to each polarity for 1000 hours.



Post Test Requirements: +20°C. Leakage Current: ≦ Initial specified value. Capacitance Change: ±20% of initial measured value. tan δ: ≦ 150% of initial specified value.

Shelf Life: Test Conditions: Duration: 1000 hours. Ambient Temperature: +85°C. Applied Voltage: none

Post Test Requirements (+20°C): Same limits for "Endurance".

WV	Cap. (µF)	D.C.L. (+20°C/5min.) [µA] max.	Tan δ (120Hz/+20°C) (max.)	Ripple Current (mA) rms	Dimensions				Digi-Key Part No.	Pricing						Panasonic Part No.
					D	L	P	d		1	10	100	1,000	5,000	10,000	
6.3	33	9.2	0.30	80	5	11	2.0	0.5	P1141-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A0JN330U
	47	11.8	0.30	90	5	11	2.0	0.5	P1142-ND	.45	3.83	30.00	191.00	177.00/M	166.00/M	ECE-A0JN470U
	100	21.9	0.30	130	6.3	11.2	2.5	0.5	P1143-ND	.51	4.33	33.95	216.00	201.00/M	188.00/M	ECE-A0JN101U
	220	44.5	0.30	200	8	11.5	3.5	0.6	P1144-ND	.79	6.75	52.90	336.00	313.00/M	292.00/M	ECE-A0JN221U
	330	65.3	0.30	250	8	11.5	3.5	0.6	P1145-ND	.83	7.16	56.06	356.00	331.00/M	310.00/M	ECE-A0JN331U
	470	91.8	0.30	310	10	12.5	5.0	0.6	P1146-ND	1.04	8.90	69.75	443.00	412.00/M	385.00/M	ECE-A0JN471X
	1000	192.0	0.30	430	10	20	5.0	0.6	P1147-ND	1.42	12.16	95.28	605.00	563.00/M	527.00/M	ECE-A0JN102U
	2200	418.8	0.30	660	12.5	25	5.0	0.6	P1148-ND	2.12	18.14	142.13	903.00	840.00/M	785.00/M	ECE-A0JN222U
	3300	626.7	0.30	760	16	25	7.5	0.8	P1149-ND	2.79	23.89	187.14	1189.00	1106.00/M	1034.00/M	ECE-A0JN332U
	4700	891.3	0.30	1170	16	31.5	7.5	0.8	P1150-ND	3.46	29.67	232.41	1476.00	1373.00/M	1284.00/M	ECE-A0JN472U
	6800	1288.2	0.30	1450	18	35.5	7.5	0.8	P1151-ND	4.18	35.85	280.83	1784.00	1660.00/M	1552.00/M	ECE-A0JN682U
10	22	9.6	0.25	60	5	11	2.0	0.5	P1152-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1AN220U
	33	12.9	0.25	80	5	11	2.0	0.5	P1153-ND	.44	3.80	29.74	189.00	176.00/M	164.00/M	ECE-A1AN330U
	47	17.1	0.25	90	5	11	2.0	0.5	P1154-ND	.47	4.00	31.32	199.00	185.00/M	173.00/M	ECE-A1AN470U
	100	33.0	0.25	130	6.3	11.2	2.5	0.5	P1155-ND	.59	5.07	39.74	252.00	235.00/M	220.00/M	ECE-A1AN101U
	220	69.0	0.25	200	8	11.5	3.5	0.6	P1156-ND	.87	7.43	58.17	369.00	344.00/M	321.00/M	ECE-A1AN221U
	330	102.0	0.25	280	10	16	5.0	0.6	P1157-ND	.91	7.76	60.80	386.00	359.00/M	336.00/M	ECE-A1AN331U
	470	144.0	0.25	340	10	16	5.0	0.6	P1158-ND	1.22	10.48	82.12	522.00	485.00/M	454.00/M	ECE-N1AN471U
	1000	303.0	0.25	470	12.5	20	5.0	0.6	P1159-ND	1.58	13.51	105.81	672.00	625.00/M	585.00/M	ECE-A1AN102X
	2200	663.0	0.25	690	16	25	7.5	0.8	P1160-ND	2.58	22.11	173.19	1100.00	1023.00/M	957.00/M	ECE-A1AN222U
	3300	993.0	0.25	1090	16	31.5	7.5	0.8	P1161-ND	2.98	25.50	199.77	1269.00	1181.00/M	1104.00/M	ECE-A1AN332U
	4700	1413.0	0.25	1200	18	35.5	7.5	0.8	P1162-ND	4.08	34.98	273.99	1740.00	1619.00/M	1514.00/M	ECE-A1AN472U
16	10	7.8	0.20	40	5	11	2.0	0.5	P1163-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1CN100U
	22	13.5	0.20	60	5	11	2.0	0.5	P1164-ND	.44	3.80	29.74	189.00	176.00/M	164.00/M	ECE-A1CN220U
	33	18.8	0.20	80	5	11	2.0	0.5	P1165-ND	.48	4.10	32.11	204.00	190.00/M	177.00/M	ECE-A1CN330U
	47	25.5	0.20	100	6.3	11.2	2.5	0.5	P1166-ND	.52	4.47	35.01	222.00	207.00/M	193.00/M	ECE-A1CN470U
	100	51.0	0.20	180	8	11.5	3.5	0.6	P1167-ND	.79	6.75	52.90	336.00	313.00/M	292.00/M	ECE-A1CN101U
	220	108.6	0.20	260	10	12.5	5.0	0.6	P1168-ND	.91	7.76	60.80	386.00	359.00/M	336.00/M	ECE-A1CN221X
	330	161.4	0.20	330	10	16	5.0	0.6	P1169-ND	1.22	10.48	82.12	522.00	485.00/M	454.00/M	ECE-A1CN331U
	470	228.6	0.20	380	10	20	5.0	0.6	P1170-ND	1.42	12.16	95.28	605.00	563.00/M	527.00/M	ECE-A1CN471U
	1000	483.0	0.20	560	12.5	25	5.0	0.6	P1171-ND	2.18	18.65	146.08	928.00	863.00/M	807.00/M	ECE-A1CN102U
	2200	1059.0	0.20	750	16	31.5	7.5	0.8	P1172-ND	3.25	27.82	217.93	1384.00	1288.00/M	1204.00/M	ECE-A1CN222U
	3300	1587.0	0.20	900	18	35.5	7.5	0.8	P1173-ND	4.23	36.22	283.73	1802.00	1677.00/M	1568.00/M	ECE-A1EN332U
25	3.3	5.4	0.15	20	5	11	2.0	0.5	P1174-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1EN3R3U
	4.7	6.5	0.15	25	5	11	2.0	0.5	P1175-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1EN4R7U
	10	10.5	0.15	45	5	11	2.0	0.5	P1176-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1EN100U
	22	19.5	0.15	60	5	11	2.0	0.5	P1177-ND	.47	4.03	31.58	201.00	187.00/M	175.00/M	ECE-A1EN220X
	33	27.7	0.15	90	6.3	11.2	2.5	0.5	P1178-ND	.52	4.47	35.01	222.00	207.00/M	193.00/M	ECE-A1EN330U
	47	38.2	0.15	110	6.3	11.2	2.5	0.5	P1179-ND	.65	5.58	43.69	277.00	258.00/M	241.00/M	ECE-A1EN470U
	100	78.0	0.15	180	8	11.5	3.5	0.6	P1180-ND	.77	6.59	51.59	328.00	305.00/M	285.00/M	ECE-A1EN101U
	220	168.0	0.15	320	10	16	5.0	0.6	P1181-ND	1.18	10.15	79.49	505.00	470.00/M	439.00/M	ECE-A1EN221U
	330	250.5	0.15	350	12.5	20	5.0	0.6	P1182-ND	1.44	12.33	96.59	613.00	571.00/M	534.00/M	ECE-A1EN331U
	470	355.5	0.15	430	12.5	20	5.0	0.6	P1183-ND	1.81	15.49	121.34	771.00	717.00/M	671.00/M	ECE-A1EN471U
	1000	753.0	0.15	680	16	25	7.5	0.8	P1184-ND	2.69	23.05	180.56	1147.00	1067.00/M	998.00/M	ECE-A1EN102U
	2200	1653.0	0.15	900	18	35.5	7.5	0.8	P1185-ND	4.23	36.22	283.73	1802.00	1677.00/M	1568.00/M	ECE-A1EN222U
35	4.7	7.9	0.15	30	5	11	2.0	0.5	P1186-ND	.46	3.96	31.06	197.00	184.00/M	172.00/M	ECE-A1VN4R7U
	10	13.5	0.15	43	5	11	2.0	0.5	P1187-ND	.49	4.17	32.64	207.00	193.00/M	180.00/M	ECE-A1VN100U
	22	26.1	0.15	80	6.3	11.2	2.5	0.5	P1188-ND	.56	4.77	37.37	237.00	221.00/M	207.00/M	ECE-A1VN220U
	33	37.6	0.15	100	8	11.5	3.5	0.6	P1189-ND	.60	5.17	40.53	257.00	240.00/M	224.00/M	ECE-A1VN330U
	47	52.3	0.15	120	8	11.5	3.5	0.6	P1190-ND	.77	6.59	51.59	328.00	305.00/M	285.00/M	ECE-A1VN470U
	100	108.0	0.15	230	10	16	5.0	0.6	P1191-ND	.93	7.96	62.38	396.00	369.00/M	345.00/M	ECE-A1VN101U
	220	234.0	0.15	360	12.5	20	5.0	0.6	P1192-ND	1.44	12.33	96.59	613.00	571.00/M	534.00/M	ECE-A1VN221U
	330	349.5	0.15	450	12.5	20	5.0	0.6	P1193-ND	1.85	15.89	124.49	791.00	736.00/M	688.00/M	ECE-A1VN331U
	470	496.5	0.15	590	12.5	25	5.0	0.6	P1194-ND	2.23	19.08	149.50	949.00	883.00/M	826.00/M	ECE-A1VN471U
50	0.47	3.7	0.15	10	5	11	2.0	0.5	P1195-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HNR47U
	1	4.5	0.15	10	5	11	2.0	0.5	P1196-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HN010U
	2.2	6.3	0.15	18	5	11	2.0	0.5	P1197-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HN2R2U
	3.3	7.9	0.15	25	5	11	2.0	0.5	P1198-ND	.28	2.39	18.69	119.00	110.00/M	103.00/M	ECE-A1HN3R3U
	4.7	10.0	0.15	30	5	11	2.0	0.5	P1199-ND	.46	3.96	30.79	196.00	182.00/M	170.00/M	ECE-A1HN4R7U
	10	18.0	0.15	50	6.3	11.2	2.5	0.5	P1280-ND	.59	5.07	39.74	252.00	235.00/M	220.00/M	ECE-A1HN100U
	22	36.0	0.15	90	8	11.5	3.5	0.6	P1281-ND	.77	6.59	51.59	328.00	305.00/M	285.00/M	ECE-A1HN220U
	33	52.5	0.15	110	8	11.5	3.5	0.6	P1282-ND	.87	7.43	58.17	369.00	344.00/M	321.00/M	ECE-A1HN330U
	47	73.5	0.15	140	10	12.5	5.0	0.6	P1283-ND	.91	7.76	60.80	386.00	359.00/M	336.00/M	ECE-A1HN470U
	100	153.0	0.15	250	10	20	5.0	0.6	P1284-ND	1.38	11.83	92.65	588.00	548.00/M	512.00/M	ECE-A1HN101U
	220	333.0	0.15	360	12.5	25	5.0	0.6	P1285-ND	1.81	15.49	121.34	771.00	717.00/M	671.00/M	ECE-A1HN221U
	330	498.0	0.15	450	16	25	7.5	0.8	P1286-ND	2.41	20.66	161.87	1028.00	957.00/M	895.00/M	ECE-A1HN331U
	470	708.0	0.15	590	16	31.5	7.5	0.8	P1287-ND	3.06	26.24	205.56	1306.00	1215.00/M	1136.00/M	ECE-A1HN471U

Panasonic® VV/VA/HA/HB/VS Series Aluminum Electrolytic Capacitors, Surface Mount Type

FEATURES:

• Surface Mount Type • High CV Volumetric Efficiency • Tape and Reel Packaging for Automatic Placement • Anti-solvent: Freon-TE, TES, TP-35

SPECIFICATIONS:

Operating Temp. Range: VV/HA/HB Series: –40°C to +105°C (VA/VS Series -40 to +85°C).

Capacitance Tolerance: ±20% (120Hz, +20°C).

Leakage Current: I ≤ 0.01CV or 3(μA) whichever is greater measured after a 2 min. application of rated working voltage at +20°C.

Tangent of Loss Angle: tan δ ≤ Following specified values (120Hz, +20°C).

Working Volt.	Series	4.0V	6.3V	10V	16V	25V	35V	50V
tan δ	VV/VA/VS	0.35	0.26	0.20	0.16	0.14	0.12	0.12
	HB	0.50	0.30	0.22	0.16	0.14	0.12	0.12
	HA	—	0.30	0.22	0.16	0.14	0.12	0.12

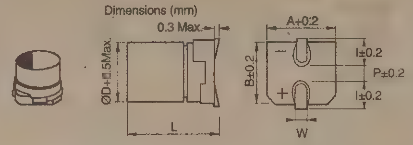
Low Temperature Characteristics: Impedance ratio (120Hz) ≤ Following specified values.

Working Volt.		4.0V	6.3V	10V	16V	25V	35V	50V
Impedance	-25°C/+20°C	7	4	3	2	2	2	2
	-40°C/+20°C	15	8	6	4	4	3	3

High Temperature Loading: Test Conditions: Duration: 2000 hours (HA Series - 1000 hours). Applied Voltage: Rated W.V. Ambient Temperature: +105°C (VS Series +85°C). **Post Test Requirements (+20°C):** Leakage Current: ≤ Initial specified value. Capacitance Change: ≤±20% of initial measured value (≤±30% for 4 W.V.). tan δ: ≤ 150% of initial specified value.

Shelf Life: Test Conditions: Duration: 1000 hours. Ambient Temperature: +105°C. Applied Voltage: none (VA/VS: Ambient Temp. +85°C. Applied Voltage: Rated DC working voltage). **Post Test Requirements (+20°C):** Capacitors shall meet the limits specified for the High Temp. Loading.

Resistance to Soldering Heat: Test Conditions: The capacitor shall be placed for 30 seconds on a plate (termination face down onto the plate) heated to +250°C (HA Series: +230°C). **Post Test Requirements (+20°C):** Leakage Current: ≤ Initial specified value. Capacitance Change: ±10% of initial measured value. tan δ: ≤ Initial specified value.

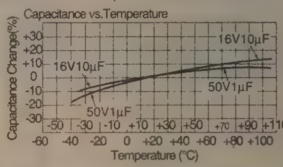


Series	Case Code	D	L	A	B	l	W	P
VV	B	4	5.4	4.3	4.3	1.8	0.5-0.8	1.0
	D	6.3	5.4	6.6	6.6	2.4	0.5-0.8	2.2
VA	B	4.0	5.7	4.3	4.3	1.8	0.5-0.8	1.0
	C	5.0	5.7	5.3	5.3	2.2	0.5-0.8	1.5
	D	6.3	5.7	6.6	6.6	2.4	0.5-0.8	2.2
	E	8.0	6.2	8.3	8.3	3.4	0.5-0.8	2.2
	F	8.0	10.2	8.3	8.3	2.9	0.7-1.0	3.2
	G	10.0	10.2	10.3	10.3	3.2	0.7-1.0	4.6
VS	A	3.0	5.4	3.3	3.3	1.5	0.45-0.75	0.6
	B	4.0	5.4	4.3	4.3	1.8	0.5-0.8	1.0
	C	5.0	5.4	5.3	5.3	2.2	0.5-0.8	1.5
	D	6.3	5.4	6.6	6.6	2.4	0.5-0.8	2.2
HB	B	4	5.8	4.3	4.3	1.8	0.5-0.8	1.0
	C	5	5.8	5.3	5.3	2.2	0.5-0.8	1.5
	D	6.3	5.8	6.6	6.6	2.4	0.5-0.8	2.2
HA	B	4.0	5.4	4.3	4.3	1.8	0.5-0.8	1.0
	C	5.0	5.4	5.3	5.3	2.2	0.5-0.8	1.5
	D	6.3	5.4	6.6	6.6	2.4	0.5-0.8	2.2

Cleaning: Capacitors can withstand exposure to these cleaning solvents:

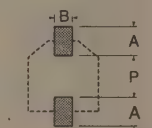
Solvents	Conditions	
Freon-TE Freon-TES Freon-TP35	Solvent structure	Liquid of vapor
	Exposure time	≤ 5 minutes (total)
	Temperature	≤ Boiling point at 1 atm
	Ultrasonic wave	Acceptable

APPLICATION NOTES: Wave(flow) soldering or contact of the case to a soldering iron is not permitted. The reflow soldering temp. profile should be such that the capacitor's surface (at the top of the case) temperature should not be greater than the specified maximum temp. & exposure time should be limited to 5 seconds maximum. Maximum allowable conditions for reflow soldering: Preheat: ≤ 120 sec. Duration at +200°C: ≤ 30 sec. Duration at max. allowable temperature: ≤ 5 sec. at +240°C.



Land/Pad dimensions as mounting guideline.

Case Code	P	A	B
A	0.6	2.2	1.5
B	1.0	2.5	1.6
C	1.5	2.8	1.6
D	2.2	3.0	1.6
E	2.2	4.5	1.6
F	3.2	4.0	2.0
G	4.6	4.3	2.0



Rated W.V. (VDC)	Nom. Cap (μF)	Max. Leakage Current (μA)	Size Code	Max. Ripple Current 120Hz, 105°C (mA rms)	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing					Panasonic Part No.
						10	100	500		500	1,000	2,000	5,000	6,000	
VV Series: –40°C to +105°C (2000 Hour Life)															
6.3	22	3.0	B	29	PCE1000CT-ND	4.25	36.84	141.50	PCE1000TR-ND	—	—	170.00/M	—	160.00/M	ECE-V0JV220SR
	33	3.0	B	29	PCE1001CT-ND	4.25	36.84	141.50	PCE1001TR-ND	—	—	170.00/M	—	160.00/M	ECE-V0JV330SR
	100	6.3	D	71	PCE1002CT-ND	6.13	53.14	204.50	PCE1002TR-ND	—	246.00	—	230.00/M	—	ECE-V0JV101SP
16	10	3.0	B	26	PCE1003CT-ND	4.25	36.84	141.50	PCE1003TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1CV100SR
	47	7.5	D	70	PCE1004CT-ND	6.13	53.14	204.50	PCE1004TR-ND	—	246.00	—	230.00/M	—	ECE-V1CV470SP
25	4.7	3.0	B	22	PCE1005CT-ND	4.25	36.84	141.50	PCE1005TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1EV4R7SR
	6.8	3.0	B	25	PCE1006CT-ND	4.25	36.84	141.50	PCE1006TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1EV6R8SR
	22	5.5	D	55	PCE1007CT-ND	6.13	53.14	204.50	PCE1007TR-ND	—	246.00	—	230.00/M	—	ECE-V1EV220SP
	33	8.2	D	65	PCE1008CT-ND	6.13	53.14	204.50	PCE1008TR-ND	—	246.00	—	230.00/M	—	ECE-V1EV330SP
50	0.1	3.0	B	1.0	PCE1009CT-ND	4.25	36.84	141.50	PCE1009TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HV0R1SR
	0.15	3.0	B	1.5	PCE1010CT-ND	4.25	36.84	141.50	PCE1010TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HVR15SR
	0.22	3.0	B	2.3	PCE1012CT-ND	4.25	36.84	141.50	PCE1012TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HVR22SR
	0.33	3.0	B	3.5	PCE1013CT-ND	4.25	36.84	141.50	—	—	—	—	—	—	ECE-V1HVR33SR
	0.47	3.0	B	5.0	PCE1014CT-ND	4.25	36.84	141.50	—	—	—	—	—	—	ECE-V1HVR47SR
	0.68	3.0	B	7.0	PCE1015CT-ND	4.25	36.84	141.50	PCE1015TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HVR68SR
	1.0	3.0	B	10	PCE1016CT-ND	4.25	36.84	141.50	PCE1016TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HV010SR
	1.5	3.0	B	13	PCE1017CT-ND	4.25	36.84	141.50	PCE1017TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HV1R5SR
	3.3	3.0	B	18	PCE1019CT-ND	4.25	36.84	141.50	PCE1019TR-ND	—	—	170.00/M	—	160.00/M	ECE-V1HV3R3SR
	4.7	3.0	D	23	PCE1020CT-ND	6.13	53.14	204.50	PCE1020TR-ND	—	246.00	—	230.00/M	—	ECE-V1HV4R7SP
	10	5.0	D	35	PCE1022CT-ND	6.13	53.14	204.50	PCE1022TR-ND	—	246.00	—	230.00/M	—	ECE-V1HV100SP
VA Series: –40°C to +85°C (1000 Hour Life, 2000 for Case Size E, F & G)															
4.0	33	3.0	B	26	PCE2023CT-ND	3.04	26.33	101.50	PCE2023TR-ND	—	—	122.00/M	—	114.00/M	ECE-V0GA330R
	47	3.0	B	34	PCE2024CT-ND	3.04	26.33	101.50	PCE2024TR-ND	—	—	122.00/M	—	114.00/M	ECE-V0GA470R
	100	4.0	C	61	PCE2025CT-ND	3.56	30.88	119.00	PCE2025TR-ND	—	143.00	—	134.00/M	—	ECE-V0GA101P
	220	8.8	D	82	PCE2026CT-ND	4.09	35.43	136.50	PCE2026TR-ND	—	164.00	—	154.00/M	—	ECE-V0GA221P
6.3	22	3.0	B	29	PCE2000CT-ND†	3.04	26.33	101.50	PCE2000TR-ND	—	—	122.00/M	—	114.00/M	ECE-V0JA220R
	33	3.0	C	38	PCE2001CT-ND	4.41	38.22	147.00	PCE2001TR-ND	—	177.00	—	166.00/M	—	ECE-V0JA330P
	47	3.0	C	46	PCE2002CT-ND†	3.56	30.88	119.00	PCE2002TR-ND	—	143.00	—	134.00/M	—	ECE-V0JA470P
	100	6.3	D	71	PCE2003CT-ND†	4.09	35.43	136.50	PCE2003TR-ND	—	164.00	—	154.00/M	—	ECE-V0JA101P
	330	20.7	E	300	PCE2034CT-ND	5.59	48.43	186.50	PCE2034TR-ND	—	224.00	—	210.00/M	—	ECE-V0JA331P
	470	29.6	F	380	PCE2035CT-ND	7.13	61.75	—	PCE2035TR-ND	152.00	286.00	—	268.00/M	—	ECE-V0JA471P
	680	42.8	G	550	PCE2036CT-ND	16.80	145.60	—	PCE2036TR-ND	358.50	674.00	—	631.00/M	—	ECE-V0JA681P
	820	51.7	G	660	PCE2037CT-ND	16.80	145.60	—	PCE2037TR-ND	358.50	674.00	—	631.00/M	—	ECE-V0JA821P
	1000	63.0	G	700	PCE2038CT-ND	8.99	77.94	—	PCE2038TR-ND	192.00	361.00	—	338.00/M	—	ECE-V0JA102P
10	22	3.0	C	35	PCE2004CT-ND	3.91	33.85	130.00	PCE2004TR-ND	—	157.00	—	147.00/M	—	ECE-V1AA220P
	33	3.3	C	43	PCE2005CT-ND†	3.56	30.88	119.00	PCE2005TR-ND	—	143.00	—	134.00/M	—	ECE-V1AA330P
	47	4.7	D	65	PCE2006CT-ND	4.24	36.76	141.50	PCE2006TR-ND	—	170.00	—	159.00/M	—	ECE-V1AA470P
	100	10.0	D	73	PCE2039CT-ND	4.09	35.43	136.50	PCE2039TR-ND	—	164.00	—	154.00/M	—	ECE-V1AA101UP
	220	22.0	E	280	PCE2040CT-ND	5.59	48.43	186.50	PCE2040TR-ND	—	224.00	—	210.00/M	—	ECE-V1AA221P
	330	33.0	F	330	PCE2041CT-ND	7.13	61.75	—	PCE2041TR-ND	152.00	286.00	—	268.00/M	—	ECE-V1AA331P
	470	47.0	G	400	PCE2042CT-ND	9.19	79.63	—	PCE2042TR-ND	196.00	368.00	—	345.00/M	—	ECE-V1AA471P
16	10	3.0	B	28	PCE2007CT-ND†	3.04	26.33	101.50	PCE2007TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1CA100R
	22	3.6	C	39	PCE2008CT-ND†	3.56	30.88	119.00	PCE2008TR-ND	—	143.00	—	134.00/M	—	ECE-V1CA220P
	33	5.3	D	60	PCE2009CT-ND	4.24	36.76	141.50	PCE2009TR-ND	—	170.00	—	159.00/M	—	ECE-V1CA330P
	47	7.5	D	70	PCE2010CT-ND†	4.09	35.43	136.50	PCE2010TR-ND	—	164.00	—	154.00/M	—	ECE-V1CA470P
	100	16.0	E	200	PCE2043CT-ND	5.59	48.43	186.50	PCE2043TR-ND	—	224.00	—	210.00/M	—	ECE-V1CA101P
	220	35.2	F	280	PCE2044CT-ND	7.13	61.75	—	PCE2044TR-ND	152.00	286.00	—	268.00/M	—	ECE-V1CA221P
	330	52.8	G	380	PCE2045CT-ND	9.19	79.63	—	PCE2045TR-ND	196.00	368.00	—	345.00/M	—	ECE-V1CA331P
	470	75.2	G	420	PCE2046CT-ND	9.19	79.63	—	PCE2046TR-ND	196.00	368.00	—	345.00/M	—	ECE-V1CA471P
25	4.7	3.0	B	22	PCE2011CT-ND	3.04	26.33	101.50	PCE2011TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1EA4R7R
	6.8	3.0	B	25	PCE2027CT-ND	3.04	26.33	101.50	PCE2027TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1EA6R8R
	10	3.0	C	28	PCE2012CT-ND	3.56	30.88	119.00	PCE2012TR-ND	—	143.00	—	134.00/M	—	ECE-V1EA100P
	22	5.5	D	55	PCE2013CT-ND	4.09	35.43	136.50	PCE2013TR-ND	—	164.00	—	154.00/M	—	ECE-V1EA220P
	33	8.2	D	65	PCE2014CT-ND†	4.09	35.43	136.50	PCE2014TR-ND	—	164.00	—	154.00/M	—	ECE-V1EA330P
	100	25.0	F	180	PCE2047CT-ND	7.13	61.75	—	PCE2047TR-ND	152.00	286.00	—	268.00/M	—	ECE-V1EA101P
	220	55.0	G	310	PCE2048CT-ND	9.19	79.63	—	PCE2048TR-ND	196.00	368.00	—	345.00/M	—	ECE-V1EA221P
35	4.7	3.0	B	22	PCE2015CT-ND†	3.04	26.33	101.50	PCE2015TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1VA4R7R
	10	3.5	C	30	PCE2016CT-ND†	3.56	30.88	119.00	PCE2016TR-ND	—	143.00	—	134.00/M	—	ECE-V1VA100P
	22	7.7	D	60	PCE2017CT-ND†	4.09	35.43	136.50	PCE2017TR-ND	—	164.00	—	154.00/M	—	ECE-V1VA220P
	33	11.5	E	130	PCE2049CT-ND	5.48	47.47	182.50	PCE2049TR-ND	—	220.00	—	206.00/M	—	ECE-V1VA330P
	47	16.5	E	165	PCE2050CT-ND	5.48	47.47	182.50	PCE2050TR-ND	—	220.00	—	206.00/M	—	ECE-V1VA470P
	100	35.0	G	210	PCE2051CT-ND	8.99	77.94	—	PCE2051TR-ND	192.00	361.00	—	338.00/M	—	ECE-V1VA101P
	0.1	3.0	B	1	PCE2018CT-ND†*	3.07	26.57	102.00	PCE2018TR-ND	—	—	123.00/M	—	115.00/M	ECE-V1HA0R1R
	0.15	3.0	B	1.5	PCE2028CT-ND	3.19	27.66	106.50	PCE2028TR-ND	—	—	128.00/M	—	120.00/M	ECE-V1HAR15R

Rated W.V. (VDC)	Nom. Cap (µF)	Max. Leakage Current (µA)	Size Code	Max.Ripple Current 120Hz, 105°C (mA rms)	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing					Panasonic Part No.
						10	100	500		500	1,000	2,000	5,000	6,000	
VA Series: –40°C to +85°C (1000 Hour Life, 2000 Hour for Case Size E, F, & G)															
50	0.22	3.0	B	2	PCE2019CT-ND†	3.04	26.33	101.50	PCE2019TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR22R
	0.33	3.0	B	3	PCE2020CT-ND†	3.04	26.33	101.50	PCE2020TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR33R
	0.47	3.0	B	5	PCE2021CT-ND†	3.04	26.33	101.50	PCE2021TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR47R
	0.68	3.0	B	7	PCE2052CT-ND	3.04	26.33	101.50	PCE2052TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR68R
	1	3.0	B	10	PCE2022CT-ND†	3.04	26.33	101.50	PCE2022TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA010R
	2.2	3.0	B	16	PCE2029CT-ND	3.04	26.33	101.50	PCE2029TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA2R2R
	3.3	3.0	B	16	PCE2030CT-ND	3.04	26.33	101.50	PCE2030TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA3R3R
	4.7	3.0	C	16	PCE2031CT-ND	3.56	30.88	119.00	PCE2031TR-ND	—	143.00	—	134.00/M	—	ECE-V1HA4R7P
	6.8	3.4	D	27	PCE2032CT-ND	4.09	35.43	136.50	PCE2032TR-ND	—	164.00	—	154.00/M	—	ECE-V1HA6R8P
	10	5.0	D	35	PCE2033CT-ND	4.09	35.43	136.50	PCE2033TR-ND	—	164.00	—	154.00/M	—	ECE-V1HA100P
	22	11.0	E	120	PCE2053CT-ND	5.59	48.43	186.50	PCE2053TR-ND	—	224.00	—	210.00/M	—	ECE-V1HA220P
	33	16.5	F	110	PCE2054CT-ND	7.13	61.75	—	PCE2054TR-ND	152.00	286.00	—	268.00/M	—	ECE-V1HA330P
	47	23.5	G	130	PCE2055CT-ND	9.19	79.63	—	PCE2055TR-ND	196.00	368.00	—	345.00/M	—	ECE-V1HA470P
HA Series: –40°C to +105°C (1000 Hour Life)															
6.3	22	3.0	B	29	PCE3000CT-ND	3.36	31.17	119.90	PCE3000TR-ND	—	—	144.00/M	—	135.00/M	EEV-HA0J220R
	47	3.0	C	46	PCE3001CT-ND	4.10	38.03	146.25	PCE3001TR-ND	—	176.00	—	165.00/M	—	EEV-HA0J470R
	100	6.3	D	71	PCE3002CT-ND	5.03	43.55	167.50	PCE3002TR-ND	—	201.00	—	189.00/M	—	EEV-HA0J101P
10	33	3.3	C	43	PCE3003CT-ND	4.10	38.03	146.25	PCE3003TR-ND	—	176.00	—	165.00/M	—	EEV-HA1A330R
16	20	3.0	B	28	PCE3004CT-ND	3.54	32.83	126.25	PCE3004TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1C100R
	33	3.5	C	39	PCE3005CT-ND	4.10	38.03	146.25	PCE3005TR-ND	—	176.00	—	165.00/M	—	EEV-HA1C220R
	47	7.5	D	70	PCE3006CT-ND	5.03	43.55	167.50	PCE3006TR-ND	—	201.00	—	189.00/M	—	EEV-HA1C470P
25	4.7	3.0	B	22	PCE3007CT-ND	3.54	32.83	126.25	PCE3007TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1E4R7R
	10	3.0	C	28	PCE3008CT-ND	4.10	38.03	146.25	PCE3008TR-ND	—	176.00	—	165.00/M	—	EEV-HA1E100R
	22	5.5	D	55	PCE3009CT-ND	5.03	43.55	167.50	PCE3009TR-ND	—	201.00	—	189.00/M	—	EEV-HA1E220P
	33	8.2	D	65	PCE3010CT-ND	5.03	43.55	167.50	PCE3010TR-ND	—	201.00	—	189.00/M	—	EEV-HA1E330P
35	4.7	3.0	B	22	PCE3011CT-ND	3.54	32.83	126.25	PCE3011TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1V4R7R
	10	3.5	C	30	PCE3012CT-ND	4.10	38.03	146.25	PCE3012TR-ND	—	176.00	—	165.00/M	—	EEV-HA1V100R
	22	7.7	D	60	PCE3013CT-ND	5.03	43.55	167.50	PCE3013TR-ND	—	201.00	—	189.00/M	—	EEV-HA1V220P
50	0.1	3.0	B	1	PCE3014CT-ND	3.54	32.83	126.25	PCE3014TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1H0R1R
	0.2	3.0	B	2	PCE3015CT-ND	3.54	32.83	126.25	PCE3015TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1HR22R
	0.3	3.0	B	3	PCE3016CT-ND	3.54	32.83	126.25	PCE3016TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1HR33R
	0.5	3.0	B	5	PCE3017CT-ND	3.54	32.83	126.25	PCE3017TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1HR47R
	1.0	3.0	B	10	PCE3018CT-ND	3.89	36.13	138.98	PCE3018TR-ND	—	—	167.00/M	—	157.00/M	EEV-HA1H010R
	2.2	3.0	B	16	PCE3019CT-ND	3.54	32.83	126.25	PCE3019TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1H2R2R
	3.3	3.0	B	16	PCE3020CT-ND	3.54	32.83	126.25	PCE3020TR-ND	—	—	152.00/M	—	142.00/M	EEV-HA1H3R3R
	4.7	3.0	C	23	PCE3021CT-ND	4.10	38.03	146.25	PCE3021TR-ND	—	176.00	—	165.00/M	—	EEV-HA1H4R7R
	10	5.0	D	35	PCE3022CT-ND	5.03	43.55	167.50	PCE3022TR-ND	—	201.00	—	189.00/M	—	EEV-HA1H100P
HB Series: –40°C to +105°C (2000 Hour Life)															
4	47	3	B	34	PCE3023CT-ND	3.82	35.43	136.25	PCE3023TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB0G470R
	100	4	C	61	PCE3024CT-ND	4.45	41.28	158.75	PCE3024TR-ND	—	191.00	—	179.00/M	—	EEV-HB0G101R
	220	8.8	D	82	PCE3025CT-ND	5.44	47.13	181.25	PCE3025TR-ND	—	218.00	—	204.00/M	—	EEV-HB0G221P
6.3	22	3	B	29.5	PCE3026CT-ND	3.82	35.43	136.25	PCE3026TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB0J220R
	33	3	B	26	PCE3027CT-ND	3.82	35.43	136.25	PCE3027TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB0J330R
	47	3	C	46	PCE3028CT-ND	4.45	41.28	158.75	PCE3028TR-ND	—	—	191.00/M	—	179.00/M	EEV-HB0J470R
	100	6.3	D	71	PCE3029CT-ND	5.44	47.13	181.25	PCE3029TR-ND	—	218.00	—	204.00/M	—	EEV-HB0J101P
10	33	3.3	C	42	PCE3030CT-ND	4.45	41.28	158.75	PCE3030TR-ND	—	191.00	—	179.00/M	—	EEV-HB1A330R
16	10	3	B	28	PCE3031CT-ND	3.82	35.43	136.25	PCE3031TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1C100R
	22	3.5	C	39	PCE3032CT-ND	4.45	41.28	158.75	PCE3032TR-ND	—	191.00	—	179.00/M	—	EEV-HB1C220R
	47	7.5	D	70	PCE3033CT-ND	5.44	47.13	181.25	PCE3033TR-ND	—	218.00	—	204.00/M	—	EEV-HB1C470P
25	4.7	3	B	22	PCE3034CT-ND	3.82	35.43	136.25	PCE3034TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1E4R7R
	6.8	3	B	25	PCE3035CT-ND	3.82	35.43	136.25	PCE3035TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1E6R8R
	10	3	C	28	PCE3036CT-ND	5.04	46.76	179.85	PCE3036TR-ND	—	216.00	—	203.00/M	—	EEV-HB1E100R
	22	5.5	D	55	PCE3037CT-ND	6.29	54.55	209.83	PCE3037TR-ND	—	252.00	—	236.00/M	—	EEV-HB1E220P
	33	8.2	D	65	PCE3038CT-ND	5.44	47.13	181.25	PCE3038TR-ND	—	218.00	—	204.00/M	—	EEV-HB1E330P
35	10	3.5	C	28	PCE3039CT-ND	4.45	41.28	158.75	PCE3039TR-ND	—	191.00	—	179.00/M	—	EEV-HB1V100R
	22	7.7	D	55	PCE3040CT-ND	5.44	47.13	181.25	PCE3040TR-ND	—	218.00	—	204.00/M	—	EEV-HB1V220P
50	0.1	3	B	1	PCE3041CT-ND	3.82	35.43	136.25	PCE3041TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1HR10R
	0.22	3	B	2	PCE3042CT-ND	3.82	35.43	136.25	PCE3042TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1HR22R
	0.33	3	B	3	PCE3043CT-ND	3.82	35.43	136.25	PCE3043TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1HR33R
	0.47	3	B	5	PCE3044CT-ND	3.82	35.43	136.25	PCE3044TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1HR47R
	1	3	B	10	PCE3045CT-ND	3.82	35.43	136.25	PCE3045TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1H1R0R
	2.2	3	B	16	PCE3046CT-ND	3.82	35.43	136.25	PCE3046TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1H2R2R
	3.3	3	B	16	PCE3047CT-ND	3.82	35.43	136.25	PCE3047TR-ND	—	—	164.00/M	—	154.00/M	EEV-HB1H3R3R
	4.7	3	C	22	PCE3048CT-ND	4.45	41.28	158.75	PCE3048TR-ND	—	191.00	—	179.00/M	—	EEV-HB1H4R7R
	6.8	3.4	C	27	PCE3049CT-ND	4.45	41.28	158.75	PCE3049TR-ND	—	191.00	—	179.00/M	—	EEV-HB1H6R8R
	6.8	5	D	35	PCE3050CT-ND	5.44	47.13	181.25	PCE3050TR-ND	—	218.00	—	204.00/M	—	EEV-HB1H100P
VS Series: –40°C to +85°C (1000 Hour Life)															
4	22	3	A	19	PCE3051CT-ND	3.33	30.88	118.75	PCE3051TR-ND	—	—	143.00/M	—	134.00/M	ECE-V0GS220SR
	33	3	B	26	PCE3052CT-ND	2.84	26.33	101.25	PCE3052TR-ND	—	—	122.00/M	—	114.00/M	ECE-V0GA330SR
	47	3	B	34	PCE3053CT-ND	2.84	26.33	101.25	PCE3053TR-ND	—	—	122.00/M	—	114.00/M	ECE-V0GA470SR
	100	4	C	61	PCE3054CT-ND	4.41	38.22	147.00	PCE3054TR-ND	—	177.00	—	166.00/M	—	ECE-V0GA101SP
	220	8.8	D	82	PCE3055CT-ND	4.09	35.43	136.25	PCE3055TR-ND	—	164.00	—	154.00/M	—	ECE-V0GA221SP
6.3	22	3	B	29	PCE3056CT-ND	2.84	26.33	101.25	PCE3056TR-ND	—	—	122.00/M	—	114.00/M	ECE-V0JA220SR
	47	3	C	46	PCE3057CT-ND	3.60	31.20	120.00	PCE3057TR-ND	—	144.00	—	135.00/M	—	ECE-V0JA470SR
	100	6.3	D	71	PCE3058CT-ND	4.09	35.43	136.25	PCE3058TR-ND	—	164.00	—	154.00/M	—	ECE-V0JA101SP
10	33	3.3	C	43	PCE3059CT-ND	3.60	31.20	120.00	PCE3059TR-ND	—	144.00	—	135.00/M	—	ECE-V1AA330SR
	47	4.7	D	65	PCE3060CT-ND	4.09	35.43	136.25	PCE3060TR-ND	—	164.00	—	154.00/M	—	ECE-V1AA470SP
16	10	3	A	20	PCE3061CT-ND	3.33	30.88	119.00	PCE3061TR-ND	—	—	143.00/M	—	134.00/M	ECE-V1CS100SR
	10	3	B	28	PCE3062CT-ND	2.84	26.33	101.25	PCE3062TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1CA100SR
	22	3.5	C	39	PCE3063CT-ND	3.60	31.20	120.00	PCE3063TR-ND	—	144.00	—	135.00/M	—	ECE-V1CA220SR
	47	7.5	D	70	PCE3064CT-ND	4.09	35.43	136.25	PCE3064TR-ND	—	164.00	—	154.00/M	—	ECE-V1CA470SP
25	4.7	3	A	12	PCE3065CT-ND	3.33	30.88	118.75	PCE3065TR-ND	—	—	143.00/M	—	134.00/M	ECE-V1ES4R7SR
	4.7	3	B	22	PCE3066CT-ND	2.84	26.33	101.25	PCE3066TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1EA4R7SR
	10	3	C	28	PCE3067CT-ND	3.60	31.20	120.00	PCE3067TR-ND	—	144.00	—	135.00/M	—	ECE-V1EA100SR
	22	5.5	D	55	PCE3068CT-ND	4.09	35.43	136.25	PCE3068TR-ND	—	164.00	—	154.00/M	—	ECE-V1EA220SP
	33	8.2	D	65	PCE3069CT-ND	4.09	35.43	136.25	PCE3069TR-ND	—	164.00	—	154.00/M	—	ECE-V1EA330SP
35	2.2	3	A	8	PCE3070CT-ND	3.24	30.11	115.81	PCE3070TR-ND	—	—	139.00/M	—	130.00/M	ECE-V1VS2R2SR
	3.3	3	A	10	PCE3071CT-ND	3.24	30.11	115.81	PCE3071TR-ND	—	—	139.00/M	—	130.00/M	ECE-V1VS3R3SR
	4.7	3	B	22	PCE3072CT-ND	2.78	25.86	99.46	PCE3072TR-ND	—	—	120.00/M	—	112.00/M	ECE-V1VA4R7SR
	10	3.5	C	30	PCE3073CT-ND	3.47	30.11	115.81	PCE3073TR-ND	—	139.00	—	130.00/M	—	ECE-V1VA100SR
	22	7.7	D	60	PCE3074CT-ND	4.01	34.72	133.53	PCE3074TR-ND	—	161.00	—	150.00/M	—	ECE-V1VA220SP
50	0.1	3	A	1	PCE3075CT-ND	3.24	30.11	115.81	PCE3075TR-ND	—	—	139.00/M	—	130.00/M	ECE-V1HS0R1SR
	0.1	3	B	1	PCE3076CT-ND	2.84	26.33	101.25	PCE3076TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA0R1SR
	0.22	3	A	2	PCE3077CT-ND	3.33	30.88	118.75	PCE3077TR-ND	—	—	143.00/M	—	134.00/M	ECE-V1HSR22SR
	0.22	3	B	2	PCE3078CT-ND	2.87	26.33	101.25	PCE3078TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR22SR
	0.33	3	A	3	PCE3079CT-ND	3.33	30.88	118.75	PCE3079TR-ND	—	—	143.00/M	—	134.00/M	ECE-V1HSR33SR
	0.33	3	B	3	PCE3080CT-ND	2.84	26.33	101.25	PCE3080TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR33SR
	0.47	3	A	5	PCE3081CT-ND	3.33	30.88	118.75	PCE3081TR-ND	—	—	143.00/M	—	134.00/M	ECE-V1HSR47SR
	0.47	3	B	5	PCE3082CT-ND	2.84	26.33	101.25	PCE3082TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HAR47SR
	1	3	A	8	PCE3083CT-ND	3.33	30.88	118.75	PCE3083TR-ND	—	—	143.00/M	—	134.00/M	ECE-V1HS010SR
	1	3	B	10	PCE3084CT-ND	2.84	26.33	101.25	PCE3084TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA010SR
	2.2	3	A	10	PCE3085CT-ND	3.93	36.49	140.50	PCE3085TR-ND	—	—	169.00/M	—	158.00/M	ECE-V1HS2R2SR
	2.2	3	B	16	PCE3086CT-ND	2.84	26.33	101.25	PCE3086TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA2R2SR
	3.3	3	B	18	PCE3087CT-ND	2.84	26.33	101.25	PCE3087TR-ND	—	—	122.00/M	—	114.00/M	ECE-V1HA3R3SR
	4.7	3	C	23	PCE3088CT-ND	3.60	31.20	120.00	PCE3088TR-ND	—	144.00	—	135.00/M	—	ECE-V1HA4R7SR
	10	5	D	35	PCE3089CT-ND	4.09	35.43	136.25	PCE3089TR-ND	—	164.00	—	154.00/M	—	ECE-V1HA100SP

†PCE2-KIT-ND 10 each of values denoted (160 total pieces). Notebook style storage case and bin storage guide included. **$49.95**

Panasonic® EF

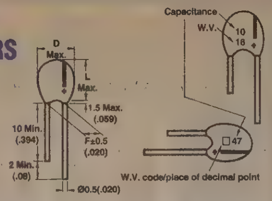
RESIN DIPPED SOLID TANTALUM CAPACITORS

Specifications:

- Operating Temperature Range: −55° to +85°C
- Rated Working Voltage Range: 3.15 to 50 WV DC
- Rated Capacitance Range: .1 to 220 μF
- Capacitance Tolerance: As Specified
- Leakage Current: I = 0.008 CV or 0.05 μA whichever is greater; I in μA, C in μF, V in volts
- Leads are not less than 0.394″ in length

Surge Voltage

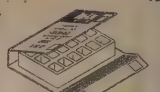
Working Voltage	Surge Voltage
3.15V, DC	4V, DC
6.3	8
10	13
16	20
25	32
35	44
50	63



PANASONIC EF CROSS REFERENCES
Sprague: 196D; Kemet: T350/T360; Mepco: 49GS; NEC: DN; Nichicon: 599; Hitachi: TSD-3; Matsuo: 202; AVX: Tap.

Panasonic®
TANTALUM CAPACITOR KIT

Assortment of 15 Popular Values — Panasonic Quality



Cat. No. **F-KIT-ND**
ONLY

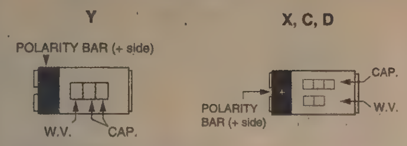
$39.95

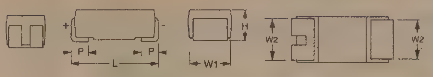
180 TANTALUM CAPACITORS. Price includes notebook style storage case and bin storage guide for easy storage and quick access.

Cap. (μF)	Voltage Volt. DC	Cap. Tol. (%)	Dimensions (inches) D	L	F	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
4.7	6.3	±10	.138	.217	.098	P2011-ND	.32	2.73	21.39	136.00	126.00/M	118.00/M	ECS-F0JE475K
6.8	6.3	±10	.138	.217	.098	P2012-ND	.35	3.03	23.74	151.00	140.00/M	131.00/M	ECS-F0JE685K
10	6.3	±10	.146	.256	.098	P2013-ND	.39	3.36	26.32	167.00	156.00/M	145.00/M	ECS-F0JE106K
15	6.3	±10	.157	.276	.098	P2014-ND	.45	3.87	30.32	193.00	179.00/M	168.00/M	ECS-F0JE156K
22	6.3	±10	.177	.276	.098	P2015-ND	.54	4.59	35.96	228.00	212.00/M	199.00/M	ECS-F0JE226K
33	6.3	±10	.185	.315	.098	P2016-ND	.63	5.43	42.54	270.00	251.00/M	235.00/M	ECS-F0JE336K
47	6.3	±20	.205	.335	.098	P2017-ND	.83	7.08	55.46	352.00	328.00/M	306.00/M	ECS-F0JE476
68	6.3	±20	.217	.374	.098	P2018-ND	1.19	10.20	79.90	507.00	472.00/M	442.00/M	ECS-F0JE686
100	6.3	±20	.236	.433	.098	P2019-ND	1.88	16.08	125.96	800.00	744.00/M	696.00/M	ECS-F0JE107
150	6.3	±20	.295	.492	.197	P2020-ND	4.25	36.45	285.53	1813.00	1687.00/M	1578.00/M	ECS-F0JE157
220	6.3	±20	.354	.571	.197	P2094-ND	8.62	73.89	578.81	3676.00	3421.00/M	3199.00/M	ECS-F0JE227
330	6.3	±20	.394	.610	.197	P2095-ND	11.28	96.66	757.17	4809.00	4475.00/M	4184.00/M	ECS-F0JE337
2.2	10	±10	.130	.217	.098	P2022-ND	.29	2.46	19.27	122.00	114.00/M	106.00/M	ECS-F1AE225K
3.3	10	±10	.138	.217	.098	P2023-ND	.32	2.73	21.39	136.00	126.00/M	118.00/M	ECS-F1AE335K
4.7	10	±10	.138	.217	.098	P2024-ND	.35	3.03	23.74	151.00	140.00/M	131.00/M	ECS-F1AE475K
6.8	10	±10	.146	.256	.098	P2025-ND	.39	3.36	26.32	167.00	156.00/M	145.00/M	ECS-F1AE685K
10	10	±10	.157	.276	.098	P2026-ND	.49	4.20	32.90	209.00	194.00/M	182.00/M	ECS-F1AE106K
15	10	±10	.177	.276	.098	P2027-ND	.54	4.59	35.96	228.00	212.00/M	199.00/M	ECS-F1AE156K
22	10	±10	.185	.315	.098	P2028-ND	.71	6.09	47.71	303.00	282.00/M	264.00/M	ECS-F1AE226K
33	10	±10	.205	.335	.098	P2029-ND	.86	7.38	57.81	367.00	342.00/M	319.00/M	ECS-F1AE336K
47	10	±10	.217	.374	.098	P2030-ND	1.22	10.44	81.78	519.00	483.00/M	452.00/M	ECS-F1AE476K
68	10	±20	.236	.433	.098	P2031-ND	1.88	16.08	125.96	800.00	744.00/M	696.00/M	ECS-F1AE686
100	10	±20	.295	.492	.197	P2032-ND	4.25	36.45	285.53	1813.00	1687.00/M	1578.00/M	ECS-F1AE107
150	10	±20	.354	.571	.197	P2083-ND	8.33	71.40	559.30	3552.00	3306.00/M	3091.00/M	ECS-F1AE157
220	10	±20	.394	.610	.197	P2084-ND	9.91	84.93	665.29	4225.00	3932.00/M	3677.00/M	ECS-F1AE227
1.0	16	±10	.130	.197	.098	P2105-ND	.28	2.43	19.04	121.00	112.00/M	105.00/M	ECS-F1CE105K
1.5	16	±10	.130	.217	.098	P2033-ND*	.30	2.55	19.98	127.00	118.00/M	110.00/M	ECS-F1CE155K
2.2	16	±10	.138	.217	.098	P2034-ND*	.32	2.73	21.39	136.00	126.00/M	118.00/M	ECS-F1CE225K
3.3	16	±10	.138	.217	.098	P2035-ND*	.33	2.85	22.33	142.00	132.00/M	123.00/M	ECS-F1CE335K
4.7	16	±10	.146	.256	.098	P2036-ND*	.39	3.30	25.85	164.00	153.00/M	143.00/M	ECS-F1CE475K
6.8	16	±10	.157	.276	.098	P2037-ND*	.47	4.02	31.49	200.00	186.00/M	174.00/M	ECS-F1CE685K
10	16	±10	.177	.276	.098	P2038-ND*	.58	4.98	39.01	248.00	231.00/M	216.00/M	ECS-F1CE106K
15	16	±10	.185	.315	.098	P2039-ND*	.75	6.42	50.29	319.00	297.00/M	278.00/M	ECS-F1CE156K
22	16	±10	.205	.335	.098	P2040-ND*	.86	7.35	57.58	366.00	340.00/M	318.00/M	ECS-F1CE226K
33	16	±10	.217	.374	.098	P2041-ND	1.22	10.47	82.02	521.00	485.00/M	453.00/M	ECS-F1CE336K
47	16	±20	.236	.433	.098	P2042-ND	1.88	16.08	125.96	800.00	744.00/M	696.00/M	ECS-F1CE476
68	16	±20	.295	.492	.197	P2043-ND	4.25	36.45	285.53	1813.00	1687.00/M	1578.00/M	ECS-F1CE686
100	16	±20	.354	.571	.197	P2096-ND	8.33	71.40	559.30	3552.00	3306.00/M	3091.00/M	ECS-F1CE107
150	16	±20	.394	.610	.197	P2086-ND	9.91	84.93	665.29	4225.00	3932.00/M	3677.00/M	ECS-F1CE157
1.5	25	±10	.138	.217	.098	P2044-ND	.32	2.73	21.39	136.00	126.00/M	118.00/M	ECS-F1EE155K
2.2	25	±10	.138	.217	.098	P2045-ND	.36	3.09	24.21	154.00	143.00/M	134.00/M	ECS-F1EE225K
3.3	25	±10	.146	.256	.098	P2046-ND	.42	3.63	28.44	181.00	168.00/M	157.00/M	ECS-F1EE335K
4.7	25	±10	.157	.276	.098	P2047-ND	.55	4.71	36.90	234.00	218.00/M	204.00/M	ECS-F1EE475K
6.8	25	±10	.177	.276	.098	P2048-ND	.65	5.55	43.48	276.00	257.00/M	240.00/M	ECS-F1EE685K
10	25	±10	.205	.335	.098	P2049-ND	1.06	9.09	71.21	452.00	421.00/M	394.00/M	ECS-F1EE106K
15	25	±10	.217	.374	.098	P2050-ND	1.23	10.50	82.25	522.00	486.00/M	455.00/M	ECS-F1EE156K
22	25	±20	.236	.433	.098	P2051-ND	1.74	14.88	116.56	740.00	689.00/M	644.00/M	ECS-F1EE226
33	25	±20	.295	.492	.197	P2052-ND	2.58	22.14	173.43	1101.00	1025.00/M	958.00/M	ECS-F1EE336
47	25	±20	.354	.571	.197	P2097-ND	4.64	39.78	311.61	1979.00	1842.00/M	1722.00/M	ECS-F1EE476
68	25	±20	.394	.610	.197	P2098-ND	9.81	84.12	658.94	4185.00	3894.00/M	3642.00/M	ECS-F1EE686
.047	35	±20	.130	.197	.098	P2099-ND	.46	3.93	30.79	196.00	182.00/M	170.00/M	ECS-F1VE473
.068	35	±20	.130	.197	.098	P2100-ND	.46	3.93	30.79	196.00	182.00/M	170.00/M	ECS-F1VE683
0.1	35	±20	.130	.197	.098	P2053-ND*	.25	2.16	16.92	107.00	100.00/M	94.00/M	ECS-F1VE104
0.15	35	±20	.130	.197	.098	P2054-ND*	.25	2.16	16.92	107.00	100.00/M	94.00/M	ECS-F1VE154
0.22	35	±20	.130	.197	.098	P2055-ND*	.25	2.16	16.92	107.00	100.00/M	94.00/M	ECS-F1VE224
0.33	35	±20	.130	.197	.098	P2056-ND*	.26	2.22	17.39	110.00	103.00/M	96.00/M	ECS-F1VE334
0.47	35	±20	.130	.217	.098	P2057-ND*	.28	2.43	19.04	121.00	112.00/M	105.00/M	ECS-F1VE474
0.68	35	±20	.130	.217	.098	P2058-ND*	.30	2.55	19.98	127.00	118.00/M	110.00/M	ECS-F1VE684
1.0	35	±10	.138	.217	.098	P2059-ND*	.32	2.73	21.39	136.00	126.00/M	118.00/M	ECS-F1VE105K
1.5	35	±10	.138	.217	.098	P2060-ND	.36	3.09	24.21	154.00	143.00/M	134.00/M	ECS-F1VE155K
2.2	35	±10	.146	.256	.098	P2061-ND	.42	3.63	28.44	181.00	168.00/M	157.00/M	ECS-F1VE225K
3.3	35	±10	.157	.276	.098	P2062-ND	.55	4.71	36.90	234.00	218.00/M	204.00/M	ECS-F1VE335K
4.7	35	±10	.177	.276	.098	P2063-ND	.65	5.55	43.48	276.00	257.00/M	240.00/M	ECS-F1VE475K
6.8	35	±10	.205	.335	.098	P2064-ND	1.10	9.39	73.56	467.00	435.00/M	406.00/M	ECS-F1VE685K
10	35	±10	.217	.374	.098	P2065-ND	1.23	10.50	82.25	522.00	486.00/M	455.00/M	ECS-F1VE106K
15	35	±20	.236	.433	.098	P2066-ND	1.94	16.65	130.43	828.00	771.00/M	721.00/M	ECS-F1VE156
22	35	±20	.295	.492	.197	P2101-ND	2.64	22.65	177.43	1127.00	1049.00/M	981.00/M	ECS-F1VE226
33	35	±20	.354	.571	.197	P2102-ND	4.84	41.49	325.01	2064.00	1921.00/M	1796.00/M	ECS-F1VE336
47	35	±20	.394	.610	.197	P2103-ND	12.93	110.79	867.86	5512.00	5129.00/M	4796.00/M	ECS-F1VE476
0.1	50	±20	.130	.197	.098	P2067-ND	.29	2.46	19.27	122.00	114.00/M	106.00/M	ECS-F1HE104
0.15	50	±20	.130	.197	.098	P2068-ND	.29	2.46	19.27	122.00	114.00/M	106.00/M	ECS-F1HE154
0.22	50	±20	.130	.217	.098	P2069-ND	.30	2.61	20.45	130.00	121.00/M	113.00/M	ECS-F1HE224
0.33	50	±20	.138	.217	.098	P2070-ND	.30	2.61	20.45	130.00	121.00/M	113.00/M	ECS-F1HE334
0.47	50	±20	.146	.256	.098	P2071-ND	.34	2.91	22.80	145.00	135.00/M	126.00/M	ECS-F1HE474
0.68	50	±20	.146	.256	.098	P2072-ND	.42	3.60	28.20	179.00	167.00/M	156.00/M	ECS-F1HE684
1.0	50	±10	.157	.276	.098	P2073-ND	.51	4.41	34.55	219.00	204.00/M	191.00/M	ECS-F1HE105K
1.5	50	±10	.177	.276	.098	P2074-ND	.86	7.41	58.05	369.00	343.00/M	321.00/M	ECS-F1HE155K
2.2	50	±10	.185	.315	.098	P2075-ND	1.05	9.00	70.50	448.00	417.00/M	390.00/M	ECS-F1HE225K
3.3	50	±10	.205	.335	.098	P2076-ND	1.52	13.02	101.99	648.00	603.00/M	564.00/M	ECS-F1HE335K
4.7	50	±10	.217	.374	.098	P2077-ND	2.01	17.19	134.66	855.00	796.00/M	744.00/M	ECS-F1HE475K
6.8	50	±20	.295	.492	.197	P2078-ND	4.15	35.58	278.71	1770.00	1647.00/M	1540.00/M	ECS-F1HE685
10	50	±20	.354	.571	.197	P2104-ND	5.44	46.59	364.96	2318.00	2157.00/M	2017.00/M	ECS-F1HE106
15	50	±20	.394	.610	.197	P2093-ND	9.73	83.40	653.30	4149.00	3861.00/M	3610.00/M	ECS-F1HE156

*Included in F-Kit-ND.

Panasonic® TE Series Tantalum Electrolytic Chip Capacitors





Dimensions (mm)

EIA Size	Size Code	L ± 0.2	W_1 ± 0.2	W_2 ± 0.1	H ± 0.2	P ± 0.3
A	Y	3.2	1.6	1.2	1.6	0.8
B	X	3.5	2.8	2.2	1.9	0.8
C	C	6.0	3.2	2.2	2.5	1.3
D	D	7.3	4.3	3.65	2.8	1.3

Packing Quantity		
Packing Quantity	Size Y, X	2,000 pieces/reel
	Size C, D	750 pieces/reel

Features

• Wide capacitance range • High performance in temperature and frequency characteristics. • Excellent solderability. • Excellent terminal construction against bending of P.W.B. • Low inductance structure.

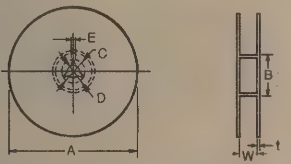
Specifications

• **Operating temperature range:** −55 to +125°C • **Capacitance tolerance:** ±20% at 120Hz, +20°C • **DC leakage current:** I = 0.01CV or 0.5µA max. whichever is greater. DC leakage current shall be measured after 2 minutes application or rated working voltage at +20°C. • **tan ∂:** ≤3.3µF − 0.04 max.; 4.7 ~ 68µF − 0.06 max.; 100µF − 0.08 max. • **Solder heat resistance:** The capacitor shall withstand dipping into solder bath for 5 ± 1 sec at 260 ± 5°C. • **Moisture Resistance:** Capacitor shall be tested for 500 hours at +40°C and 90 − 95% R.H. without load. After the test, capacitor shall meet the following limits.

Cap. change	±10% of the initial measured value.
DC leakage	≤ current initial specified value.
tan δ	≤ initial specified value.

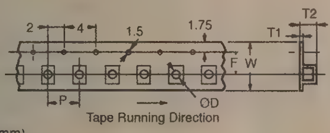
• **Endurance:** After 2000 hours application of DC rated working voltage at +85°C, or derated voltage at +125°C, the capacitor shall meet the following limits.

Cap. change	±10% of the initial measured value.
DC leakage	≤ 125% of the current initial specified value.
tan δ	≤ initial specified value.



Dimensions (mm)

	φA ± 2	φB Min.	C ± 0.5	D ± 0.8	E ± 0.5	W ± 1.5	t ± 0.5
12mm tape	178	50	13.0	21.0	2.0	14.0	2.0
8mm tape	178	50	13.0	21.0	2.0	10.0	2.0



Dimensions (mm)

Size Code	W ± 0.3	A ± 0.2	B ± 0.2	P ± 0.1	T_1 ± 0.2	F ± 0.1	T_2	φD ± 0.1
Y	8.0	1.9	3.5	4.0	1.9	3.5	0.2	1.1
X		3.3	3.8	4.0	2.1			
C	12.0	3.7	6.4	8.0	3.0	5.5	0.3	1.6
D		4.7	7.7	8.0	3.3			

WV (DC)	Cap (µF)	EIA Size	Size Code	Digi-Key Part No.	Pricing 10	Pricing 100	Pricing 500	Digi-Key Part No.	Tape and Reel Pricing 750	1500	2000	4000	Panasonic Part Number
6.3	3.3	A	Y	PCS1335CT-ND•	4.24	36.73	141.50	PCS1335TR-ND	—	—	169.00/M	162.00/M	ECS-T0JY335R
	4.7	A	Y	PCS1475CT-ND	4.24	36.73	141.50	PCS1475TR-ND	—	—	169.00/M	162.00/M	ECS-T0JY475R
	6.8	A	Y	PCS1685CT-ND•	4.24	36.73	141.50	PCS1685TR-ND	—	—	169.00/M	162.00/M	ECS-T0JY685R
	10	A	Y	PCS1106CT-ND	4.80	41.60	160.00	PCS1106TR-ND	—	—	191.00/M	183.00/M	ECS-T0JY106R
	15	B	X	PCS1156CT-ND	7.61	65.98	254.00	PCS1156TR-ND	—	—	303.00/M	290.00/M	ECS-T0JX156R
	22	B	X	PCS1226CT-ND•	7.61	65.98	254.00	PCS1226TR-ND	—	—	303.00/M	290.00/M	ECS-T0JX226R
	33	C	C	PCS1336CT-ND	11.70	101.40	390.00	PCS1336TR-ND	371.25	480.00/M	—	—	ECS-T0JC336R
	47	D	D	PCS1476CT-ND	13.80	119.60	460.00	PCS1476TR-ND	438.00	566.00/M	—	—	ECS-T0JD476R
	68	D	D	PCS1686CT-ND•	15.38	133.25	512.50	PCS1686TR-ND	488.25	631.00/M	—	—	ECS-T0JD686R
10	2.2	A	Y	PCS2225CT-ND•	4.24	36.73	141.50	PCS2225TR-ND	—	—	169.00/M	162.00/M	ECS-T1AY225R
	3.3	A	Y	PCS2335CT-ND	4.24	36.73	141.50	PCS2335TR-ND	—	—	169.00/M	162.00/M	ECS-T1AY335R
	4.7	A	Y	PCS2475CT-ND•	4.80	41.60	160.00	PCS2475TR-ND	—	—	191 00/M	183.00/M	ECS-T1AY475R
	10	B	X	PCS2106CT-ND	7.61	65.98	254.00	PCS2106TR-ND	—	—	303.00/M	290.00/M	ECS-T1AX106R
	15	B	X	PCS2156CT-ND•	7.61	65.98	254.00	PCS2156TR-ND	—	—	303.00/M	290.00/M	ECS-T1AX156R
	22	C	C	PCS2226CT-ND	11.70	101.40	390.00	PCS2226TR-ND	371.25	480.00/M	—	—	ECS-T1AC226R
	33	D	D	PCS2336CT-ND	13.80	119.60	460.00	PCS2336TR-ND	438.00	566.00/M	—	—	ECS-T1AD336R
	47	D	D	PCS2476CT-ND•	15.45	133.90	515.00	PCS2476TR-ND	490.50	634.00/M	—	—	ECS-T1AD476R
16	0.68	A	Y	PCS3684CT-ND•	4.24	36.73	141.50	PCS3684TR-ND	—	—	169.00/M	162.00/M	ECS-T1CY684R
	1.0	A	Y	PCS3105CT-ND•	4.24	36.73	141.50	PCS3105TR-ND	—	—	169.00/M	162.00/M	ECS-T1CY105R
	1.5	A	Y	PCS3155CT-ND•	4.24	36.73	141.50	PCS3155TR-ND	—	—	169.00/M	162.00/M	ECS-T1CY155R
	2.2	A	Y	PCS3225CT-ND•	4.24	36.73	141.50	PCS3225TR-ND	—	—	169.00/M	162.00/M	ECS-T1CY225R
	3.3	A	Y	PCS3335CT-ND•	4.80	41.60	160.00	PCS3335TR-ND	—	—	191.00/M	183.00/M	ECS-T1CY335R
	4.7	A	Y	PCS3475CT-ND•	4.80	41.60	160.00	PCS3475TR-ND	—	—	191.00/M	183.00/M	ECS-T1CY475R
	6.8	B	X	PCS3685CT-ND•	7.61	65.98	254.00	PCS3685TR-ND	—	—	303.00/M	290.00/M	ECS-T1CX685R
	10	B	X	PCS3106CT-ND•	7.61	65.98	254.00	PCS3106TR-ND	—	—	303.00/M	290.00/M	ECS-T1CX106R
	15	C	C	PCS3156CT-ND•	11.74	101.73	391.50	PCS3156TR-ND	372.75	482.00/M	—	—	ECS-T1CC156R
	22	D	D	PCS3226CT-ND•	13.80	119.60	460.00	PCS3226TR-ND	438.00	566.00/M	—	—	ECS-T1CD226R
	33	D	D	PCS3336CT-ND	15.38	133.25	512.50	PCS3336TR-ND	488.25	631.00/M	—	—	ECS-T1CD336R
20	0.68	A	Y	PCS4684CT-ND	4.24	36.73	141.50	PCS4684TR-ND	—	—	169.00/M	162.00/M	ECS-T1DY684R
	1.5	A	Y	PCS4155CT-ND	4.80	41.60	160.00	PCS4155TR-ND	—	—	191.00/M	183.00/M	ECS-T1DY155R
	2.2	B	X	PCS4225CT-ND	5.40	46.80	180.00	PCS4225TR-ND	—	—	215.00/M	206.00/M	ECS-T1DX225R
	3.3	B	X	PCS4335CT-ND	7.61	65.98	254.00	PCS4335TR-ND	—	—	303.00/M	290.00/M	ECS-T1DX335R
	4.7	B	X	PCS4475CT-ND	7.61	65.98	254.00	PCS4475TR-ND	—	—	303.00/M	290.00/M	ECS-T1DX475R
	6.8	C	C	PCS4685CT-ND	11.70	101.40	390.00	PCS4685TR-ND	371.25	480.00/M	—	—	ECS-T1DC685R
	10	C	C	PCS4106CT-ND	11.70	101.40	390.00	PCS4106TR-ND	371.25	480.00/M	—	—	ECS-T1DC106R
	15	D	D	PCS4156CT-ND	13.88	120.25	462.50	PCS4156TR-ND	440.25	569.00/M	—	—	ECS-T1DD156R
	22	D	D	PCS4226CT-ND	15.38	133.25	512.50	PCS4226TR-ND	488.25	631.00/M	—	—	ECS-T1DD226R
25	0.47	A	Y	PCS5474CT-ND†	4.24	36.73	141.50	PCS5474TR-ND	—	—	169.00/M	162.00/M	ECS-T1EY474R
	1.0	A	Y	PCS5105CT-ND†	4.80	41.60	160.00	PCS5105TR-ND	—	—	191.00/M	183.00/M	ECS-T1EY105R
	1.5	B	X	PCS5155CT-ND†	5.33	46.15	177.50	PCS5155TR-ND	—	—	212.00/M	203.00/M	ECS-T1EX155R
	2.2	B	X	PCS5225CT-ND	7.61	65.98	254.00	PCS5225TR-ND	—	—	303.00/M	290.00/M	ECS-T1EX225R
	3.3	B	X	PCS5335CT-ND†	7.61	65.98	254.00	PCS5335TR-ND	—	—	303.00/M	290.00/M	ECS-T1EX335R
	4.7	C	C	PCS5475CT-ND	11.70	101.40	390.00	PCS5475TR-ND	371.25	480.00/M	—	—	ECS-T1EC475R
	6.8	C	C	PCS5685CT-ND†	11.70	101.40	390.00	PCS5685TR-ND	371.25	480.00/M	—	—	ECS-T1EC685R
	10	D	D	PCS5106CT-ND†	13.80	119.60	460.00	PCS5106TR-ND	438.00	566.00/M	—	—	ECS-T1ED106R
	15	D	D	PCS5156CT-ND	15.38	133.25	512.50	PCS5156TR-ND	488.25	631.00/M	—	—	ECS-T1ED156R
	22	D	D	PCS5226CT-ND	15.45	133.90	515.00	PCS5226TR-ND	490.50	634.00/M	—	—	ECS-T1ED226R
35	.1	A	Y	PCS6104CT-ND†	4.24	36.73	141.50	PCS6104TR-ND	—	—	169.00/M	162.00/M	ECS-T1VY104R
	.15	A	Y	PCS6154CT-ND†	4.24	36.73	141.50	PCS6154TR-ND	—	—	169.00/M	162.00/M	ECS-T1VY154R
	.22	A	Y	PCS6224CT-ND†	4.24	36.73	141.50	PCS6224TR-ND	—	—	169.00/M	162.00/M	ECS-T1VY224R
	.33	A	Y	PCS6334CT-ND†	4.24	36.73	141.50	PCS6334TR-ND	—	—	169.00/M	162.00/M	ECS-T1VY334R
	.47	A	Y	PCS6474CT-ND†	4.24	36.73	141.50	PCS6474TR-ND	—	—	169.00/M	162.00/M	ECS-T1VY474R
	.68	A	Y	PCS6684CT-ND†	4.80	41.60	160.00	PCS6684TR-ND	—	—	191.00/M	183.00/M	ECS-T1VY684R
	1.0	B	X	PCS6105CT-ND†	5.33	46.15	177.50	PCS6105TR-ND	—	—	212.00/M	203.00/M	ECS-T1VX105R
	1.5	B	X	PCS6155CT-ND†	7.61	65.98	254.00	PCS6155TR-ND	—	—	303.00/M	290.00/M	ECS-T1VX155R
	2.2	B	X	PCS6225CT-ND†	7.61	65.98	254.00	PCS6225TR-ND	—	—	303.00/M	290.00/M	ECS-T1VX225R
	3.3	C	C	PCS6335CT-ND†	11.74	101.73	391.50	PCS6335TR-ND	372.75	482.00/M	—	—	ECS-T1VC335R
	4.7	C	C	PCS6475CT-ND†	11.70	101.40	390.00	PCS6475TR-ND	371.25	480.00/M	—	—	ECS-T1VC475R
	6.8	D	D	PCS6685CT-ND†	13.80	119.60	460.00	PCS6685TR-ND	438.00	566.00/M	—	—	ECS-T1VD685R
	10	D	D	PCS6106CT-ND	15.38	133.25	512.50	PCS6106TR-ND	488.25	631.00/M	—	—	ECS-T1VD106R

• **PCS1-KIT-ND** 10 each of values denoted (180 total pieces) Notebook style storage case $89.95
† **PCS2-KIT-ND** 10 each of values denoted (180 total pieces) Notebook style storage case $89.95

Panasonic® TES Series

Features: • Ultra miniature sizes • Low profile 1.2mm max. height

Specifications: • **Operating Temperature Range:** -55° to +125°C • **Rated Working Voltage Range:** 2.5 to 20V DC • **Nominal Capacitance Range:** 0.1 to 4.7 µF • **Capacitance Tolerance:** ±20% (120Hz, +20°) • **Leakage Current:** I ≤ 0.01CV or 0.5 (µA), whichever is greater measured after 2 minutes application of rated working voltage at +20°C • **tan δ:** 0.04 max. for ≤ 3.3µF, 0.08 max. for 2.5W.V., 0.10 max. for Z size • **Characteristics at High and Low Temperature:**

-55°C	Capacitance change	±12% of initial measured value at +20°C
+125°C	Leakage current	≤12.5 times of initial specified value
	Capacitance change	±15% of initial measured value at +20°C

• **Moisture Resistance:** Test conditions — Relative humidity : 90 to 95% without load, Ambient temperature : +40°C, Duration : 500 hours Post test requirements at +20°C — Leakage current: ≤ Initial specified value, Capacitance change: ±10% of initial measured value, tan δ: ≤ Initial specified value

• **Endurance:** Test Conditions

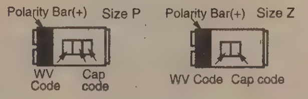
Item \ Conditions	Derating	Rating
Duration	2000 hours	2000 hours
Ambient temperature	+125°C	+85°C
Applied voltage	Derated working voltage	Rated working voltage
Source impedance	1Ω/V	1Ω/V

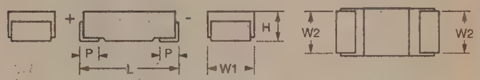
Derating voltage at +125°C

Working voltage [V] DC	2.5	4	6.3	10	16	20
Derating voltage [V] DC	1.6	2.5	4	6.3	10	13

Post test requirements at +20°C — Leakage current : ≤ 125% of initial specified value, Capacitance change : ±10% of initial measured value, tan δ: ≤ Initial specified value

• **Shelf Life:** Test conditions — Duration 2000 hours, Ambient Temperature +125°C, No applied voltage. Post test requirements at +20°C, same limits for "Endurance". • **Solder Heat Resistance:** The capacitor shall withstand dipping into solder bath for 5 ± 1 seconds at 260 ± 5°C.





Size Code	L ± 0.2	W1 ± 0.2	H max.	P	W2 ± 0.1
Z	2.0	1.25	1.2	0.5 ± 0.2	0.9
P	3.2	1.6	1.2	0.8 ± 0.3	1.2

W.V. (D.C.)	Cap. (µF)	Size Code	Digi-Key Part No.	Pricing 10	Pricing 100	Pricing 500	Digi-Key Part No.	Tape and Reel Pricing 3000	6000	Panasonic Part Number
2.5	2.2	Z	PCS9225BCT-ND*	7.60	65.88	253.50	PCS9225BTR-ND	303.00/M	286.00/M	ECS-T0EZ225R
	3.3	Z	PCS9335BCT-ND	7.85	68.07	262.00	PCS9335BTR-ND	313.00/M	295.00/M	ECS-T0EZ335R
	4.7	P	PCS9475BCT-ND*	6.30	54.60	210.00	PCS9475BTR-ND	251.00/M	237.00/M	ECS-T0EP475R
4	1.5	Z	PCS0155BCT-ND*	7.64	66.25	255.00	PCS0155BTR-ND	304.00/M	287.00/M	ECS-T0GZ155R
	2.2	P	PCS0255BCT-ND*	6.30	54.60	210.00	PCS0255BTR-ND	251.00/M	237.00/M	ECS-T0GP225R
	2.2	Z	PCS0255CCT-ND	7.85	68.07	262.00	PCS0255CTR-ND	313.00/M	295.00/M	ECS-T0GZ225R
	3.3	P	PCS0335BCT-ND*	6.30	54.60	210.00	PCS0335BTR-ND	251.00/M	237.00/M	ECS-T0GP335R
6.3	1.0	Z	PCS1105BCT-ND*	7.64	66.25	255.00	PCS1105BTR-ND	304.00/M	287.00/M	ECS-T0JZ105R
	1.5	P	PCS1155BCT-ND*	6.30	54.60	210.00	PCS1155BTR-ND	251.00/M	237.00/M	ECS-T0JP155R
	1.5	Z	PCS1155CCT-ND	7.85	68.07	262.00	PCS1155CTR-ND	313.00/M	295.00/M	ECS-T0JZ155R
	2.2	P	PCS1225BCT-ND*	6.30	54.60	210.00	PCS1225BTR-ND	251.00/M	237.00/M	ECS-T0JP225R
10	1.0	P	PCS2105BCT-ND*	7.60	65.88	253.50	PCS2105BTR-ND	303.00/M	286.00/M	ECS-T1AP105R
	1.0	Z	PCS2105CCT-ND	7.85	68.07	262.00	PCS2105CTR-ND	313.00/M	295.00/M	ECS-T1AZ105R
	1.5	P	PCS2155BCT-ND*	6.30	54.60	210.00	PCS2155BTR-ND	251.00/M	237.00/M	ECS-T1AP155R
16	0.68	P	PCS3684BCT-ND*	6.30	54.60	210.00	PCS3684BTR-ND	251.00/M	237.00/M	ECS-T1CP684R
	0.68	Z	PCS3684CCT-ND	7.85	68.07	262.00	PCS3684CTR-ND	313.00/M	295.00/M	ECS-T1CZ684R
	1.0	P	PCS3105BCT-ND*	7.10	61.52	236.50	PCS3105BTR-ND	283.00/M	267.00/M	ECS-T1CP105R
20	0.10	P	PCS4104BCT-ND*	6.30	54.60	210.00	PCS4104BTR-ND	251.00/M	237.00/M	ECS-T1DP104R
	0.15	P	PCS4154BCT-ND*	6.30	54.60	210.00	PCS4154BTR-ND	251.00/M	237.00/M	ECS-T1DP154R
	0.22	P	PCS4224BCT-ND*	6.30	54.60	210.00	PCS4224BTR-ND	251.00/M	237.00/M	ECS-T1DP224R
	0.33	P	PCS4334BCT-ND*	6.30	54.60	210.00	PCS4334BTR-ND	251 00/M	237.00/M	ECS-T1DP334R
	0.47	P	PCS4474BCT-ND*	6.30	54.60	210.00	PCS4474BTR-ND	251.00/M	237.00/M	ECS-T1DP474R
	0.68	P	PCS4684BCT-ND*	6.30	54.60	210.00	PCS4684BTR-ND	251.00/M	237.00/M	ECS-T1DP684R

* **PCS3-KIT-ND** 10 each of values denoted (180 total pieces) Notebook style storage case $89.95

Panasonic® TEH Series

Resin Molded Chip Tantalum Electrolytic Capacitors

Specifications

- **Operating temperature range:** −55 to +125°C
- **Rated working voltage range:** 6.3, 10, 16, 25 and 35V DC
- **Rated capacitance range:** .068 ~ 68μF
- **Capacitance tolerance:** ±20% at 120Hz, +20°C
- **DC leakage current:** I = 0.01CV or 0.5μA max. whichever is greater.

DC leakage current shall be measured after 2 minutes application or rated working voltage at +20°C.

- **tan ∂:** less than 3.3μF – 0.04 max.; 4.7 ~ 68μF – 0.06 max.
- **Stability at low and high temperature:**

	−55°C	+125°C
Cap. change	±12% max.	±15% max.
DC leakage current		0.1CV or 5μA whichever is greater.

- **Surge voltage test:**

Rated VDC	6.3	10	16	25	35
Surge VDC	8	13	20	30	44

Capacitor shall withstand the surge test voltage applied through a 1000 ohm resistor at the rate of 1/2 minute "ON," 5-1/2 minutes "OFF," for 1000 successive test cycles at +85°C. After the test, capacitor shall meet the following limits.

Cap. change	Within ±5% of the initial measured value.
DC leakage current	Less than initial specified value.
tan δ	Less than initial specified value.

- **Humidity test:**

Capacitor shall be tested for 500 hours at −40°C and 90 – 95% R.H. without load. After the test, capacitor shall meet the following limits.

Cap. change	Within ±10% of the initial measured value.
DC leakage current	Less than initial specified value.
tan δ	Less than initial specified value.

- **Load life test:**

After 2000 hours application of DC rated working voltage at +85°C, or derated voltage at +125°C, the capacitor shall meet the following limits.

W.V.	Derated voltage
6.3	4
10	6.3
16	10
25	16
35	22

Cap. change	Within ±10% of the initial measured value.
DC leakage current	Less than 125% of the initial specified value.
tan δ	Less than initial specified value.

- **Reverse voltage.**

Reverse voltage shall be less than 5% of the rated working voltage or 1 volt, whichever is smaller.

Rated working voltage	Reverse voltage
6.3 V	−0.32 max.
10 V	−0.50 max.
16 V	−0.80 max.
25 V	−1.00 max.
35 V	−1.00 max.

Test condition
Temperature: 85 ± 2°C
Charging voltage: DC voltage as shown above.
Test time: 500 ± 12 hours through the resistance or more than 3 times of charging voltage.
(Example: 1V – more than 3Q)
After this test, capacitor shall meet the value after load life test.

- **Cleaning Solvents:**

The organic solvents such as Freon, 1,1,1-Trichlorethane are acceptable for 5 minutes cleaning. However, Acid and Alkaline solvents shall not be used.

- **Solder heat resistance:**

The capacitor shall withstand dipping into solder bath for 5 ± 1 sec at 260 ± 5°C.

- **Solderability:**

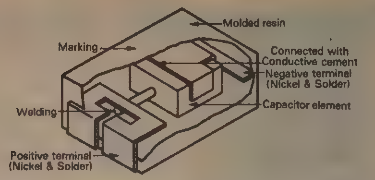
Lead tabs shall be uniformly covered with solder uniformity on the following conditions.
Solder bath temp ....230 ± 5°C
Solder dipping time ....2 ± 0.5 sec. after dipping flux.

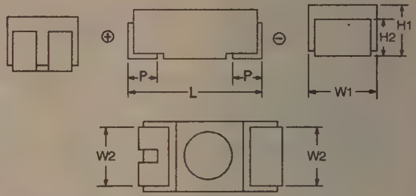
- **Maximum pressure:**

When the capacitor is taken and mounted by the mounting machine, pressure given to the capacitor shall not exceed 500g at 1.5mm (0.059 inch) diameter of the tip.

PANASONIC TE CROSS REFERENCES

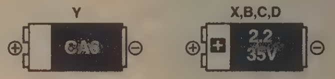
Sprague: 293D; **Kemet:** T491; **Mepco:** 49MC; **NEC:** SV; **Nichicon:** F93; **Hitachi:** TMC; **Matsuo:** 267.

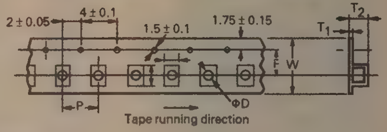

Molded resin
Marking
Connected with Conductive cement
Negative terminal (Nickel & Solder)
Welding
Capacitor element
Positive terminal (Nickel & Solder)



Dimensions (mm)

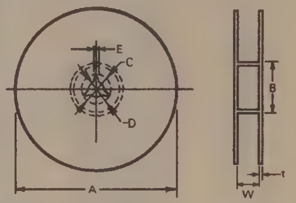
EIA Size	Size Code	L ± 0.2	W_1 ± 0.2	W_2 ± 0.1	H_1 ± 0.2	H_2 Typ.	P ± 0.3
A	Y	3.2	1.6	1.2	1.6	1.0	0.8
B	X	3.5	2.8	2.2	1.9	1.2	0.8
C	C	6.0	3.2	2.2	2.5	1.5	1.3
D	D	7.3	4.3	2.4	2.8	1.6	1.3





Dimensions (mm)

Size Code	W ± 0.3	A ± 0.2	B ± 0.2	P ± 0.1	T_1 ± 0.2	F ± 0.1	T_2	ϕD ± 0.1
Y	8.0	1.9	3.5	4.0	1.9	3.5	0.2	1.1
X		3.3	3.8	4.0	2.1			
C	12.0	3.7	6.4	8.0	3.0	5.5	0.3	1.6
D		4.7	7.7	8.0	3.3			



Dimensions (mm)

	ϕA ± 2	ϕB Min.	C ± 0.5	D ± 0.8	E ± 0.5	W ± 1.5	t ± 0.5
12mm tape	178	50	13.0	21.0	2.0	14.0	2.0
8mm tape	178	50	13.0	21.0	2.0	10.0	2.0

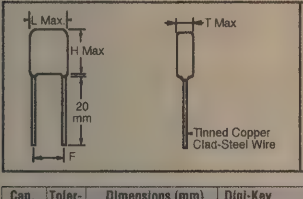
Packing Quantity	
Size Y, X	2,000 pieces/reel
Size C, D	750 pieces/reel

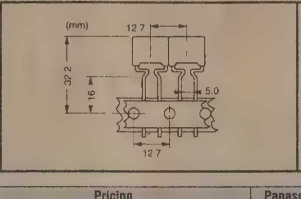
W.V. (D.C.)	Cap. (μF)	EIA Size	Size Code	Digi-Key Part No.	Pricing		Digi-Key Part No.	Tape and Reel Pricing					Panasonic Part No.
					10	100		750	1,500	2,000	4,000	6,000	
6.3	3.3	A	Y	PCT1335CT-ND*	4.20	36.40	PCT1335TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H0JY335R
	6.8	B	X	PCT1685CT-ND*	5.21	45.18	PCT1685TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H0JX685R
	15	C	C	PCT1156CT-ND	10.61	91.98	PCT1156TR-ND	336.75	435.00/M	—	—	399.00/M	ECS-H0JC156R
	22	C	C	PCT1226CT-ND*	10.88	94.25	PCT1226TR-ND	345.00	446.00/M	—	—	408.00/M	ECS-H0JC226R
	47	D	D	PCT1476CT-ND	13.05	113.10	PCT1476TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H0JD476R
	68	D	D	PCT1686CT-ND*	13.80	119.60	PCT1686TR-ND	438.00	566.00/M	—	—	518.00/M	ECS-H0JD686R
10	2.2	A	Y	PCT2225CT-ND*	4.20	36.40	PCT2225TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1AY225R
	4.7	B	X	PCT2475CT-ND*	5.21	45.18	PCT2475TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1AX475R
	10	C	C	PCT2106CT-ND	10.65	92.30	PCT2106TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1AC106R
	15	C	C	PCT2156CT-ND*	10.88	94.25	PCT2156TR-ND	345.00	446.00/M	—	—	408.00/M	ECS-H1AC156R
	33	D	D	PCT2336CT-ND	13.05	113.10	PCT2336TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H1AD336R
	47	D	D	PCT2476CT-ND*	14.40	124.80	PCT2476TR-ND	457.50	591.00/M	—	—	541.00/M	ECS-H1AD476R
16	0.68	A	Y	PCT3684CT-ND*	4.24	36.73	PCT3684TR-ND	—	—	169.00/M	162.00/M	159.00/M	ECS-H1CY684R
	1.0	A	Y	PCT3105CT-ND*	4.24	36.73	PCT3105TR-ND	—	—	169.00/M	162.00/M	159.00/M	ECS-H1CY105R
	1.5	A	Y	PCT3155CT-ND*	4.24	36.73	PCT3155TR-ND	—	—	169.00/M	162.00/M	159.00/M	ECS-H1CY155R
	2.2	B	X	PCT3225CT-ND*	5.21	45.18	PCT3225TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1CX225R
	3.3	B	X	PCT3335CT-ND*	5.21	45.18	PCT3335TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1CX335R
	4.7	C	C	PCT3475CT-ND*	10.65	92.30	PCT3475TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1CC475R
	6.8	C	C	PCT3685CT-ND*	10.65	92.30	PCT3685TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1CC685R
	10	C	C	PCT3106CT-ND*	10.88	94.25	PCT3106TR-ND	345.00	446.00/M	—	—	408.00/M	ECS-H1CC106R
	15	D	D	PCT3156CT-ND*	12.77	110.66	PCT3156TR-ND	405.00	524.00/M	—	—	480.00/M	ECS-H1CD156R
	22	D	D	PCT3226CT-ND*	13.05	113.10	PCT3226TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H1CD226R
	33	D	D	PCT3336CT-ND*	14.40	124.80	PCT3336TR-ND	457.50	591.00/M	—	—	541.00/M	ECS-H1CD336R
20	0.68	A	Y	PCT4684CT-ND	4.20	36.40	PCT4684TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1DY684R
	2.2	B	X	PCT4225CT-ND	5.21	45.18	PCT4225TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1DX225R
	4.7	C	C	PCT4475CT-ND	10.65	92.30	PCT4475TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1DC475R
	6.8	C	C	PCT4685CT-ND	10.88	94.25	PCT4685TR-ND	345.00	446.00/M	—	—	408.00/M	ECS-H1DC685R
	15	D	D	PCT4156CT-ND	13.05	113.10	PCT4156TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H1DD156R
25	0.47	A	Y	PCT5474CT-ND†	4.20	36.40	PCT5474TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1EY474R
	1.5	B	X	PCT5155CT-ND†	5.21	45.18	PCT5155TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1EX155R
	3.3	C	C	PCT5335CT-ND†	10.65	92.30	PCT5335TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1EC335R
	10	D	D	PCT5106CT-ND†	13.31	115.38	PCT5106TR-ND	422.25	546.00/M	—	—	500.00/M	ECS-H1ED106R
35	0.047	A	Y	PCT6473CT-ND	4.20	36.40	PCT6473TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1VY473R
	.068	A	Y	PCT6683CT-ND†	4.20	36.40	PCT6683TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1VY683R
	.1	A	Y	PCT6104CT-ND†	4.20	36.40	PCT6104TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1VY104R
	.15	A	Y	PCT6154CT-ND†	4.20	36.40	PCT6154TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1VY154R
	.22	A	Y	PCT6224CT-ND†	4.20	36.40	PCT6224TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1VY224R
	.33	A	Y	PCT6334CT-ND†	4.20	36.40	PCT6334TR-ND	—	—	167.00/M	160.00/M	158.00/M	ECS-H1VY334R
	.47	B	X	PCT6474CT-ND†	5.21	45.18	PCT6474TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1VX474R
	0.68	B	X	PCT6684CT-ND†	5.21	45.18	PCT6684TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1VX684R
	1.0	B	X	PCT6105CT-ND†	5.21	45.18	PCT6105TR-ND	—	—	207.00/M	199.00/M	196.00/M	ECS-H1VX105R
	1.5	C	C	PCT6155CT-ND†	10.65	92.30	PCT6155TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1VC155R
	2.2	C	C	PCT6225CT-ND†	10.65	92.30	PCT6225TR-ND	338.25	437.00/M	—	—	400.00/M	ECS-H1VC225R
	3.3	D	D	PCT6335CT-ND†	13.05	113.10	PCT6335TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H1VD335R
	4.7	D	D	PCT6475CT-ND†	13.05	113.10	PCT6475TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H1VD475R
	6.8	D	D	PCT6685CT-ND†	13.05	113.10	PCT6685TR-ND	414.00	535.00/M	—	—	490.00/M	ECS-H1VD685R

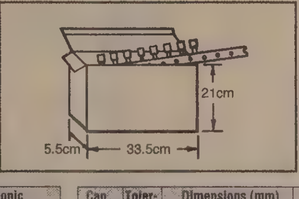
***PCT1-KIT-ND**	10 each of values denoted (190 total pieces).	Notebook style storage case and bin storage guide included..	**$129.95**
†PCT2-KIT-ND	10 each of values denoted (170 total pieces).	Notebook style storage case and bin storage guide included..	**$119.95**

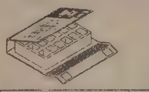
Panasonic. B-Series Polyester Capacitors

PANASONIC ECQ-B CROSS REFERENCE -
Sprague: 225P, 418P; **Mepco:** 713D1, 711D1, 719D1; **TRW:** 601PE, 601CPE; **Packtron:** PE, FM; **Secor:** MFDW, MFDR; **Roederstein:** KT1805, KT1806, KT1807, KT1898; **Wima:** FKS; **CSF Thompson:** ED (Dip); **Rubycon:** F2X, F2S, F3U; **Nichicon:** TDY; **Nissei:** AMZ, AMX, AMR, AMM. **SPECIFICATIONS: • Operating Temp. Range:** -40~ +85°C **• Rated Voltage:** DC 50V, 100V, 200V. **• Capacitance Range:** .0001 ~ 0.47µF **• Capacitance Tolerance:** ±5% (J), ±10% (K) **• Dissipation Factor:** =1.0% (20°C, 1kHz) **• Withstand Voltage:** Between Terminals: rated voltage(V, DC) x 250% 1 ~ 5 sec. **• Insulation Resistance:** C ≤0.33µF: 30000MΩ min. (20°C, 50VDC 60s: ECQB1H(F), C>0.33µF: 10000MΩ·µF min. (20°C; 100VDC 60s: ECQB1(F), ECQB2(F) **• Construction:** Polyestor film, non-inductive, epoxy coating. **FEATURES:** High volumetric efficiency; non-inductive construction; low-loss, high stability; and epoxy resin coating. **APPLICATIONS:** Blocking, by-pass and coupling of DC and signal to VHF range; pulse, logic and timing circuits; light duty pulse forming networks; filter & noise suppression circuits; and general purpose usage.









*** Panasonic B-Series Polyester Capacitor Kit**
300 caps in all.
P4550-KIT-ND ... $29.95
Includes those parts listed below (*).

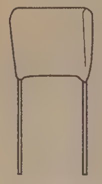
P4551-ND . . 80 pc.	P4555-ND . . 30 pc.	P4559-ND . . 30 pc.
P4552-ND . . 10 pc.	P4556-ND . . 10 pc.	P4560-ND . . 10 pc.
P4553-ND . . 20 pc.	P4557-ND . . 20 pc.	P4561-ND . . 30 pc.
P4554-ND . . 20 pc.	P4558-ND . . 20 pc.	P4562-ND . . 20 pc.

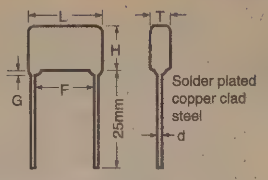
Cap.	Toler-	Dimensions (mm)				Digi-Key	Pricing					Panasonic
µF	ance	L	T	H	F	Part No.	10	100	1,000	5,000	10,000	Part No.
50WV (Bulk Pkg.)												
.0001	±10%	6.5	3.0	5.5	5.0	P4570-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H101KF
.00012	±10%	6.5	3.0	5.5	5.0	P4571-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H121KF
.00015	±10%	6.5	3.0	5.5	5.0	P4572-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H151KF
.00018	±10%	6.5	3.0	5.5	5.0	P4573-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H181KF
.00022	±10%	6.5	3.0	5.5	5.0	P4574-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H221KF
.00027	±10%	6.5	3.0	5.5	5.0	P4575-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H271KF
.00033	±10%	6.5	3.0	5.5	5.0	P4576-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H331KF
.00039	±10%	6.5	3.0	5.5	5.0	P4577-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1H391KF
.00047	±5%	6.5	3.0	5.5	5.0	P4578-ND	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H471JF
.00056	±5%	6.5	3.0	5.5	5.0	P4579-ND	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H561JF
.00068	±5%	6.5	3.0	5.5	5.0	P4580-ND	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H681JF
.00082	±5%	6.5	3.0	5.5	5.0	P4581-ND	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H821JF
.001	±5%	6.5	3.0	5.5	5.0	P4551-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H102JF
.0012	±5%	6.5	3.0	5.5	5.0	P4552-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H122JF
.0015	±5%	6.5	3.0	5.5	5.0	P4553-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H152JF
.0018	±5%	6.5	3.0	5.5	5.0	P4554-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H182JF
.0022	±5%	6.5	3.0	5.5	5.0	P4555-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H222JF
.0027	±5%	6.5	3.0	5.5	5.0	P4556-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H272JF
.0033	±5%	6.5	3.0	5.5	5.0	P4557-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H332JF
.0039	±5%	6.5	3.0	5.5	5.0	P4558-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H392JF
.0047	±5%	6.5	3.0	5.5	5.0	P4559-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H472JF
.0056	±5%	6.5	3.0	5.5	5.0	P4560-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H562JF
.0068	±5%	6.5	3.0	5.5	5.0	P4561-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H682JF
.0082	±5%	6.5	3.0	5.5	5.0	P4562-ND*	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H822JF
.01	±5%	6.5	3.0	5.5	5.0	P4582-ND	1.08	7.20	56.00	54.00/M	49.00/M	ECQ-B1H103JF
.012	±5%	7.0	3.0	6.0	5.0	P4583-ND	1.11	7.40	58.00	56.00/M	51.00/M	ECQ-B1H123JF
.015	±5%	7.0	3.0	6.0	5.0	P4584-ND	1.14	7.60	59.00	57.00/M	52.00/M	ECQ-B1H153JF
.018	±5%	7.0	3.0	6.0	5.0	P4585-ND	1.20	8.00	63.00	60.00/M	55.00/M	ECQ-B1H183JF
.022	±5%	7.0	3.0	6.0	5.0	P4586-ND	1.26	8.40	66.00	63.00/M	58.00/M	ECQ-B1H223JF
.027	±5%	7.0	3.5	6.5	5.0	P4587-ND	1.53	10.20	80.00	77.00/M	70.00/M	ECQ-B1H273JF
.033	±5%	7.5	3.5	6.5	5.0	P4569-ND	1.77	11.80	92.00	89.00/M	81.00/M	ECQ-B1H333JF
.039	±5%	7.5	3.5	6.5	5.0	P4588-ND	1.89	12.60	98.00	95.00/M	86.00/M	ECQ-B1H393JF
.047	±5%	7.5	4.0	6.5	5.0	P4589-ND	1.89	12.60	98.00	95.00/M	86.00/M	ECQ-B1H473JF
.056	±5%	8.0	4.0	7.5	5.0	P4590-ND	1.95	13.00	102.00	98.00/M	89.00/M	ECQ-B1H563JF
.068	±5%	8.0	4.0	8.5	5.0	P4591-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B1H683JF
.082	±5%	8.0	4.5	8.5	5.0	P4592-ND	2.10	14.00	109.00	106.00/M	96.00/M	ECQ-B1H823JF
.1	±5%	8.0	4.5	9.5	5.0	P4593-ND	2.28	15.20	119.00	115.00/M	104.00/M	ECQ-B1H104JF
.12	±5%	11.0	4.5	9.5	7.5	P4594-ND	2.67	17.80	139.00	134.00/M	122.00/M	ECQ-B1H124JF
.15	±5%	11.0	5.0	9.5	7.5	P4595-ND	2.91	19.40	152.00	147.00/M	133.00/M	ECQ-B1H154JF
.18	±5%	11.0	5.5	10.0	7.5	P4596-ND	3.09	20.60	161.00	156.00/M	141.00/M	ECQ-B1H184JF
.22	±5%	11.0	6.0	11.0	7.5	P4597-ND	3.36	22.40	175.00	169.00/M	153.00/M	ECQ-B1H224JF
.27	±5%	13.0	6.0	12.0	10.0	P4598-ND	4.23	28.20	220.00	213.00/M	193.00/M	ECQ-B1H274JF
.33	±5%	13.0	6.0	13.0	10.0	P4599-ND	4.56	30.40	238.00	230.00/M	208.00/M	ECQ-B1H334JF
.39	±5%	13.0	6.5	14.0	10.0	P4734-ND	4.92	32.80	256.00	248.00/M	225.00/M	ECQ-B1H394JF
.47	±5%	13.0	7.0	14.5	10.0	P4735-ND	5.43	36.20	283.00	273.00/M	248.00/M	ECQ-B1H474JF
100WV (Bulk Pkg.)												
.0001	±5%	7.0	3.0	5.5	5.0	P4773-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1101JF
.00012	±5%	7.0	3.0	5.5	5.0	P4774-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1121JF
.00015	±5%	7.0	3.0	5.5	5.0	P4775-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1151JF
.00018	±5%	7.0	3.0	5.5	5.0	P4776-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1181JF
.00022	±5%	7.0	3.0	5.5	5.0	P4777-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1221JF
.00027	±5%	7.0	3.0	5.5	5.0	P4778-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1271JF
.00033	±5%	7.0	3.0	5.5	5.0	P4779-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1331JF
.00039	±5%	7.0	3.0	5.5	5.0	P4780-ND	1.64	10.91	85.00	82.00/M	75.00/M	ECQ-B1391JF
.00047	±5%	7.0	3.0	5.5	5.0	P4781-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1471JF
.00056	±5%	7.0	3.0	5.5	5.0	P4782-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1561JF
.00068	±5%	7.0	3.0	5.5	5.0	P4783-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1681JF
.00082	±5%	7.0	3.0	5.5	5.0	P4784-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1821JF
.001	±5%	7.0	3.0	5.5	5.0	P4785-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1102JF
.0012	±5%	7.0	3.0	5.5	5.0	P4786-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1122JF
.0015	±5%	7.0	3.0	5.5	5.0	P4787-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1152JF
.0018	±5%	7.0	3.0	6.5	5.0	P4788-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1182JF
.0022	±5%	7.0	3.0	6.5	5.0	P4789-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1222JF
.0027	±5%	7.0	3.0	6.5	5.0	P4790-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1272JF
.0033	±5%	7.0	3.0	6.5	5.0	P4791-ND	1.44	9.60	75.00	73.00/M	66.00/M	ECQ-B1332JF
.0039	±5%	7.0	3.0	6.5	5.0	P4792-ND	1.38	9.20	72.00	69.00/M	63.00/M	ECQ-B1392JF
.0047	±5%	7.0	3.0	6.5	5.0	P4793-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1472JF
.0056	±5%	7.0	3.0	6.5	5.0	P4794-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1562JF
.0068	±5%	7.0	3.0	6.5	5.0	P4795-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1682JF
.0082	±5%	7.0	3.2	7.0	5.0	P4796-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1822JF
.01	±5%	7.0	3.2	7.0	5.0	P4797-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1103JF
.012	±5%	7.2	3.5	7.0	5.0	P4798-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1123JF
.015	±5%	7.2	4.0	7.5	5.0	P4799-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1153JF
.018	±5%	7.2	4.5	8.0	5.0	P4647-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1183JF
.022	±5%	7.2	4.5	9.0	5.0	P4648-ND	1.50	10.00	78.00	76.00/M	68.00/M	ECQ-B1223JF
.027	±5%	7.5	5.0	9.5	5.0	P4649-ND	1.62	10.80	84.00	82.00/M	74.00/M	ECQ-B1273JF
.033	±5%	7.5	5.5	10.0	5.0	P4650-ND	1.77	11.80	92.00	89.00/M	81.00/M	ECQ-B1333JF
.039	±5%	7.5	6.0	10.5	5.0	P4651-ND	1.83	12.20	95.00	92.00/M	84.00/M	ECQ-B1393JF
.047	±5%	7.5	6.5	11.5	5.0	P4652-ND	1.95	13.00	102.00	98.00/M	89.00/M	ECQ-B1473JF
.056	±5%	10.0	5.0	9.5	7.5	P4653-ND	2.07	13.80	108.00	104.00/M	95.00/M	ECQ-B1563JF
.068	±5%	10.0	5.5	10.0	7.5	P4654-ND	2.25	15.00	117.00	113.00/M	103.00/M	ECQ-B1683JF
.082	±5%	10.0	5.5	12.0	7.5	P4655-ND	2.40	16.00	125.00	121.00/M	110.00/M	ECQ-B1823JF
.1	±5%	10.5	6.0	12.5	7.5	P4656-ND	2.58	17.20	134.00	130.00/M	118.00/M	ECQ-B1104JF
.12	±5%	10.5	7.0	13.5	7.5	P4657-ND	3.09	20.60	161.00	156.00/M	141.00/M	ECQ-B1124JF
.15	±5%	13.0	7.0	12.0	10.0	P4658-ND	3.54	23.60	184.00	178.00/M	162.00/M	ECQ-B1154JF

Cap.	Toler-	Dimensions (mm)				Digi-Key	Pricing					Panasonic
µF	ance	L	T	H	F	Part No.	10	100	1,000	5,000	10,000	Part No.
100WV (Bulk Pkg.)												
.18	±5%	13.0	7.5	12.5	10.0	P4659-ND	4.11	27.40	214.00	207.00/M	188.00/M	ECQ-B1184JF
.22	±5%	13.0	8.0	13.0	10.0	P4660-ND	4.65	31.00	242.00	234.00/M	212.00/M	ECQ-B1224JF
.27	±5%	13.0	8.5	15.0	10.0	P4661-ND	5.16	34.40	269.00	260.00/M	236.00/M	ECQ-B1274JF
.33	±5%	13.0	9.0	16.0	10.0	P4662-ND	5.70	38.00	297.00	287.00/M	260.00/M	ECQ-B1334JF
.39	±5%	13.0	10.5	17.0	10.0	P4663-ND	6.24	41.60	325.00	314.00/M	285.00/M	ECQ-B1394JF
.47	±5%	13.0	11.5	17.5	10.0	P4664-ND	6.78	45.20	353.00	341.00/M	310.00/M	ECQ-B1474JF
200V (Bulk Pkg.)												
.001	±5%	8.5	4.0	7.0	5.0	P4537A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2102JF
.0012	±5%	8.5	4.0	7.5	5.0	P4538A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2122JF
.0015	±5%	8.5	4.0	7.5	5.0	P4539A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2152JF
.0018	±5%	8.5	4.5	7.5	5.0	P4540A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2182JF
.0022	±5%	8.5	4.5	7.5	5.0	P4541A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2222JF
.0027	±5%	8.5	4.5	8.0	5.0	P4542A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2272JF
.0033	±5%	11.0	4.5	7.5	7.5	P4543A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2332JF
.0039	±5%	11.0	4.5	7.5	7.5	P4544A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2392JF
.0047	±5%	11.0	4.5	8.5	7.5	P4545A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2472JF
.0056	+5%	11.0	4.5	8.5	7.5	P4546A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2562JF
.0068	±5%	11.0	4.5	9.0	7.5	P4547A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2682JF
.0082	±5%	11.0	4.5	9.0	7.5	P4548A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2822JF
.01	±5%	11.0	4.5	10.0	7.5	P4549A-ND	2.01	13.40	105.00	101.00/M	92.00/M	ECQ-B2103JF
.012	±5%	11.0	5.0	10.5	7.5	P4550A-ND	2.04	13.60	106.00	103.00/M	93.00/M	ECQ-B2123JF
.015	±5%	11.0	5.5	10.5	7.5	P4551A-ND	2.04	13.60	106.00	103.00/M	93.00/M	ECQ-B2153JF
.018	±5%	11.0	5.5	10.0	7.5	P4552A-ND	2.13	14.20	111.00	107.00/M	97.00/M	ECQ-B2183JF
.022	±5%	11.0	6.0	10.5	7.5	P4553A-ND	2.31	15.40	120.00	116.00/M	105.00/M	ECQ-B2223JF
.027	±5%	11.0	6.5	11.5	7.5	P4554A-ND	2.40	16.00	125.00	121.00/M	110.00/M	ECQ-B2273JF
.033	±5%	11.0	7.0	12.0	7.5	P4555A-ND	2.58	17.20	134.00	130.00/M	118.00/M	ECQ-B2333JF
.039	±5%	13.5	5.0	12.5	10.0	P4556A-ND	2.64	17.60	138.00	133.00/M	121.00/M	ECQ-B2393JF
.047	±5%	13.5	5.5	13.0	10.0	P4557A-ND	2.73	18.20	142.00	137.00/M	125.00/M	ECQ-B2473JF
.056	±5%	13.5	6.0	13.5	10.0	P4558A-ND	2.91	19.40	152.00	147.00/M	133.00/M	ECQ-B2563JF
.068	±5%	16.0	5.5	13.0	12.5	P4559A-ND	3.09	20.60	161.00	156.00/M	141.00/M	ECQ-B2683JF
.082	±5%	16.0	6.0	13.5	12.5	P4560A-ND	3.21	21.40	167.00	162.00/M	147.00/M	ECQ-B2823JF
.1	±5%	16.0	7.0	14.5	12.5	P4561A-ND	3.81	25.40	198.00	192.00/M	174.00/M	ECQ-B2104JF
.12	±5%	19.0	6.5	16.0	15.0	P4562A-ND	4.59	30.60	239.00	231.00/M	210.00/M	ECQ-B2124JF
.15	±5%	19.0	7.5	17.0	15.0	P4563A-ND	5.40	36.00	281.00	272.00/M	247.00/M	ECQ-B2154JF
.18	±5%	19.0	8.0	17.5	15.0	P4564A-ND	6.57	43.80	342.00	331.00/M	300.00/M	ECQ-B2184JF
.22	±5%	19.0	9.0	18.5	15.0	P4565A-ND	6.42	42.80	334.00	323.00/M	293.00/M	ECQ-B2224JF
.27	±5%	24.0	8.0	17.5	20.0	P4566A-ND	8.25	55.00	430.00	415.00/M	377.00/M	ECQ-B2274JF
.33	±5%	24.0	9.0	18.5	20.0	P4567A-ND	10.26	68.40	534.00	517.00/M	469.00/M	ECQ-B2334JF
.39	±5%	24.0	10.0	19.5	20.0	P4568A-ND	11.43	76.20	595.00	576.00/M	522.00/M	ECQ-B2394JF
.47	±5%	24.0	11.5	20.5	20.0	P4569A-ND	13.02	86.80	678.00	656.00/M	595 00/M	ECQ-B2474JF

Cap.	Toler-	Dimensions (mm)				Digi-Key	Pricing					Panasonic
µF	ance	L	T	H	F	Part No.	500	1,000	2,000	5,000	6,000	Part No.
50WV (Ammo Box Pkg.)												
.0001	±10%	6.5	3.0	5.5	5.0	P4570TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H101KF3
.00012	±10%	6.5	3.0	5.5	5.0	P4571TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H121KF3
.00015	±10%	6.5	3.0	5.5	5.0	P4572TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H151KF3
.00018	±10%	6.5	3.0	5.5	5.0	P4573TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H181KF3
.00022	±10%	6.5	3.0	5.5	5.0	P4574TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H221KF3
.00027	±10%	6.5	3.0	5.5	5.0	P4575TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H271KF3
.00033	±10%	6.5	3.0	5.5	5.0	P4576TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H331KF3
.00039	±10%	6.5	3.0	5.5	5.0	P4577TB-ND	—	—	83.00/M	—	80.00/M	ECQ-B1H391KF3
.00047	±5%	6.5	3.0	5.5	5.0	P4578TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H471JF3
.00056	±5%	6.5	3.0	5.5	5.0	P4579TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H561JF3
.00068	±5%	6.5	3.0	5.5	5.0	P4580TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H681JF3
.00082	±5%	6.5	3.0	5.5	5.0	P4581TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H821JF3
.001	±5%	6.5	3.0	5.5	5.0	P4551TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H102JF3
.0012	±5%	6.5	3.0	5.5	5.0	P4552TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H122JF3
.0015	±5%	6.5	3.0	5.5	5.0	P4553TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H152JF3
.0018	±5%	6.5	3.0	5.5	5.0	P4554TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H182JF3
.0022	±5%	6.5	3.0	5.5	5.0	P4555TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H222JF3
.0027	±5%	6.5	3.0	5.5	5.0	P4556TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H272JF3
.0033	±5%	6.5	3.0	5.5	5.0	P4557TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H332JF3
.0039	±5%	6.5	3.0	5.5	5.0	P4558TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H392JF3
.0047	±5%	6.5	3.0	5.5	5.0	P4559TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H472JF3
.0056	±5%	6.5	3.0	5.5	5.0	P4560TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H562JF3
.0068	±5%	6.5	3.0	5.5	5.0	P4561TB-ND	—	—	64.00/M	—	62.00/M	ECQ-B1H682JF3
.0082	±5%	6.5	3.0	5.5	5.0	P4562TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H822JF3
.01	±5%	6.5	3.0	5.5	5.0	P4582TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H103JF3
.012	±5%	7.0	3.0	6.0	5.0	P4583TB-ND	—	—	66.00/M	—	63.00/M	ECQ-B1H123JF3
.015	±5%	7.0	3.0	6.0	5.0	P4584TB-ND	—	—	70.00/M	—	68.00/M	ECQ-B1H153JF3
.018	±5%	7.0	3.0	6.0	5.0	P4585TB-ND	—	—	72.00/M	—	69.00/M	ECQ-B1H183JF3
.022	±5%	7.0	3.0	6.0	5.0	P4586TB-ND	—	—	75.00/M	—	73.00/M	ECQ-B1H223JF3
.027	±5%	7.0	3.5	6.5	5.0	P4587TB-ND	—	—	88.00/M	—	85.00/M	ECQ-B1H273JF3
.033	±5%	7.5	3.5	6.5	5.0	P4569TB-ND	—	—	102.00/M	—	98.00/M	ECQ-B1H333JF3
.039	±5%	7.5	3.5	6.5	5.0	P4588TB-ND	—	—	105.00/M	—	101.00/M	ECQ-B1H393JF3
.047	±5%	7.5	4.0	6.5	5.0	P4589TB-ND	—	105.00	—	101.00/M	—	ECQ-B1H473JF3
.056	±5%	8.0	4.0	7.5	5.0	P4590TB-ND	—	108.00	—	104.00/M	—	ECQ-B1H563JF3
.068	±5%	8.0	4.0	8.5	5.0	P4591TB-ND	—	114.00	—	110.00/M	—	ECQ-B1H683JF3
.082	±5%	8.0	4.5	8.5	5.0	P4592TB-ND	—	119.00	—	115.00/M	—	ECQ-B1H823JF3
.1	±5%	8.0	4.5	9.5	5.0	P4593TB-ND	—	125.00	—	121.00/M	—	ECQ-B1H104JF3
.12	±5%	11.0	4.5	9.5	5.0	P4594TB-ND	—	147.00	—	142.00/M	—	ECQ-B1H124JF3
.15	±5%	11.0	5.0	9.5	5.0	P4595TB-ND	—	159.00	—	154.00/M	—	ECQ-B1H154JF3
.18	±5%	11.0	5.5	10.0	5.0	P4596TB-ND	83.50	—	—	162.00/M	—	ECQ-B1H184JF3
.22	±5%	11.0	6.0	11.0	5.0	P4597TB-ND	90.50	—	—	175.00/M	—	ECQ-B1H224JF3

Panasonic® P-Series Polypropylene Capacitors



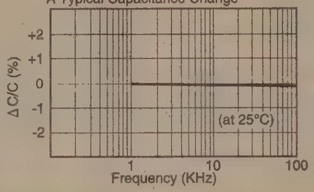


- Wide capacitance range
- Close capacitance tolerance
- High insulation resistance
- Low dissipation factor
- Non-inductive const.
- Epoxy resin coating

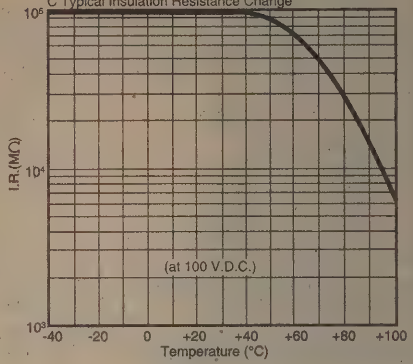
Applications:
- Blocking, by-pass and coupling of DC and signal to UHF range.
- Pulse, logic and timing circuit.
- Light duty pulse forming network.
- Filter and noise suppression circuit.

Electrical Specifications:
- Reference Standard: EIAJ RC-3670A.
- Temperature Range: −40 to +85°C.
- Dissipation Factor: .1% max. at 1KHz and 25°C.
- Withstand Voltage: 1-5 seconds at 250% of rated voltage.
- Insulation Resistance: 45,000 MΩ min., for values less than .33µF. 15,000 MΩ/µF min., for .33µF and greater. (Measured after a 2-minute charge at rated voltage and 25°C).

A Typical Capacitance Change



C Typical Insulation Resistance Change



PANASONIC ECQ-P CROSS REFERENCES

Sprague: 715P; **Westlake:** 173/174; **Mepco:** 719E1/719H1; **Secor:** PFDS/PFDR; **Roderstein:** KP1835; **Wima:** FKP; **CSF Thompson:** PL/PS; **Rubycon:** PP; **Nissel:** APS/APA.

WV DC	Cap. µF	Toler-ance	Dimensions (mm) L	T	H	F	G	d	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
50	.0001	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3101-ND*	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H101JZ
50	.00012	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3121-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H121JZ
50	.00015	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3151-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H151JZ
50	.00018	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3181-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H181JZ
50	.00022	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3221-ND*	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H221JZ
50	.00027	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3271-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H271JZ
50	.00033	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3331-ND*	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H331JZ
50	.00039	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3391-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H391JZ
50	.00047	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3471-ND*	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H471JZ
50	.00056	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3561-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H561JZ
50	.00068	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3681-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H681JZ
50	.00082	5%	8.5	4.5	7.5	5.0	1.0	0.5	P3821-ND	.25	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-P1H821JZ
50	.001	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3102-ND*	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H102GZ
50	.0012	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3122-ND	.53	4.53	37.75	225.00	210.00/M	196.00/M	ECQ-P1H122GZ
50	.0015	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3152-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H152GZ
50	.0018	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3182-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H182GZ
50	.0022	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3222-ND*	.53	4.53	37.75	225.00	210.00/M	196.00/M	ECQ-P1H222GZ
50	.0027	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3272-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H272GZ
50	.0033	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3332-ND*	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H332GZ
50	.0039	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3392-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H392GZ
50	.0047	2%	8.5	4.5	7.5	5.0	1.0	0.5	P3472-ND*	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H472GZ
50	.0056	2%	8.5	4.5	8.0	5.0	1.0	0.5	P3562-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H562GZ
50	.0068	2%	8.5	5.0	8.0	5.0	1.0	0.5	P3682-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H682GZ
50	.0082	2%	12.0	5.5	9.0	7.5	1.0	0.6	P3822-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H822GZ
50	.01	2%	12.0	5.0	8.5	7.5	1.0	0.6	P3103-ND*	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H103GZ
50	.012	2%	12.0	5.5	9.0	7.5	1.0	0.6	P3123-ND	.52	4.47	37.25	222.00	207.00/M	194.00/M	ECQ-P1H123GZ
50	.015	2%	12.0	5.0	9.0	7.5	1.0	0.6	P3153-ND	.56	4.77	39.75	237.00	221.00/M	206.00/M	ECQ-P1H153GZ
50	.018	2%	12.0	5.5	9.5	7.5	1.0	0.6	P3183-ND	.58	5.01	41.75	249.00	232.00/M	217.00/M	ECQ-P1H183GZ
50	.022	2%	12.0	5.5	10.5	7.5	1.0	0.6	P3223-ND*	.58	5.01	41.75	249.00	232.00/M	217.00/M	ECQ-P1H223GZ
50	.027	2%	12.0	6.0	11.0	7.5	1.0	0.6	P3273-ND	.64	5.52	46.00	275.00	256.00/M	239.00/M	ECQ-P1H273GZ
50	.033	2%	12.0	6.5	11.5	7.5	1.0	0.6	P3333-ND*	.64	5.52	46.00	275.00	256.00/M	239.00/M	ECQ-P1H333GZ
50	.039	2%	14.5	5.5	12.0	10.0	1.0	0.6	P3393-ND	.68	5.79	48.25	288.00	268.00/M	251.00/M	ECQ-P1H393GZ
50	.047	2%	14.5	6.0	12.5	10.0	1.0	0.6	P3473-ND*	.68	5.79	48.25	288.00	268.00/M	251.00/M	ECQ-P1H473GZ
50	.056	2%	14.5	6.5	13.5	10.0	1.0	0.6	P3563-ND	.89	7.65	63.75	381.00	354.00/M	331.00/M	ECQ-P1H563GZ
50	.068	2%	14.5	7.0	14.0	10.0	1.0	0.6	P3683-ND	.89	7.65	63.75	381.00	354.00/M	331.00/M	ECQ-P1H683GZ
50	.082	2%	17.0	7.0	14.0	12.5	1.0	0.6	P3823-ND	.89	7.65	63.75	381.00	354.00/M	331.00/M	ECQ-P1H823GZ
50	.1	2%	17.0	7.5	14.5	12.5	1.0	0.6	P3104-ND*	.98	8.43	70.25	419.00	390.00/M	365.00/M	ECQ-P1H104GZ
50	.12	2%	17.0	8.5	15.5	12.5	1.0	0.6	P3124-ND	1.07	9.18	76.50	457.00	425.00/M	397.00/M	ECQ-P1H124GZ
50	.15	2%	20.0	8.0	15.5	15.0	1.0	0.6	P3154-ND	1.19	10.17	84.75	506.00	471.00/M	440.00/M	ECQ-P1H154GZ
50	.18	2%	20.0	9.0	16.0	15.0	1.0	0.6	P3184-ND	1.32	11.34	94.50	564.00	525.00/M	491.00/M	ECQ-P1H184GZ
50	.22	2%	20.0	9.5	17.0	15.0	1.0	0.6	P3224-ND*	1.47	12.63	105.25	628.00	585.00/M	547.00/M	ECQ-P1H224GZ
50	.27	2%	20.0	10.5	18.0	15.0	1.0	0.6	P3274-ND	1.60	13.71	114.25	682.00	635.00/M	594.00/M	ECQ-P1H274GZ
50	.33	2%	22.5	10.0	19.5	17.5	1.0	0.8	P3334-ND*	1.75	15.03	125.25	748.00	696.00/M	651.00/M	ECQ-P1H334GZ
50	.39	2%	22.5	11.0	20.0	17.5	1.0	0.8	P3394-ND	1.84	15.78	131.50	785.00	731.00/M	683.00/M	ECQ-P1H394GZ
50	.47	2%	22.5	12.0	21.0	17.5	1.0	0.8	P3474-ND	1.96	16.83	140.25	837.00	779.00/M	729.00/M	ECQ-P1H474GZ

***P3100-KIT-ND** 10 each of parts indicated. Notebook style storage and bin, storage guide included. **$69.95**

Panasonic® V-Series ± 5%

Stacked Metallized Film Capacitors Suitable for Replacement of Monolithic Ceramic Capacitors in Most Cases

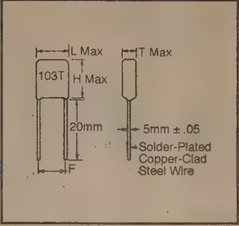
FEATURES:
- High volumetric efficiency • Low dissipation factor • Stacked and non-inductive construction • Operating temperature range: –40°C to +85°C •Temperature coefficientΔc/c: 200 ppm • Dissipation factor (max.): 1.0% • Insulation resistance (25°C): 1000MΩ µF • Self-healing

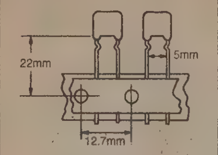
APPLICATIONS:
- Blocking, by-pass and coupling of DC • Pulse, logic and timing circuits • Light duty pulse forming • Filter and noise suppression

PANASONIC ECQ-V CROSS REFERENCE

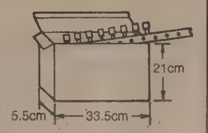
Sprague: 453P/454P. **CSF Thompson:** IRD. **Siemens:** B32509.

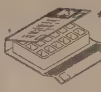
(To convert millimeters to inches divide by 25.4.)





* All taped parts have 5mm lead space.





* Panasonic V-Series Stacked Metallized Capacitor Film Kit

P4542-KIT-ND* **(50 Volt K)**.......... **$49.95**
P4700-KIT-ND† **(100 Volt K)**........ **$49.95**

Includes 10 each of those parts indicated below (* or †). 180 capacitors. 10 each of the values listed in the chart. Price includes a notebook style storage box with bin guide for easy storage and quick access.

	Cap.	Dimensions (mm)				Digi-Key	Pricing					Panasonic
Volts	µF	L	T	H	F	Part No.	10	100	1,000	5,000	10,000	Part No.
						Bulk Package						
50 WV	0.01	7.3	3.2	5.0	5.0	P4513-ND*	1.26	10.50	63.00	58.00/M	55.00/M	ECQ-V1H103JL
	0.012	7.3	3.2	5.0	5.0	P4514-ND	1.32	11.00	66.00	61.00/M	57.00/M	ECQ-V1H123JL
	0.015	7.3	3.2	5.0	5.0	P4515-ND*	1.35	11.25	67.00	62.00/M	58.00/M	ECQ-V1H153JL
	0.018	7.3	3.2	5.0	5.0	P4516-ND	1.38	11.50	69.00	64.00/M	60.00/M	ECQ-V1H183JL
	0.022	7.3	3.2	5.0	5.0	P4517-ND*	1.41	11.75	70.00	65.00/M	61.00/M	ECQ-V1H223JL
	0.027	7.3	3.2	5.0	5.0	P4518-ND*	1.44	12.00	72.00	67.00/M	62.00/M	ECQ-V1H273JL
	0.033	7.3	3.2	5.0	5.0	P4519-ND*	1.44	12.00	72.00	67.00/M	62.00/M	ECQ-V1H333JL
	0.039	7.3	3.2	5.0	5.0	P4520-ND	1.47	12.25	73.00	68.00/M	64.00/M	ECQ-V1H393JL
	0.047	7.3	3.2	5.0	5.0	P4521-ND*	1.50	12.50	75.00	69.00/M	65.00/M	ECQ-V1H473JL
	0.056	7.3	3.2	5.0	5.0	P4522-ND	1.59	13.25	79.00	74.00/M	69.00/M	ECQ-V1H563JL
	0.068	7.3	3.2	5.0	5.0	P4523-ND*	1.68	14.00	84.00	78.00/M	73.00/M	ECQ-V1H683JL
	0.082	7.3	3.6	5.0	5.0	P4524-ND*	1.77	14.75	88.00	82.00/M	77.00/M	ECQ-V1H823JL
	0.1	7.3	4.0	5.0	5.0	P4525-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-V1H104JL
	0.12	7.3	4.0	5.0	5.0	P4526-ND	1.95	16.25	97.00	90.00/M	84.00/M	ECQ-V1H124JL
	0.15	10.2	3.4	9.0	7.5	P4538-ND	1.81	15.12	90.00	84.00/M	79.00/M	ECQ-V1H154JC
	0.15	7.3	4.4	5.5	5.0	P4665-ND*	2.01	16.75	100.00	93.00/M	87.00/M	ECQ-V1H154JL
	0.18	7.3	4.5	5.5	5.0	P4666-ND	2.07	17.25	103.00	96.00/M	90.00/M	ECQ-V1H184JL
	0.22	7.3	4.8	5.5	5.0	P4667-ND	2.19	18.25	109.00	101.00/M	95.00/M	ECQ-V1H224JL
	0.27	7.3	4.6	7.0	5.0	P4668-ND*	2.52	21.00	125.00	117.00/M	109.00/M	ECQ-V1H274JL
	0.33	7.3	5.2	7.0	5.0	P4669-ND*	2.85	23.75	142.00	132.00/M	123.00/M	ECQ-V1H334JL
	0.39	7.3	5.7	7.3	5.0	P4670-ND	3.18	26.50	158.00	147.00/M	138.00/M	ECQ-V1H394JL
	0.47	7.3	6.0	7.3	5.0	P4671-ND*	3.51	29.25	175.00	162.00/M	152.00/M	ECQ-V1H474JL
	0.56	7.3	5.8	10.0	5.0	P4672-ND*	4.26	35.50	212.00	197.00/M	184.00/M	ECQ-V1H564JL
	0.68	7.3	6.5	10.0	5.0	P4673-ND*	4.92	41.00	245.00	228.00/M	213.00/M	ECQ-V1H684JL
	0.82	7.3	6.8	10.0	5.0	P4674-ND*	5.91	49.25	294.00	274.00/M	256.00/M	ECQ-V1H824JL
	1.0	7.3	8.0	11.0	5.0	P4675-ND*	6.78	56.50	337.00	314.00/M	294.00/M	ECQ-V1H105JL
63 WV	0.18	10.2	3.5	9.0	7.5	P4539-ND	2.01	16.75	100.00	93.00/M	87.00/M	ECQ-V1J184JM
	0.22	10.2	3.5	9.0	7.5	P4540-ND	2.16	18.00	107.00	100.00/M	94.00/M	ECQ-V1J224JM
	0.27	10.2	3.5	9.0	7.5	P4541-ND	2.52	21.00	125.00	117.00/M	109.00/M	ECQ-V1J274JM
	0.33	10.2	3.8	9.0	7.5	P4549-ND	2.85	23.75	142.00	132.00/M	123.00/M	ECQ-V1J334JM
	0.39	10.2	4.0	9.0	7.5	P4543-ND	3.18	26.50	158.00	147.00/M	138.00/M	ECQ-V1J394JM
	0.47	10.2	4.5	9.0	7.5	P4544-ND	3.51	29.25	175.00	162.00/M	152.00/M	ECQ-V1J474JM
	0.56	10.2	4.9	9.0	7.5	P4545-ND	4.26	35.50	212.00	197.00/M	184.00/M	ECQ-V1J564JM
	0.68	10.2	5.5	10.0	7.5	P4546-ND	4.92	41.00	245.00	228.00/M	213.00/M	ECQ-V1J684JM
	0.82	10.2	6.1	10.0	7.5	P4547-ND	5.91	49.25	294.00	274.00/M	256.00/M	ECQ-V1J824JM
	1.0	10.2	6.9	10.0	7.5	P4548-ND	6.78	56.50	337.00	314.00/M	294.00/M	ECQ-V1J105JM
100 WV	0.01	7.3	3.2	7.0	5.0	P4713-ND†	1.80	15.00	90.00	83.00/M	78.00/M	ECQ-V1103JM
	0.012	7.3	3.2	7.0	5.0	P4714-ND	1.80	15.00	90.00	83.00/M	78.00/M	ECQ-V1123JM
	0.015	7.3	3.2	7.0	5.0	P4715-ND†	1.80	15.00	90.00	83.00/M	78.00/M	ECQ-V1153JM
	0.018	7.3	3.2	7.0	5.0	P4716-ND	1.80	15.00	90.00	83.00/M	78.00/M	ECQ-V1183JM
	0.022	7.3	3.2	7.0	5.0	P4717-ND†	1.83	15.25	91.00	85.00/M	79.00/M	ECQ-V1223JM
	0.027	7.3	3.2	7.0	5.0	P4718-ND†	1.83	15.25	91.00	85.00/M	79.00/M	ECQ-V1273JM
	0.033	7.3	3.2	7.0	5.0	P4719-ND†	1.92	16.00	96.00	89.00/M	83.00/M	ECQ-V1333JM
	0.039	7.3	3.2	7.0	5.0	P4720-ND†	1.95	16.25	97.00	90.00/M	84.00/M	ECQ-V1393JM
	0.047	7.3	4.0	7.0	5.0	P4721-ND†	2.01	16.75	100.00	93.00/M	87.00/M	ECQ-V1473JM
	0.056	7.3	4.2	7.0	5.0	P4722-ND†	2.10	17.50	104.00	97.00/M	91.00/M	ECQ-V1563JM
	0.068	7.3	4.5	7.0	5.0	P4723-ND†	2.22	18.50	110.00	103.00/M	96.00/M	ECQ-V1683JM
	0.082	7.3	5.0	7.0	5.0	P4724-ND†	2.25	18.75	112.00	104.00/M	97.00/M	ECQ-V1823JM
	0.1	7.3	5.8	7.0	5.0	P4725-ND†	2.31	19.25	115.00	107.00/M	100.00/M	ECQ-V1104JM
	0.12	10.0	3.4	9.0	7.5	P4726-ND	2.58	21.50	128.00	119.00/M	112.00/M	ECQ-V1124JM
	0.15	10.0	3.8	9.0	7.5	P4727-ND†	2.61	21.75	130.00	121.00/M	113.00/M	ECQ-V1154JM
	0.18	10.0	4.0	9.0	7.5	P4728-ND†	2.73	22.75	136.00	126.00/M	118.00/M	ECQ-V1184JM
	0.22	10.0	4.3	9.0	7.5	P4729-ND†	3.00	25.00	149.00	139.00/M	130.00/M	ECQ-V1224JM
	0.27	10.0	5.2	10.0	7.5	P4730-ND†	3.33	27.75	166.00	154.00/M	144.00/M	ECQ-V1274JM
	0.33	10.0	5.9	10.0	7.5	P4731-ND†	3.78	31.50	188.00	175.00/M	164.00/M	ECQ-V1334JM
	0.39	10.0	7.5	11.0	7.5	P4732-ND†	4.23	35.25	210.00	196.00/M	183.00/M	ECQ-V1394JM
	0.47	10.0	8.1	11.0	7.5	P4733-ND†	4.68	39.00	233.00	217.00/M	203.00/M	ECQ-V1474JM

	Cap.	Dimensions (mm)				Digi-Key	Pricing						Panasonic
Volts	µF	L	T	H	F	Part No.	1,000	2,000	5,000	6,000	10,000	26,000	Part No.
						Ammo Box Package							
50 WV	0.01	7.3	3.2	7.0	5.0	P4513TB-ND	—	70.00/M	—	65.00/M	61.00/M	57.00/M	ECQ-V1H103JZ3
	0.012	7.3	3.2	7.0	5.0	P4514TB-ND	—	72.00/M	—	67.00/M	62.00/M	59.00/M	ECQ-V1H123JZ3
	0.015	7.3	3.2	7.0	5.0	P4515TB-ND	—	72.00/M	—	67.00/M	62.00/M	59.00/M	ECQ-V1H153JZ3
	0.018	7.3	3.2	7.0	5.0	P4516TB-ND	—	73.00/M	—	68.00/M	64.00/M	60.00/M	ECQ-V1H183JZ3
	0.022	7.3	3.2	5.0	5.0	P4517TB-ND	—	75.00/M	—	69.00/M	65.00/M	61.00/M	ECQ-V1H223JL3
	0.027	7.3	3.2	7.0	5.0	P4518TB-ND	—	76.00/M	—	71.00/M	66.00/M	62.00/M	ECQ-V1H273JZ3
	0.033	7.3	3.2	7.0	5.0	P4519TB-ND	—	81.00/M	—	75.00/M	70.00/M	66.00/M	ECQ-V1H333JZ3
	0.039	7.3	3.2	5.0	5.0	P4520TB-ND	—	82.00/M	—	76.00/M	71.00/M	67.00/M	ECQ-V1H393JL3
	0.047	7.3	3.2	7.0	5.0	P4521TB-ND	—	82.00/M	—	76.00/M	71.00/M	67.00/M	ECQ-V1H473JZ3
	0.056	7.3	3.2	5.0	5.0	P4522TB-ND	—	87.00/M	—	81.00/M	75.00/M	71.00/M	ECQ-V1H563JL3
	0.068	7.3	3.9	7.0	5.0	P4523TB-ND	—	91.00/M	—	85.00/M	79.00/M	74.00/M	ECQ-V1H683JZ3
	0.082	7.3	4.1	7.0	5.0	P4524TB-ND	—	97.00/M	—	90.00/M	84.00/M	79.00/M	ECQ-V1H823JZ3
	0.1	7.3	4.4	7.0	5.0	P4525TB-ND	—	96.00/M	—	89.00/M	83.00/M	78.00/M	ECQ-V1H104JZ3
	0.12	7.3	4.7	7.0	5.0	P4526TB-ND	—	103.00/M	—	96.00/M	90.00/M	84.00/M	ECQ-V1H124JZ3
	0.15	10.0	3.4	9.0	5.0	P4527TB-ND	107.00	—	100.00/M	—	94.00/M	—	ECQ-V1H154JZ3
	0.18	10.0	3.5	9.0	5.0	P4528TB-ND	110.00	—	103.00/M	—	96.00/M	—	ECQ-V1H184JZ3
	0.22	10.0	3.7	9.0	5.0	P4529TB-ND	115.00	—	107.00/M	—	100.00/M	—	ECQ-V1H224JZ3
	0.27	10.0	4.0	9.0	5.0	P4530TB-ND	131.00	—	122.00/M	—	114.00/M	—	ECQ-V1H274JZ3
	0.33	10.0	4.2	9.0	5.0	P4531TB-ND	152.00	—	142.00/M	—	132.00/M	—	ECQ-V1H334JZ3
	0.39	10.0	4.9	9.0	5.0	P4532TB-ND	167.00	—	156.00/M	—	145.00/M	—	ECQ-V1H394JZ3
	0.47	10.0	5.5	10.0	5.0	P4533TB-ND	185.00	—	172.00/M	—	161.00/M	—	ECQ-V1H474JZ3
	0.56	10.0	6.1	10.0	5.0	P4534TB-ND	218.00	—	203.00/M	—	190.00/M	—	ECQ-V1H564JZ3
	0.68	10.0	6.8	10.0	5.0	P4535TB-ND	255.00	—	237.00/M	—	222.00/M	—	ECQ-V1H684JZ3
	0.82	7.3	6.8	10.0	5.0	P4536TB-ND	301.00	—	281.00/M	—	262.00/M	—	ECQ-V1H824JL3
	1.0	7.3	8.0	11.0	5.0	P4537TB-ND	346.00	—	322.00/M	—	301.00/M	—	ECQ-V1H105JL3

Panasonic® Polyester & Foil Capacitors (M Series)

Features: High insulation resistance. Non-inductive construction: with tinned copper leads welded to the foils. High peak current capability. Solvent-resistant resin coated body.

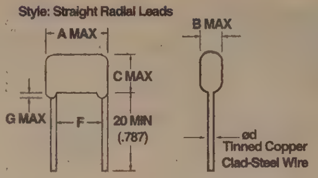
Applications: Blocking, by-pass and coupling of D.C. and signals to VHF range. Pulse, logic and timing circuits. Light-duty pulse forming networks. Filter and noise suppression circuits. General purpose usage.

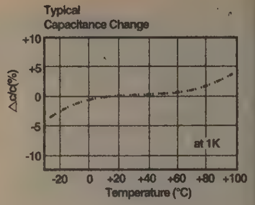
Specifications: Reference standard: JIS C5113 Characteristic M. Operating temperature range: -40 ~ +85°C. Construction: Polyester film, non-inductive, phenolic/epoxy resin coating, wax impregnation.

Electrical Specifications: Capacitance Tolerance: ±10% (K). Insulation Resistance: Greater than 10,000 MV. Dissipation Factor: Less than 1.0% at 1 KHZ. Dielectric Withstanding Voltage: 250% of rated voltage for 5 seconds. Operating Temperature: -40°C ~+80°C.

PANASONIC ECQ CROSS REFERENCE

Sprague: 225P, 418P; **Mepco:** 713D1, 711D1, 719D1; **TWR:** 601PE, 601CPE; **Pactron:** PE, FM; **Secor:** MFDN, MFDR; **Roederstein:** KT1805, KT1806, KT1807, KT1808; **Wima:** FKS; **CSF Thompson:** ED (Dip); **Rubycon:** F2X, F2S, F3U; **Nichicon:** TDY; **Nissiei:** AMZ, AMX, AMR, AMM.





Panasonic/Matsushita Electric has announced a change in the Corporate Trademark. Present trademark: ▲. New trademark: Ⓜ.

WV	Cap.	Dimensions (mm)						Digi-Key	Pricing					Panasonic
DC	µF	A	B	C	F±125	G	d	Part No.	10	100	1,000	5,000	10,000	Part No.
100	.0027	9.0	5.0	9.0	5.5	3	0.6	P1005-ND	1.16	9.64	58.00	54.00/M	50.00/M	ECQ-M1272KZ
	.0039	9.0	5.0	9.5	5.5	3	0.6	P1007-ND	1.19	9.90	59.00	55.00/M	51.00/M	ECQ-M1392KZ
	.0047	9.0	5.0	9.0	5.5	3	0.6	P1008-ND*	1.19	9.90	59.00	55.00/M	51.00/M	ECQ-M1472KZ
	.0068	9.0	5.0	9.5	5.5	3	0.6	P1010-ND*	1.19	9.90	59.00	55.00/M	51.00/M	ECQ-M1682KZ
	.012	11.0	6.0	12.0	6.5	3	0.6	P1013-ND	1.22	10.17	61.00	56.00/M	53.00/M	ECQ-M1123KZ
	.033	13.0	6.5	12.0	8.5	3	0.6	P1018-ND*	1.28	10.70	64.00	59.00/M	56.00/M	ECQ-M1333KZ
	.047	13.0	7.0	13.0	8.5	3	0.6	P1020-ND*	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M1473KZ
	.056	16.0	6.0	13.5	11.5	3	0.6	P1021-ND	1.38	11.50	69.00	64.00/M	60.00/M	ECQ-M1563KZ
200	.001	9.0	5.0	9.0	5.5	2	0.6	P1029-ND*	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2102KZ
	.0012	9.0	5.0	9.0	5.5	2	0.6	P1030-ND	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2122KZ
	.0015	9.0	5.0	9.5	5.5	3	0.6	P1031-ND*	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2152KZ
	.0018	9.0	5.5	9.5	5.5	3	0.6	P1032-ND	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2182KZ
	.0022	9.0	6.0	10.0	5.5	3	0.6	P1033-ND*	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2222KZ
	.0027	9.0	5.0	9.0	5.5	3	0.6	P1034-ND	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2272KZ
	.0033	9.0	5.0	9.0	5.5	3	0.6	P1035-ND*	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M2332KZ
	.0039	12.0	5.5	9.5	7.5	3	0.6	P1036-ND	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M2392KZ
	.0047	12.0	6.0	9.5	7.5	3	0.6	P1037-ND*	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M2472KZ
	.0056	12.0	6.0	9.5	7.5	3	0.6	P1038-ND	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M2562KZ
	.0068	12.0	6.0	10.5	7.5	3	0.6	P1039-ND*	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M2682KZ
	.0082	14.0	5.5	10.0	9.5	3	0.6	P1040-ND	1.35	11.24	67.00	62.00/M	58.00/M	ECQ-M2822KZ
	.01	14.0	6.0	10.0	9.5	3	0.6	P1041-ND*	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2103KZ
	.012	14.0	6.0	10.5	9.5	3	0.6	P1042-ND	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2123KZ
	.015	14.0	6.5	11.5	9.5	3	0.6	P1043-ND*	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2153KZ
	.018	17.0	5.5	10.0	12.5	3	0.6	P1044-ND	1.32	10.97	65.00	61.00/M	57.00/M	ECQ-M2183KZ
	.022	17.0	5.5	11.0	12.5	3	0.6	P1045-ND*	1.44	12.04	72.00	67.00/M	63.00/M	ECQ-M2223KZ
	.027	17.0	6.0	11.0	12.5	3	0.6	P1046-ND	1.48	12.31	73.00	68.00/M	64.00/M	ECQ-M2273KZ
	.033	17.0	6.5	11.5	12.5	3	0.6	P1047-ND*	1.57	13.11	78.00	73.00/M	68.00/M	ECQ-M2333KZ
	.039	17.0	6.0	13.5	12.5	3	0.6	P1048-ND	1.64	13.64	81.00	76.00/M	71.00/M	ECQ-M2393KZ
	.047	17.0	6.5	14.0	12.5	3	0.6	P1049-ND*	1.67	13.91	83.00	77.00/M	72.00/M	ECQ-M2473KZ
	.056	20.0	6.5	14.0	14.5	3	0.6	P1050-ND	1.80	14.98	89.00	83.00/M	78.00/M	ECQ-M2563KZ
	.068	20.0	7.0	14.5	14.5	3	0.6	P1051-ND*	1.89	15.78	94.00	88.00/M	82.00/M	ECQ-M2683KZ
	.082	20.0	7.5	15.0	15.0	3	0.6	P1052-ND	1.93	16.05	96.00	89.00/M	83.00/M	ECQ-M2823KZ
	.1	20.0	8.0	17.0	15.0	3	0.6	P1053-ND*	2.38	19.80	118.00	110.00/M	103.00/M	ECQ-M2104KZ
	.12	20.0	8.5	17.5	15.0	3	0.8	P1054-ND	2.82	23.54	141.00	131.00/M	122.00/M	ECQ-M2124KZ
	.15	20.0	9.5	18.5	15.0	3	0.8	P1055-ND*	2.79	23.27	139.00	129.00/M	121.00/M	ECQ-M2154KZ
	.18	23.0	13.0	22.0	18.5	3	0.8	P1056-ND	4.21	35.04	209.00	195.00/M	182.00/M	ECQ-M2184KZ
	.22	23.0	14.0	23.0	18.5	3	0.8	P1057-ND*	4.21	35.04	209.00	195.00/M	182.00/M	ECQ-M2224KZ
400	.001	11.0	5.5	9.5	6.5	2	0.6	P1058-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4102KZ
	.0012	11.0	6.0	10.0	6.5	2	0.6	P1059-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4122KZ
	.0015	11.0	6.0	10.0	6.5	2	0.6	P1060-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4152KZ
	.0018	11.0	6.0	10.0	6.5	2	0.6	P1061-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4182KZ
	.0022	11.0	6.5	10.5	6.5	2	0.6	P1062-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4222KZ
	.0027	12.0	6.0	10.0	7.5	2	0.6	P1063-ND	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4272KZ
	.0033	12.0	6.5	10.5	7.5	2	0.6	P1064-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4332KZ
	.0039	12.0	6.5	10.5	7.5	2	0.6	P1065-ND	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4392KZ
	.0047	14.0	6.0	10.0	9.5	2	0.6	P1066-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4472KZ
	.0056	14.0	6.0	10.0	9.5	2	0.6	P1067-ND	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4562KZ
	.0068	14.0	6.5	10.5	9.5	3	0.6	P1068-ND*	1.74	14.50	87.00	81.00/M	75.00/M	ECQ-M4682KZ
	.0082	14.0	6.5	12.0	9.5	3	0.6	P1069-ND	1.80	15.00	90.00	83.00/M	78.00/M	ECQ-M4822KZ
	.01	14.0	7.0	12.5	9.5	3	0.6	P1070-ND*	1.80	15.00	90.00	83.00/M	78.00/M	ECQ-M4103KZ
	.012	17.0	6.0	12.0	12.5	3	0.6	P1071-ND	1.86	15.50	93.00	86.00/M	81.00/M	ECQ-M4123KZ
	.015	17.0	6.5	12.5	12.5	3	0.6	P1072-ND*	1.86	15.50	93.00	86.00/M	81.00/M	ECQ-M4153KZ
	.018	17.0	7.0	13.0	12.5	3	0.6	P1073-ND	2.01	16.75	100.00	93.00/M	87.00/M	ECQ-M4183KZ
	.022	17.0	7.5	13.5	12.5	3	0.6	P1074-ND*	2.04	17.00	101.00	94.00/M	88.00/M	ECQ-M4223KZ
	.027	20.0	7.0	14.5	15.0	2	0.7	P1075-ND	2.28	19.00	113.00	106.00/M	99.00/M	ECQ-M4273KZ
	.033	20.0	7.5	15.0	15.0	2	0.7	P1076-ND*	2.40	20.00	119.00	111.00/M	104.00/M	ECQ-M4333KZ
	.039	20.0	8.5	16.0	15.0	3	0.7	P1077-ND	2.55	21.25	127.00	118.00/M	110.00/M	ECQ-M4393KZ
	.047	20.0	9.0	16.5	15.0	3	0.7	P1078-ND*	2.73	22.75	136.00	126.00/M	118.00/M	ECQ-M4473KZ
	.056	23.0	8.5	15.5	18.0	3	0.7	P1079-ND	3.00	25.00	149.00	139.00/M	130.00/M	ECQ-M4563KZ
	.068	23.0	9.0	16.5	18.0	3	0.7	P1080-ND*	3.27	27.25	163.00	151.00/M	142.00/M	ECQ-M4683KZ
	.082	24.0	9.5	17.0	18.0	3	0.8	P1081-ND	3.60	30.00	179.00	167.00/M	156.00/M	ECQ-M4823KZ
	.1	24.0	10.0	19.0	18.0	3	0.8	P1082-ND*	4.20	35.00	209.00	194.00/M	182.00/M	ECQ-M4104KZ

***Indicates part included in one of the kits listed below. (Note Voltage)**

M200-KIT-ND, 200 Volt Assortment. 10 each of those indicated. Notebook style storage case and bin storage guide included. $29.95

M400-KIT-ND, 400 Volt Assortment. 10 each of those indicated. Notebook style storage case and bin storage guide included. $29.95

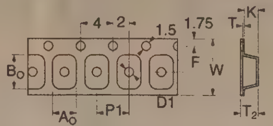
Panasonic.

UF Series Surface Mount Film Capacitors

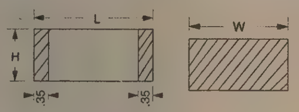
ECH-U (High Grade Type) & ECW-U (Standard Type)

FEATURES: • Small in size • High moisture resistance.
Type ECH-U: • Applicable for both flow and reflow soldering
Type ECW-U: • Applicable for reflow soldering • Similar characteristics of polyester.
SPECIFICATIONS:• Capacitance Tolerance: ±5%(J) • Rated Voltage: 50VDC for ECH-U, 50VDC for ECW-U. • Withstanding Voltage: Rated Voltage x 175% for 1-5s • Insulation Resistance: 50VDC ≥ 3,000MΩ at 20°C 50 VDC 60 sec. • Dissipation Factor: ECH-U =0.6% max. at 1kHz, 20°C; ECW-U =1.0% max. at 1kHz, 20°C • Operating Temperature: -55°C to +125°C for ECH-U and -55°C to +105°C for ECW-U.
APPLICATIONS:
Type ECH-U: • Time constant • Filtering • Oscillation and resonance.
Type ECW-U: • Coupling • By-pass • General purpose

TAPING SPECS:



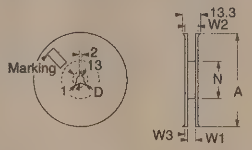
Type	Ao (±0.1)	Bo (±0.1)	T (±0.05)	T2 (±0.2)	K (±0.1)	W (±0.3)	F (±0.05)	P1 (±0.1)	D1 (±.⁰·²)
J1	1.55	2.3	0.25	1.3	1.2	8.0	3.5	4.0	1.0
H1, H2	1.9	3.5	0.25	1.5	1.4	8.0	3.5	4.0	1.0
G1, G2	2.8	3.5	0.25	1.9	1.8	8.0	3.5	4.0	1.0
G3	2.8	3.5	0.25	2.5	2.4	8.0	3.5	4.0	1.0
E1	3.8	5.1	0.30	2.0	1.9	12.0	5.5	8.0	1.5
E2	3.8	5.1	0.30	2.6	2.5	12.0	5.5	8.0	1.5



Packing Quantity

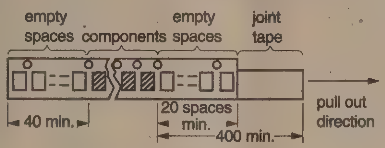
Type	Reel (pcs.)
J1, H1, H2, E1, E2	3,000
G1, G2, G3	2,000

PACKING SPECS:



Type	A	D	N	W1	W2	W3
J1 H1, H2 G1, G2 G3	178.0±2.0	23.5±0.5	60.0±2.0	9.5±0.5	11.9±1.5	1.2±0.5
E1 E2	330.0±2.0	21.0±0.8	80.0±2.0	14.0±1.5	18.0±2.5	2.0±0.5

Empty Space and Joint Tape

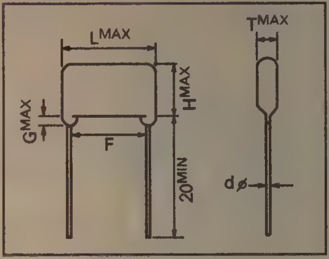


Item Code	WV DC	Cap. µF	Dimensions (±0.2) L	W	H	Type	Digi-Key Part No.	Pricing 10	100	500	Digi-Key Part No.	Tape & Reel Pricing 2,000	3,000	6,000	12,000	Panasonic Part No.
							ECH-U (High Grade Type)									
0805 Size	50	.0001	2.0	1.25	0.8	J1	PCF1000CT-ND•	4.39	38.03	146.50	PCF1000TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H101JB5
	50	.00012	2.0	1.25	0.8	J1	PCF1001CT-ND	4.39	38.03	146.50	PCF1001TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H121JB5
	50	.00015	2.0	1.25	0.8	J1	PCF1002CT-ND•	4.39	38.03	146.50	PCF1002TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H151JB5
	50	.00018	2.0	1.25	0.8	J1	PCF1003CT-ND	4.39	38.03	146.50	PCF1003TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H181JB5
	50	.00022	2.0	1.25	0.8	J1	PCF1004CT-ND•	4.39	38.03	146.50	PCF1004TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H221JB5
	50	.00027	2.0	1.25	0.8	J1	PCF1005CT-ND	4.39	38.03	146.50	PCF1005TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H271JB5
	50	.00033	2.0	1.25	0.8	J1	PCF1006CT-ND•	4.39	38.03	146.50	PCF1006TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H331JB5
	50	.00039	2.0	1.25	0.8	J1	PCF1007CT-ND	4.39	38.03	146.50	PCF1007TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H391JB5
	50	.00047	2.0	1.25	0.8	J1	PCF1008CT-ND•	4.39	38.03	146.50	PCF1008TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H471JB5
	50	.00056	2.0	1.25	0.8	J1	PCF1009CT-ND	4.39	38.03	146.50	PCF1009TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H561JB5
	50	.00068	2.0	1.25	0.8	J1	PCF1010CT-ND	4.39	38.03	146.50	PCF1010TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H681JB5
	50	.00082	2.0	1.25	0.8	J1	PCF1011CT-ND	4.39	38.03	146.50	PCF1011TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H821JB5
	50	.001	2.0	1.25	0.8	J1	PCF1012CT-ND•	4.39	38.03	146.50	PCF1012TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H102JB5
	50	.0012	2.0	1.25	0.8	J1	PCF1013CT-ND	4.39	38.03	146.50	PCF1013TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H122JB5
	50	.0015	2.0	1.25	0.8	J1	PCF1014CT-ND•	4.39	38.03	146.50	PCF1014TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H152JB5
	50	.0018	2.0	1.25	0.8	J1	PCF1015CT-ND	4.39	38.03	146.50	PCF1015TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H182JB5
	50	.0022	2.0	1.25	0.8	J1	PCF1016CT-ND•	4.39	38.03	146.50	PCF1016TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H222JB5
	50	.0027	2.0	1.25	0.8	J1	PCF1017CT-ND	4.39	38.03	146.50	PCF1017TR-ND	—	176.00/M	165.00/M	153.00/M	ECH-U1H272JB5
1206 Size	50	.0033	3.2	1.6	0.8	H1	PCF1018CT-ND•	5.21	45.18	174.00	PCF1018TR-ND	—	209.00/M	196.00/M	182.00/M	ECH-U1H332JB5
	50	.0039	3.2	1.6	0.8	H1	PCF1019CT-ND	5.29	45.83	176.50	PCF1019TR-ND	—	212.00/M	199.00/M	184.00/M	ECH-U1H392JB5
	50	.0047	3.2	1.6	0.8	H1	PCF1020CT-ND•	5.44	47.13	181.50	PCF1020TR-ND	—	218.00/M	204.00/M	190.00/M	ECH-U1H472JB5
	50	.0056	3.2	1.6	0.8	H1	PCF1021CT-ND	5.59	48.43	186.50	PCF1021TR-ND	—	224.00/M	210.00/M	195.00/M	ECH-U1H562JB5
	50	.0068	3.2	1.6	0.8	H1	PCF1022CT-ND•	5.78	50.05	192.50	PCF1022TR-ND	—	232.00/M	217.00/M	201.00/M	ECH-U1H682JB5
	50	.0082	3.2	1.6	1.0	H2	PCF1023CT-ND	5.93	51.35	197.50	PCF1023TR-ND	—	238.00/M	223.00/M	207.00/M	ECH-U1H822JB5
	50	.01	3.2	1.6	1.0	H2	PCF1024CT-ND•	6.11	52.98	204.00	PCF1024TR-ND	—	245.00/M	230.00/M	213.00/M	ECH-U1H103JB5
1210 Size	50	.012	3.2	2.5	1.0	G1	PCF1025CT-ND	6.19	53.63	206.50	PCF1025TR-ND	248.00/M	—	232.00/M	—	ECH-U1H123JB5
	50	.015	3.2	2.5	1.0	G1	PCF1026CT-ND•	6.38	55.25	212.50	PCF1026TR-ND	256.00/M	—	239.00/M	—	ECH-U1H153JB5
	50	.018	3.2	2.5	1.4	G2	PCF1027CT-ND	6.53	56.55	217.50	PCF1027TR-ND	262.00/M	—	245.00/M	—	ECH-U1H183JB5
	50	.022	3.2	2.5	1.4	G2	PCF1028CT-ND•	6.79	58.83	226.50	PCF1028TR-ND	272.00/M	—	255.00/M	—	ECH-U1H223JB5
	50	.027	3.2	2.5	1.4	G2	PCF1029CT-ND	7.09	61.43	236.50	PCF1029TR-ND	284.00/M	—	266.00/M	—	ECH-U1H273JB5
	50	.033	3.2	2.5	2.0	G3	PCF1030CT-ND•	7.46	64.68	249.00	PCF1030TR-ND	299.00/M	—	280.00/M	—	ECH-U1H333JB5
	50	.039	3.2	2.5	2.0	G3	PCF1031CT-ND	7.80	67.60	260.00	PCF1031TR-ND	313.00/M	—	293.00/M	—	ECH-U1H393JB5
1913 Size	50	.047	4.8	3.3	1.4	E1	PCF1032CT-ND•	8.18	70.85	272.50	PCF1032TR-ND	—	328.00/M	307.00/M	285.00/M	ECH-U1H473JB9
	50	.056	4.8	3.3	1.4	E1	PCF1033CT-ND	8.63	74.75	287.50	PCF1033TR-ND	—	346.00/M	324.00/M	301.00/M	ECH-U1H563JB9
	50	.068	4.8	3.3	1.4	E1	PCF1034CT-ND•	9.23	79.95	307.50	PCF1034TR-ND	—	370.00/M	346.00/M	322.00/M	ECH-U1H683JB9
	50	.082	4.8	3.3	2.0	E2	PCF1035CT-ND	9.90	85.80	330.00	PCF1035TR-ND	—	397.00/M	372.00/M	345.00/M	ECH-U1H823JB9
	50	.1	4.8	3.3	2.0	E2	PCF1036CT-ND•	10.58	91.65	352.50	PCF1036TR-ND	—	424.00/M	397.00/M	369.00/M	ECH-U1H104JB9
							ECW-U (Standard Type)									
1206 Size	50	.0033	3.2	1.6	0.8	H1	PCF1040CT-ND†	4.65	40.30	155.00	PCF1040TR-ND	—	186.00/M	175.00/M	162.00/M	ECW-U1H332JB5
	50	.0039	3.2	1.6	0.8	H1	PCF1041CT-ND†	4.65	40.30	155.00	PCF1041TR-ND	—	186.00/M	175.00/M	162.00/M	ECW-U1H392JB5
	50	.0047	3.2	1.6	0.8	H1	PCF1042CT-ND†	4.65	40.30	155.00	PCF1042TR-ND	—	186.00/M	175.00/M	162.00/M	ECW-U1H472JB5
	50	.0056	3.2	1.6	0.8	H1	PCF1043CT-ND†	4.95	42.90	165.00	PCF1043TR-ND	—	198.00/M	186.00/M	173.00/M	ECW-U1H562JB5
	50	.0068	3.2	1.6	0.8	H1	PCF1044CT-ND†	4.95	42.90	165.00	PCF1044TR-ND	—	198.00/M	186.00/M	173.00/M	ECW-U1H682JB5
	50	.0082	3.2	1.6	1.0	H2	PCF1045CT-ND†	5.03	43.55	167.50	PCF1045TR-ND	—	201.00/M	189.00/M	175.00/M	ECW-U1H822JB5
	50	.01	3.2	1.6	1.0	H2	PCF1046CT-ND†	5.10	44.20	170.00	PCF1046TR-ND	—	205.00/M	192.00/M	178.00/M	ECW-U1H103JB5
1210 Size	50	.012	3.2	2.5	1.0	G1	PCF1047CT-ND	5.21	45.18	174.00	PCF1047TR-ND	209.00/M	—	196.00/M	—	ECW-U1H123JB5
	50	.015	3.2	2.5	1.0	G1	PCF1048CT-ND†	5.29	45.83	176.50	PCF1048TR-ND	212.00/M	—	199.00/M	—	ECW-U1H153JB5
	50	.018	3.2	2.5	1.4	G2	PCF1049CT-ND†	5.36	46.48	179.00	PCF1049TR-ND	215.00/M	—	201.00/M	—	ECW-U1H183JB5
	50	.022	3.2	2.5	1.4	G2	PCF1050CT-ND†	5.48	47.45	182.50	PCF1050TR-ND	220.00/M	—	206.00/M	—	ECW-U1H223JB5
	50	.027	3.2	2.5	1.4	G2	PCF1051CT-ND†	5.59	48.43	186.50	PCF1051TR-ND	224.00/M	—	210.00/M	—	ECW-U1H273JB5
	50	.033	3.2	2.5	2.0	G3	PCF1052CT-ND†	5.63	48.75	187.50	PCF1052TR-ND	226.00/M	—	211.00/M	—	ECW-U1H333JB5
	50	.039	3.2	2.5	2.0	G3	PCF1053CT-ND†	5.85	50.70	195.00	PCF1053TR-ND	235.00/M	—	220.00/M	—	ECW-U1H393JB5
	50	.047	3.2	2.5	2.0	G3	PCF1054CT-ND†	6.08	52.65	202.50	PCF1054TR-ND	244.00/M	—	228.00/M	—	ECW-U1H473JB5
1913 Size	50	.056	4.8	3.3	1.4	E1	PCF1055CT-ND†	6.64	57.53	221.50	PCF1055TR-ND	—	266.00/M	249.00/M	—	ECW-U1H563JB9
	50	.068	4.8	3.3	1.4	E1	PCF1056CT-ND†	7.28	63.05	242.50	PCF1056TR-ND	—	292.00/M	273.00/M	—	ECW-U1H683JB9
	50	.082	4.8	3.3	2.0	E2	PCF1057CT-ND†	7.80	67.60	260.00	PCF1057TR-ND	—	313.00/M	293.00/M	—	ECW-U1H823JB9
	50	.1	4.8	3.3	2.0	E2	PCF1058CT-ND†	8.29	71.83	276.50	PCF1058TR-ND	—	332.00/M	311.00/M	289.00/M	ECW-U1H104JB9

• **PCF1-KIT-ND** ***NEW!*** 10 each of parts indicated (180 pieces). Notebook style storage and bin, storage guide included. **$59.95**
†**PCF2-KIT-ND** ***NEW!*** 10 each of parts indicated (180 pieces). Notebook style storage and bin, storage guide included. **$59.95**

Panasonic. Miniaturized Metallized Polyester Film Capacitors

Type ECQ-E(F)



The type ECQ-E(F) series is using a dual side metallized polyester film with high dielectric constant(e) which makes it possible to produce large C-values in small dimensions, and is economical capacitor meeting high requirements for professional circuit design.

Features: • Self-healing property • Flame retardant epoxy resin coating

Applications: • Blocking, by-passing, filtering, timing, interference suppression, low pulse applications.

SPECIFICATIONS:

Reference standard: JIS C5115, C5151

Operating temperature range: -40 ~ +85°C (+105°C . . . . .75% of Rated voltage)

Rated voltage: 100V, 250V, 400V, 630V

Capacitance tolerance: ±10% (K)

Dissipation factor: 1.0% Max. (20°C 1kHz)

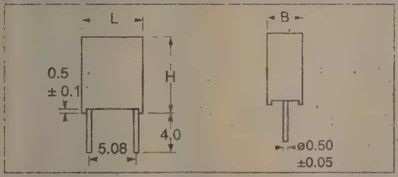
Withstand voltage: Rated volt. DC100V ~ 630V (V.DC) X 150% 1 minute between terminals

Insulation resistance: DC100V ~ 630V: C ≤ 0.33µF 9,000MΩ Min., C > 0.33µF 3,000ΩVµF Min.

Working Voltage (VDC)	Capacitance (µF)	Dimensions (mm)						Digi-Key Part No.	Pricing						Panasonic Part No.
		L	T	H	F	G	d		1	10	100	1,000	5,000	10,000	
100	.01	7.8	4.6	7.7	5.0	1.0	0.5	EF1103-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1103KF
100	.012	7.8	4.5	7.6	5.0	1.0	0.5	EF1123-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1123KF
100	.015	7.8	4.5	7.6	5.0	1.0	0.5	EF1153-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1153KF
100	.018	7.8	4.6	7.7	5.0	1.0	0.5	EF1183-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1183KF
100	.022	7.8	4.9	8.0	5.0	1.0	0.5	EF1223-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1223KF
100	.027	7.8	4.7	7.8	5.0	1.0	0.5	EF1273-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1273KF
100	.033	7.8	4.6	7.7	5.0	1.0	0.5	EF1333-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1333KF
100	.039	7.8	4.9	8.0	5.0	1.0	0.5	EF1393-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1393KF
100	.047	7.8	4.5	7.5	5.0	1.0	0.5	EF1473-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1473KF
100	.056	7.8	4.8	7.9	5.0	1.0	0.5	EF1563-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1563KF
100	.068	7.8	4.8	7.9	5.0	1.0	0.5	EF1683-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1683KF
100	.082	7.8	4.7	9.9	5.0	1.0	0.5	EF1823-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1823KF
100	.1	7.8	5.0	10.0	5.0	1.0	0.5	EF1104-ND	.28	2.43	20.25	121.00	114.00/M	105.00/M	ECQ-E1104KF
100	.12	10.3	4.5	7.5	7.5	1.0	0.6	EF1124-ND	.29	2.46	20.50	123.00	116.00/M	106.00/M	ECQ-E1124KF
100	.15	10.3	4.5	7.5	7.5	1.0	0.6	EF1154-ND	.29	2.52	21.00	126.00	118.00/M	109.00/M	ECQ-E1154KF
100	.18	10.3	4.8	7.9	7.5	1.0	0.6	EF1184-ND	.32	2.73	22.75	136.00	128.00/M	118.00/M	ECQ-E1184KF
100	.22	10.3	5.0	8.0	7.5	1.0	0.6	EF1224-ND	.34	2.91	24.25	145.00	137.00/M	126.00/M	ECQ-E1224KF
100	.27	10.3	4.5	12.0	7.5	1.0	0.6	EF1274-ND	.37	3.21	26.75	160.00	151.00/M	139.00/M	ECQ-E1274KF
100	.33	10.3	6.0	10.7	7.5	1.0	0.6	EF1334-ND	.42	3.57	29.75	178.00	168.00/M	155.00/M	ECQ-E1334KF
100	.39	10.3	6.3	11.0	7.5	1.0	0.6	EF1394-ND	.43	3.69	30.75	184.00	173.00/M	160.00/M	ECQ-E1394KF
100	.47	10.3	6.0	12.0	7.5	1.0	0.6	EF1474-ND	.45	3.87	32.25	193.00	182.00/M	168.00/M	ECQ-E1474KF
100	.56	12.0	5.5	10.9	10.0	1.0	0.6	EF1564-ND	.53	4.50	37.50	225.00	212.00/M	195.00/M	ECQ-E1564KF
100	.68	12.0	6.0	11.9	10.0	1.0	0.6	EF1684-ND	.59	5.07	42.25	253.00	238.00/M	219.00/M	ECQ-E1684KF
100	.82	12.0	6.0	13.5	10.0	1.0	0.6	EF1824-ND	.65	5.55	46.25	277.00	261.00/M	240.00/M	ECQ-E1824KF
100	1.0	12.0	6.7	14.0	10.0	1.0	0.6	EF1105-ND	.71	6.06	50.50	302.00	285.00/M	262.00/M	ECQ-E1105KF
100	1.2	18.5	5.5	12.8	15.0	1.0	0.6	EF1125-ND	.82	7.05	58.75	352.00	331.00/M	305.00/M	ECQ-E1125KF
100	1.5	18.5	6.0	13.4	15.0	1.0	0.8	EF1155-ND	.96	8.19	68.25	409.00	385.00/M	355.00/M	ECQ-E1155KF
100	1.8	18.5	6.5	14.4	15.0	1.0	0.8	EF1185-ND	1.06	9.09	75.75	454.00	427.00/M	394.00/M	ECQ-E1185KF
100	2.2	18.5	7.0	15.0	15.0	1.0	0.8	EF1225-ND	1.20	10.29	85.75	513.00	484.00/M	445.00/M	ECQ-E1225KF
100	2.7	18.5	8.0	15.8	15.0	1.0	0.8	EF1275-ND	1.36	11.67	97.25	582.00	549.00/M	505.00/M	ECQ-E1275KF
100	3.3	18.5	8.5	16.5	15.0	1.0	0.8	EF1335-ND	1.74	14.88	124.00	743.00	700.00/M	644.00/M	ECQ-E1335KF
100	3.9	26.0	7.0	16.4	22.5	1.0	0.8	EF1395-ND	1.97	16.92	141.00	844.00	795.00/M	732.00/M	ECQ-E1395KF
100	4.7	26.0	7.5	17.0	22.5	1.0	0.8	EF1475-ND	2.22	19.05	158.75	951.00	896.00/M	825.00/M	ECQ-E1475KF
100	5.6	26.0	8.3	17.5	22.5	1.0	0.8	EF1565-ND	2.64	22.62	188.50	1129.00	1063.00/M	979.00/M	ECQ-E1565KF
100	6.8	26.0	9.0	18.5	22.5	1.0	0.8	EF1685-ND	3.00	25.71	214.25	1283.00	1209.00/M	1113.00/M	ECQ-E1685KF
100	8.2	26.0	10.0	20.0	22.5	1.5	0.8	EF1825-ND	3.74	32.07	267.25	1600.00	1508.00/M	1388.00/M	ECQ-E1825KF
100	10.0	26.0	11.5	21.0	22.5	1.5	0.8	EF1106-ND	4.02	34.47	287.25	1720.00	1621.00/M	1492.00/M	ECQ-E1106KF
250	.01	10.3	4.3	7.4	7.5	1.0	0.6	EF2103-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2103KF
250	.012	10.3	4.4	7.5	7.5	1.0	0.6	EF2123-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2123KF
250	.015	10.3	4.4	7.5	7.5	1.0	0.6	EF2153-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2153KF
250	.018	10.3	4.4	7.5	7.5	1.0	0.6	EF2183-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2183KF
250	.022	10.3	4.4	7.5	7.5	1.0	0.6	EF2223-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2223KF
250	.027	10.3	4.4	7.5	7.5	1.0	0.6	EF2273-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2273KF
250	.033	10.3	4.5	7.5	7.5	1.0	0.6	EF2333-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2333KF
250	.039	10.3	4.5	7.5	7.5	1.0	0.6	EF2393-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2393KF
250	.047	10.3	4.5	7.5	7.5	1.0	0.6	EF2473-ND	.21	1.77	14.75	88.00	83.00/M	77.00/M	ECQ-E2473KF
250	.056	10.3	4.8	7.9	7.5	1.0	0.6	EF2563-ND	.26	2.25	18.75	112.00	106.00/M	97.00/M	ECQ-E2563KF
250	.068	10.3	4.5	7.5	7.5	1.0	0.6	EF2683-ND	.27	2.34	19.50	117.00	110.00/M	101.00/M	ECQ-E2683KF
250	.082	10.3	4.9	8.0	7.5	1.0	0.6	EF2823-ND	.28	2.40	20.00	120.00	113.00/M	104.00/M	ECQ-E2823KF
250	.1	10.3	5.8	8.4	7.5	1.0	0.6	EF2104-ND	.25	2.16	18.00	108.00	102.00/M	94.00/M	ECQ-E2104KF
250	.12	10.3	6.0	9.0	7.5	1.0	0.6	EF2124-ND	.33	2.82	23.50	141.00	133.00/M	122.00/M	ECQ-E2124KF
250	.15	10.3	6.0	10.8	7.5	1.0	0.6	EF2154-ND	.35	3.00	25.00	150.00	141.00/M	130.00/M	ECQ-E2154KF
250	.18	12.0	5.0	10.3	10.0	1.0	0.6	EF2184-ND	.37	3.21	26.75	160.00	151.00/M	139.00/M	ECQ-E2184KF
250	.22	12.0	5.5	10.5	10.0	1.0	0.6	EF2224-ND	.39	3.33	27.75	166.00	157.00/M	144.00/M	ECQ-E2224KF
250	.27	12.0	6.0	11.5	10.0	1.0	0.6	EF2274-ND	.45	3.84	32.00	192.00	181.00/M	166.00/M	ECQ-E2274KF
250	.33	12.0	6.5	12.0	10.0	1.0	0.6	EF2334-ND	.49	4.20	35.00	210.00	197.00/M	182.00/M	ECQ-E2334KF
250	.39	18.5	4.9	12.0	15.0	1.0	0.6	EF2394-ND	.53	4.56	38.00	228.00	214.00/M	197.00/M	ECQ-E2394KF
250	.47	18.5	5.3	12.5	15.0	1.0	0.6	EF2474-ND	.57	4.86	40.50	243.00	228.00/M	210.00/M	ECQ-E2474KF
250	.56	18.5	5.5	13.0	15.0	1.0	0.6	EF2564-ND	.62	5.34	44.50	266.00	251.00/M	231.00/M	ECQ-E2564KF
250	.68	18.5	6.0	13.5	15.0	1.0	0.8	EF2684-ND	.68	5.85	48.75	292.00	275.00/M	253.00/M	ECQ-E2684KF
250	.82	18.5	6.5	14.5	15.0	1.0	0.8	EF2824-ND	.76	6.51	54.25	325.00	306.00/M	282.00/M	ECQ-E2824KF
250	1.0	18.5	7.4	15.0	15.0	1.0	0.8	EF2105-ND	.80	6.84	57.00	341.00	322.00/M	296.00/M	ECQ-E2105KF
250	1.2	18.5	8.0	15.9	15.0	1.0	0.8	EF2125-ND	.89	7.65	63.75	382.00	360.00/M	331.00/M	ECQ-E2125KF
250	1.5	18.5	9.0	16.8	15.0	1.0	0.8	EF2155-ND	1.13	9.66	80.50	482.00	454.00/M	418.00/M	ECQ-E2155KF
250	1.8	26.0	7.5	15.5	22.5	1.0	0.8	EF2185-ND	1.24	10.62	88.50	530.00	499.00/M	460.00/M	ECQ-E2185KF
250	2.2	26.0	8.5	16.3	22.5	1.0	0.8	EF2225-ND	1.36	11.67	97.25	582.00	549.00/M	505.00/M	ECQ-E2225KF
250	2.7	26.0	9.4	17.0	22.5	1.0	0.8	EF2275-ND	1.55	13.29	110.75	663.00	625.00/M	575.00/M	ECQ-E2275KF
250	3.3	26.0	10.3	18.0	22.5	1.5	0.8	EF2335-ND	1.87	16.02	133.50	799.00	753.00/M	694.00/M	ECQ-E2335KF

Working Voltage (VDC)	Capacitance (µF)	Dimensions (mm)						Digi-Key Part No.	Pricing						Panasonic Part No.
		L	T	H	F	G	d		1	10	100	1,000	5,000	10,000	
250	3.9	26.0	11.0	20.5	22.5	1.5	0.8	EF2395-ND	3.01	25.80	215.00	1287.00	1213.00/M	1117.00/M	ECQ-E2395KF
250	4.7	26.0	12.0	21.5	22.5	1.5	0.8	EF2475-ND	3.35	28.68	239.00	1431.00	1348.00/M	1242.00/M	ECQ-E2475KF
250	5.6	31.0	11.8	21.0	27.5	1.5	0.8	EF2565-ND	4.24	36.30	302.50	1811.00	1707.00/M	1571.00/M	ECQ-E2565KF
250	6.8	31.0	13.0	22.4	27.5	1.5	0.8	EF2685-ND	4.59	39.33	327.75	1963.00	1849.00/M	1703.00/M	ECQ-E2685KF
250	8.2	31.0	14.3	23.5	27.5	1.5	0.8	EF2825-ND	5.47	46.92	391.00	2341.00	2206.00/M	2031.00/M	ECQ-E2825KF
250	10.0	31.0	15.9	25.8	27.5	1.5	0.8	EF2106-ND	6.35	54.45	453.75	2717.00	2560.00/M	2357.00/M	ECQ-E2106KF
400	.01	10.3	4.3	7.4	7.5	1.0	0.6	EF4103-ND	.34	2.94	24.50	147.00	138.00/M	127.00/M	ECQ-E4103KF
400	.012	10.3	4.4	7.5	7.5	1.0	0.6	EF4123-ND	.34	2.94	24.50	147.00	138.00/M	127.00/M	ECQ-E4123KF
400	.015	10.3	4.4	7.5	7.5	1.0	0.6	EF4153-ND	.35	3.00	25.00	150.00	141.00/M	130.00/M	ECQ-E4153KF
400	.018	10.3	4.4	7.5	7.5	1.0	0.6	EF4183-ND	.35	3.00	25.00	150.00	141.00/M	130.00/M	ECQ-E4183KF
400	.022	10.3	4.8	7.9	7.5	1.0	0.6	EF4223-ND	.36	3.06	25.50	153.00	144.00/M	132.00/M	ECQ-E4223KF
400	.027	10.3	5.5	8.0	7.5	1.0	0.6	EF4273-ND	.38	3.24	27.00	162.00	152.00/M	140.00/M	ECQ-E4273KF
400	.033	10.3	6.0	9.0	7.5	1.0	0.6	EF4333-ND	.40	3.39	28.25	169.00	159.00/M	147.00/M	ECQ-E4333KF
400	.039	12.0	4.9	8.0	10.0	1.0	0.6	EF4393-ND	.41	3.48	29.00	174.00	164.00/M	151.00/M	ECQ-E4393KF
400	.047	12.0	5.0	8.3	10.0	1.0	0.6	EF4473-ND	.40	3.45	28.75	172.00	162.00/M	149.00/M	ECQ-E4473KF
400	.056	12.0	5.0	10.0	10.0	1.0	0.6	EF4563-ND	.44	3.75	31.25	187.00	176.00/M	162.00/M	ECQ-E4563KF
400	.068	12.0	5.4	10.5	10.0	1.0	0.6	EF4683-ND	.47	3.99	33.25	199.00	188.00/M	173.00/M	ECQ-E4683KF
400	.082	12.0	5.8	11.0	10.0	1.0	0.6	EF4823-ND	.48	4.14	34.50	207.00	195.00/M	179.00/M	ECQ-E4823KF
400	1	12.0	6.3	12.0	10.0	1.0	0.6	EF4104-ND	.47	4.05	33.75	202.00	190.00/M	175.00/M	ECQ-E4104KF
400	.12	18.5	5.0	10.0	15.0	1.0	0.6	EF4124-ND	.54	4.62	38.50	231.00	217.00/M	200.00/M	ECQ-E4124KF
400	.15	18.5	5.0	12.4	15.0	1.0	0.6	EF4154-ND	.59	5.07	42.25	253.00	238.00/M	219.00/M	ECQ-E4154KF
400	.18	18.5	5.4	12.5	15.0	1.0	0.6	EF4184-ND	.63	5.40	45.00	269.00	254.00/M	234.00/M	ECQ-E4184KF
400	.22	18.5	5.9	13.0	15.0	1.0	0.6	EF4224-ND	.67	5.76	48.00	287.00	271.00/M	249.00/M	ECQ-E4224KF
400	.27	18.5	6.5	14.3	15.0	1.0	0.8	EF4274-ND	.75	6.39	53.25	319.00	300.00/M	277.00/M	ECQ-E4274KF
400	.33	18.5	7.0	14.9	15.0	1.0	0.8	EF4334-ND	.81	6.90	57.50	344.00	324.00/M	299.00/M	ECQ-E4334KF
400	.39	18.5	7.5	15.4	15.0	1.0	0.8	EF4394-ND	.87	7.47	62.25	373.00	351.00/M	323.00/M	ECQ-E4394KF
400	.47	18.5	7.8	17.0	15.0	1.0	0.8	EF4474-ND	.94	8.07	67.25	403.00	379.00/M	349.00/M	ECQ-E4474KF
400	.56	26.0	6.5	16.0	22.5	1.0	0.8	EF4564-ND	1.03	8.82	73.50	440.00	415.00/M	382.00/M	ECQ-E4564KF
400	.68	26.0	7.0	16.5	22.5	1.0	0.8	EF4684-ND	1.15	9.87	82.25	493.00	464.00/M	427.00/M	ECQ-E4684KF
400	.82	26.0	7.9	17.3	22.5	1.0	0.8	EF4824-ND	1.26	10.77	89.75	537.00	506.00/M	466.00/M	ECQ-E4824KF
400	1.0	26.0	8.5	18.9	22.5	1.0	0.8	EF4105-ND	1.38	11.82	98.50	590.00	556.00/M	512.00/M	ECQ-E4105KF
400	1.2	26.0	9.5	18.9	22.5	1.0	0.8	EF4125-ND	1.94	16.62	138.50	829.00	781.00/M	719.00/M	ECQ-E4125KF
400	1.5	31.0	9.5	19.0	27.5	1.0	0.8	EF4155-ND	2.09	17.91	149.25	894.00	842.00/M	775.00/M	ECQ-E4155KF
400	1.8	31.0	11.0	20.5	27.5	1.5	0.8	EF4185-ND	2.48	21.24	177.00	1060.00	999.00/M	919.00/M	ECQ-E4185KF
400	2.2	31.0	11.0	22.0	27.5	1.5	0.8	EF4225-ND	2.83	24.24	202.00	1210.00	1140.00/M	1049.00/M	ECQ-E4225KF
630	.01	12.0	4.5	7.5	10.0	1.0	0.6	EF6103-ND	.37	3.18	26.50	159.00	150.00/M	138.00/M	ECQ-E6103KF
630	.012	12.0	4.5	7.8	10.0	1.0	0.6	EF6123-ND	.38	3.27	27.25	163.00	154.00/M	142.00/M	ECQ-E6123KF
630	.015	12.0	5.0	8.2	10.0	1.0	0.6	EF6153-ND	.40	3.39	28.25	169.00	159.00/M	147.00/M	ECQ-E6153KF
630	.018	12.0	4.9	10.0	10.0	1.0	0.6	EF6183-ND	.41	3.48	29.00	174.00	164.00/M	151.00/M	ECQ-E6183KF
630	.022	12.0	5.3	10.5	10.0	1.0	0.6	EF6223-ND	.42	3.63	30.25	181.00	171.00/M	157.00/M	ECQ-E6223KF
630	.027	12.0	5.5	10.9	10.0	1.0	0.6	EF6273-ND	.44	3.75	31.25	187.00	176.00/M	162.00/M	ECQ-E6273KF
630	.033	12.0	6.0	11.9	10.0	1.0	0.6	EF6333-ND	.45	3.87	32.25	193.00	182.00/M	168.00/M	ECQ-E6333KF
630	.039	12.0	6.0	13.4	10.0	1.0	0.6	EF6393-ND	.47	3.99	33.25	199.00	188.00/M	173.00/M	ECQ-E6393KF
630	.047	12.0	6.5	13.5	10.0	1.0	0.6	EF6473-ND	.47	4.05	33.75	202.00	190.00/M	175.00/M	ECQ-E6473KF
630	.056	18.5	5.4	10.5	15.0	1.0	0.6	EF6563-ND	.51	4.35	36.25	217.00	205.00/M	188.00/M	ECQ-E6563KF
630	.068	18.5	5.8	11.0	15.0	1.0	0.6	EF6683-ND	.55	4.68	39.00	234.00	220.00/M	203.00/M	ECQ-E6683KF
630	.082	18.5	6.5	12.0	15.0	1.0	0.6	EF6823-ND	.58	5.01	41.75	250.00	236.00/M	217.00/M	ECQ-E6823KF
630	.1	18.5	6.3	14.0	15.0	1.0	0.6	EF6104-ND	.63	5.37	44.75	268.00	252.00/M	232.00/M	ECQ-E6104KF
630	.12	18.5	6.3	14.5	15.0	1.0	0.8	EF6124-ND	.69	5.91	49.25	295.00	278.00/M	256.00/M	ECQ-E6124KF
630	.15	18.5	7.5	15.4	15.0	1.0	0.8	EF6154-ND	.78	6.66	55.50	332.00	313.00/M	288.00/M	ECQ-E6154KF
630	.18	18.5	8.0	16.0	15.0	1.0	0.8	EF6184-ND	.83	7.11	59.25	355.00	334.00/M	308.00/M	ECQ-E6184KF
630	.22	18.5	9.0	16.5	15.0	1.0	0.8	EF6224-ND	.90	7.71	64.25	385.00	362.00/M	334.00/M	ECQ-E6224KF
630	.27	26.0	7.0	16.5	22.5	1.0	0.8	EF6274-ND	1.02	8.73	72.75	436.00	410.00/M	378.00/M	ECQ-E6274KF
630	.33	26.0	7.8	17.0	22.5	1.0	0.8	EF6334-ND	1.14	9.81	81.75	490.00	461.00/M	425.00/M	ECQ-E6334KF
630	.39	26.0	8.5	17.9	22.5	1.0	0.8	EF6394-ND	1.24	10.65	88.75	531.00	501.00/M	461.00/M	ECQ-E6394KF
630	.47	26.0	9.3	18.5	22.5	1.0	0.8	EF6474-ND	1.34	11.49	95.75	573.00	540.00/M	497.00/M	ECQ-E6474KF
630	.56	26.0	10.0	20.0	22.5	1.5	0.8	EF6564-ND	1.59	13.62	113.50	680.00	640.00/M	590.00/M	ECQ-E6564KF
630	.68	26.0	11.5	21.0	22.5	1.5	0.8	EF6684-ND	2.05	17.61	146.75	879.00	828.00/M	762.00/M	ECQ-E6684KF
630	.82	31.0	11.3	20.5	27.5	1.5	0.8	EF6824-ND	2.26	19.38	161.50	967.00	911.00/M	839.00/M	ECQ-E6824KF
630	1.0	31.0	12.5	21.9	27.5	1.5	0.8	EF6105-ND	2.74	23.52	196.00	1174.00	1106.00/M	1018.00/M	ECQ-E6105KF
630	1.2	31.0	13.5	23.0	27.5	1.5	0.8	EF6125-ND	2.88	24.72	206.00	1234.00	1162.00/M	1070.00/M	ECQ-E6125KF
630	1.5	31.0	15.3	24.7	27.5	1.5	0.8	EF6155-ND	3.52	30.18	251.50	1506.00	1419.00/M	1306.00/M	ECQ-E6155KF
630	1.8	31.0	16.8	27.0	27.5	1.5	0.8	EF6185-ND	3.96	33.90	282.50	1692.00	1594.00/M	1468.00/M	ECQ-E6185KF
630	2.2	31.0	19.5	29.0	27.5	1.5	0.8	EF6225-ND	4.45	38.13	317.75	1903.00	1793.00/M	1651.00/M	ECQ-E6225KF

PHILIPS Metallized Polyester Film Capacitors



Features: • Low-inductive wound cell of metallized(PETP) film • Potted with blue epoxy resin in a blue flame retardant case • Radial leads of solder-coated wire • Withstand solvents and rinsing liquids • Small stand-off pips to allow removal of solder flux • Suitable for high density packaging

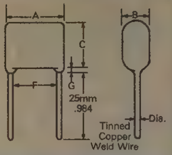
Applications: • Blocking and coupling • Bypass and energy reservoir applications

SPECIFICATIONS: • Capacitance range - .001 to 1.0µf • Capacitance tolerance ±5% • Rated voltage U_{Rdc} - 63V, 100V, 250V, 400V • Climatic category 55/100/56 • Maximum application temperature 100 °C • Rated temperature 85 °C • Tangent of loss angle at 10 kHz 100 x 10^{-4} • Reference specification - IEC 384-2, DIN 44122, DIN 45910 Draft • Performance grade - Grade 1 (long life) • Qualified in accordance with CECC 30 401-801

Working Voltage (VDC)	Capacitance (µF)	Dimensions (mm)			Digi-Key Part No.	Pricing				Philips Part No.
		Bmax	Hmax	Lmax		1	10	100	1,000	
400	.0010*	2.5	6.5	7.2	3001PH-ND	.32	2.70	18.00	135.00	2222 370 52102
400	.0015*	2.5	6.5	7.2	3002PH-ND	.32	2.70	18.00	135.00	2222 370 52152
400	.0022*	2.5	6.5	7.2	3003PH-ND	.32	2.70	18.00	135.00	2222 370 52222
400	.0033*	2.5	6.5	7.2	3004PH-ND	.32	2.70	18.00	135.00	2222 370 52332
250	.0047*	2.5	6.5	7.2	3005PH-ND	.23	1.98	13.20	99.00	2222 370 42472
250	.0068*	2.5	6.5	7.2	3006PH-ND	.23	1.98	13.20	99.00	2222 370 42682
250	.010	2.5	6.5	7.2	3007PH-ND	.25	2.13	14.20	106.50	2222 370 42103
250	.015	3.5	8.0	7.2	3008PH-ND	.25	2.13	14.20	106.50	2222 370 42153
250	.022	3.5	8.0	7.2	3009PH-ND	.25	2.13	14.20	106.50	2222 370 42223
250	.033	3.5	8.0	7.2	3010PH-ND	.28	2.37	15.80	118.50	2222 370 42333
100	.047	2.5	6.5	7.2	3011PH-ND	.23	2.01	13.40	100.50	2222 370 22473
100	.068	3.5	8.0	7.2	3012PH-ND	.29	2.52	16.80	126.00	2222 370 22683
100	.10	3.5	8.0	7.2	3013PH-ND	.33	2.82	18.80	141.00	2222 370 22104
63	.15	3.5	8.0	7.2	3014PH-ND	.28	2.40	16.00	120.00	2222 370 12154
63	.22	3.5	8.0	7.2	3015PH-ND	.35	3.00	20.00	150.00	2222 370 12224
63	.33	3.5	8.0	7.2	3016PH-ND	.42	3.60	24.00	180.00	2222 370 12334
63	.47	4.5	9.0	7.2	3017PH-ND	.53	4.50	30.00	225.00	2222 370 12474
63	.68	5.0	10.0	7.2	3018PH-ND	.67	5.70	38.00	285.00	2222 370 12684
63	1.0	6.0	11.0	7.2	3019PH-ND	.93	7.95	53.00	397.50	2222 370 12105

*Marked capacitance values are not CECC qualified

Panasonic® E-Series Metallized Polyester Capacitors



GENERAL SPECIFICATIONS:
ELECTRICAL: Rated Voltage 100 V.D.C., 250 V.D.C., 400 V.D.C., 630 V.D.C. **Capacitance Tolerance** ±10% (K) **Insulation Resistance:** Less than 0.33 µF: 9,000 MΩ; More than 0.33 µF: 3,000 MΩ. **Dissipation Factor** = 1.0% at 1kHz **Withstanding Voltage** Rated Voltage X 1.5 (1 min.) **Operating Temperature** -40°C ~ +85°C

PANASONIC ECQ-E CROSS REFERENCES:
Sprague: DF/450P/451P/453P; **Westlake:** 160/168/185/167/184/186; **Mepco:** 713A1/ 719A1/C280; **TRW:** X601PE/X601CPE; **Packtron:** MF/RB; **Secor:** MMKS/MMKR/MMDR; **RIFA:** PHE353/PHE354; **Roederstein:** MKT1818/MKT1822; **WIMA:** MKS; **CSF Thompson:** MD/MC; **Siemens:** B325X-XX; **Rubycon:** MC/MN; **Nichicon:** DDXM.

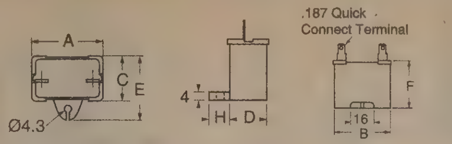
Working Voltage	µF	Dimensions (Inches) A	B	C	F	G	Dia.	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
100	.1	.472	.157	.291	.394	.0394	.0236	E1104-ND	.29	2.52	19.74	126.00	118.00/M	109.00/M	ECQ-E1104KZ
	.12	.472	.177	.291	.394	.0394	.0236	E1124-ND	.30	2.55	20.00	127.00	120.00/M	111.00/M	ECQ-E1124KZ
	.15	.472	.157	.374	.394	.0394	.0236	E1154-ND	.31	2.62	20.53	131.00	123.00/M	113.00/M	ECQ-E1154KZ
	.18	.472	.177	.394	.394	.0394	.0236	E1184-ND	.33	2.79	21.85	139.00	131.00/M	121.00/M	ECQ-E1184KZ
	.22	.472	.197	.413	.394	.0394	.0236	E1224-ND	.35	2.99	23.42	149.00	141.00/M	129.00/M	ECQ-E1224KZ
	.27	.669	.177	.315	.591	.0394	.0236	E1274-ND	.39	3.33	26.09	166.00	157.00/M	144.00/M	ECQ-E1274KZ
	.33	.669	.177	.394	.591	.0394	.0236	E1334-ND	.43	3.66	28.69	183.00	172.00/M	159.00/M	ECQ-E1334KZ
	.39	.669	.197	.394	.591	.0394	.0236	E1394-ND	.44	3.80	29.74	189.00	179.00/M	164.00/M	ECQ-E1394KZ
	.47	.669	.217	.433	.591	.0394	.0236	E1474-ND	.47	4.00	31.32	200.00	188.00/M	173.00/M	ECQ-E1474KZ
	.56	.669	.256	.453	.591	.0394	.0236	E1564-ND	.54	4.60	36.06	230.00	216.00/M	199.00/M	ECQ-E1564KZ
	.68	.669	.276	.472	.591	.0394	.0315	E1684-ND	.61	5.24	41.06	262.00	246.00/M	227.00/M	ECQ-E1684KZ
	.82	.669	.295	.512	.591	.0394	.0315	E1824-ND	.67	5.75	45.01	287.00	270.00/M	249.00/M	ECQ-E1824KZ
	1.0	.669	.315	.551	.591	.0394	.0315	E1105-ND	.73	6.25	48.96	312.00	294.00/M	271.00/M	ECQ-E1105KZ
	1.2	.669	.335	.630	.591	.0394	.0315	E1125-ND	.84	7.22	56.59	360.00	340.00/M	313.00/M	ECQ-E1125KZ
	1.5	1.004	.295	.571	.886	.0394	.0315	E1155-ND	.98	8.43	66.06	421.00	397.00/M	365.00/M	ECQ-E1155KZ
	1.8	1.004	.335	.630	.886	.0394	.0315	E1185-ND	1.09	9.37	73.43	468.00	441.00/M	406.00/M	ECQ-E1185KZ
	2.2	1.004	.374	.650	.886	.0394	.0315	E1225-ND	1.24	10.62	83.17	530.00	499.00/M	460.00/M	ECQ-E1225KZ
	2.7	1.004	.394	.728	.886	.0394	.0315	E1275-ND	1.41	12.06	94.49	602.00	567.00/M	522.00/M	ECQ-E1275KZ
	3.3	1.004	.394	.748	.886	.0394	.0315	E1335-ND	1.79	15.36	120.28	.766.00	722.00/M	665.00/M	ECQ-E1335KZ
	3.9	1.201	.433	.709	1.083	.0591	.0315	E1395-ND	2.03	17.40	136.34	868.00	818.00/M	753.00/M	ECQ-E1395KZ
	4.7	1.201	.433	.807	1.083	.0591	.0315	E1475-ND	2.29	19.62	153.71	979.00	923.00/M	849.00/M	ECQ-E1475KZ
	5.6	1.201	.492	.827	1.083	.0591	.0315	E1565-ND	2.72	23.35	182.92	1165.00	1098.00/M	1011.00/M	ECQ-E1565KZ
	6.8	1.201	.512	.945	1.083	.0591	.0315	E1685-ND	3.09	26.51	207.66	1323.00	1246.00/M	1148.00/M	ECQ-E1685KZ
	8.2	1.201	.591	.984	1.083	.0591	.0315	E1825-ND	3.57	30.58	239.51	1526.00	1438.00/M	1324.00/M	ECQ-E1825KZ
	10.0	1.201	.630	1.063	1.083	.0591	.0315	E1106-ND	4.15	35.58	278.73	1776.00	1673.00/M	1540.00/M	ECQ-E1106KZ
250	.01	.492	.197	.335	.394	.0394	.0236	E2103-ND*	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2103KS
	.012	.492	.197	.335	.394	.0394	.0236	E2123-ND*	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2123KS
	.015	.492	.197	.335	.394	.0394	.0236	E2153-ND	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2153KS
	.018	.492	.197	.335	.394	.0394	.0236	E2183-ND	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2183KS
	.022	.492	.197	.335	.394	.0394	.0236	E2223-ND*	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2223KS
	.027	.492	.197	.335	.394	.0394	.0236	E2273-ND	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2273KS
	.033	.492	.197	.335	.394	.0394	.0236	E2333-ND*	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2333KS
	.039	.492	.197	.335	.394	.0394	.0236	E2393-ND	.26	2.25	17.63	112.00	106.00/M	97.00/M	ECQ-E2393KS
	.047	.492	.197	.315	.394	.0394	.0236	E2473-ND*	.22	1.85	14.48	92.00	87.00/M	80.00/M	ECQ-E2473KS
	.056	.492	.217	.335	.394	.0394	.0236	E2563-ND	.27	2.32	18.16	116.00	109.00/M	100.00/M	ECQ-E2563KS
	.068	.492	.217	.335	.394	.0394	.0236	E2683-ND*	.28	2.39	18.69	119.00	112.00/M	103.00/M	ECQ-E2683KS
	.082	.492	.217	.394	.394	.0394	.0236	E2823-ND	.29	2.49	19.48	124.00	117.00/M	108.00/M	ECQ-E2823KS
	.10	.492	.217	.413	.394	.0394	.0236	E2104-ND*	.26	2.22	17.37	111.00	104.00/M	96.00/M	ECQ-E2104KS
	.12	.689	.217	.394	591	.0394	.0315	E2124-ND	.34	2.89	22.64	144.00	136.00/M	125.00/M	ECQ-E2124KS
	.15	.689	.236	.413	.591	.0394	.0315	E2154-ND*	.36	3.12	24.48	156.00	147.00/M	135.00/M	ECQ-E2154KS
	.18	.689	.236	.413	.591	.0394	.0315	E2184-ND	.38	3.29	25.79	164.00	155.00/M	143.00/M	ECQ-E2184KS
	.22	.689	.236	.433	.591	.0394	.0315	E2224-ND*	.40	3.43	26.85	171.00	161.00/M	148.00/M	ECQ-E2224KS
	.27	.906	.236	.413	.787	.0394	.0315	E2274-ND	.46	3.96	31.06	198.00	186.00/M	172.00/M	ECQ-E2274KS
	.33	.906	.236	.433	.787	0394	.0315	E2334-ND*	.51	4.33	33.95	216.00	204.00/M	188.00/M	ECQ-E2334KS
	.39	.906	.256	.453	.787	.0394	.0315	E2394-ND	.54	4.67	36.58	233.00	220.00/M	202.00/M	ECQ-E2394KS
	.47	.906	.276	.472	.787	.0394	.0315	E2474-ND*	.58	5.01	39.22	250.00	235.00/M	217.00/M	ECQ-E2474KS
	.56	.906	.295	.512	.787	.0394	.0315	E2564-ND	.64	5.48	42.90	273.00	257.00/M	237.00/M	ECQ-E2564KS
	.68	.906	.335	.551	.787	.0394	.0315	E2684-ND	.71	6.05	47.38	302.00	284.00/M	262.00/M	ECQ-E2684KS
	.82	1.220	.295	.512	1.083	.0394	.0315	E2824-ND	.78	6.65	52.11	332.00	313.00/M	288.00/M	ECQ-E2824KS
	1.0	1.220	.335	.551	1.083	.0394	.0315	E2105-ND*	.82	7.06	55.27	352.00	332.00/M	305.00/M	ECQ-E2105KS
	1.2	1.220	.335	.630	1.083	.0394	0315	E2125-ND*	.90	7.73	60.54	386.00	363.00/M	335.00/M	ECQ-E2125KS
	1.5	1.220	.374	.669	1.083	0394	.0315	E2155-ND*	1.16	9.95	77.91	496.00	468.00/M	431.00/M	ECQ-E2155KS
	1.8	1.220	.374	.728	1.083	.0394	.0315	E2185-ND	1.40	12.00	93.96	599.00	564.00/M	519.00/M	ECQ-E2185KS
	2.2	1.220	.413	.768	1.083	.0394	.0315	E2225-ND*	1.41	12.06	94.49	602.00	567.00/M	522.00/M	ECQ-E2225KS
400	.01	.551	.197	.335	.413	.0394	.0236	E4103-ND	.35	3.02	23.69	151.00	142.00/M	131.00/M	ECQ-E4103KZ
	.012	.551	.217	.335	.413	.0394	.0236	E4123-ND	.35	3.02	23.69	151.00	142.00/M	131.00/M	ECQ-E4123KZ
	.015	.551	.197	.335	.413	.0394	.0236	E4153-ND	.36	3.12	24.48	156.00	147.00/M	135.00/M	ECQ-E4153KZ
	.018	.551	.217	.335	.413	.0394	.0236	E4183-ND	.36	3.12	24 48	156.00	147.00/M	135.00/M	ECQ-E4183KZ
	.022	.551	.217	.394	.413	.0394	.0236	E4223-ND	.37	3.16	24.74	158.00	148.00/M	137.00/M	ECQ-E4223KZ
	.027	.551	.217	.413	.413	.0394	.0236	E4273-ND	.39	3 36	26.32	168.00	158.00/M	145.00/M	ECQ-E4273KZ
	.033	.551	.236	.433	.413	.0394	.0236	E4333-ND	.41	3.53	27.64	176.00	166.00/M	153.00/M	ECQ-E4333KZ
	.039	.551	.256	.453	.413	.0394	.0236	E4393-ND	42	3.60	28.16	179.00	169.00/M	156.00/M	ECQ-E4393KZ
	.047	.551	.275	.472	.413	.0394	.0236	E4473-ND	.42	3.60	28.16	179.00	169.00/M	156.00/M	ECQ-E4473KZ
	.056	.669	.256	.433	.531	.0394	.0236	E4563-ND	.45	3.86	30.27	193.00	182.00/M	167.00/M	ECQ-E4563KZ
	.068	.669	.276	472	.531	.0394	.0236	E4683-ND	.48	4.10	32.11	205.00	193.00/M	177.00/M	ECQ-E4683KZ
	.082	.669	.295	.492	.531	.0394	.0236	E4823-ND	.50	4.27	33.43	213.00	201.00/M	185.00/M	ECQ-E4823KZ
	10	.669	.295	.571	.531	.0394	.0236	E4104-ND	.49	4.20	32.90	210.00	197.00/M	182.00/M	ECQ-E4104KZ
	.12	.669	.335	.610	.531	.0394	.0236	E4124-ND	.56	4.77	37.37	238.00	224.00/M	207.00/M	ECQ-E4124KZ
	.15	.669	.354	.650	.531	.0394	.0315	E4154-ND	.61	5.24	41.06	262.00	246.00/M	227.00/M	ECQ-E4154KZ
	.18	.669	.394	.670	.531	.0394	.0315	E4184-ND	.65	5.58	43.69	278.00	262.00/M	241.00/M	ECQ-E4184KZ
	.22	.965	.335	.610	.807	.0394	.0315	E4224-ND	.70	5.98	46.85	298.00	281.00/M	259.00/M	ECQ-E4224KZ
	.27	.965	.354	.650	.807	.0394	.0315	E4274-ND	.77	6.62	51.85	330.00	311.00/M	287.00/M	ECQ-E4274KZ
	.33	.965	.374	.669	.807	.0394	.0315	E4334-ND	.83	7.12	55 80	355.00	335 00/M	308.00/M	ECQ-E4334KZ
	.39	1.161	.374	.650	1.004	.0591	.0315	E4394-ND	.90	7.73	60.54	386.00	363.00/M	335.00/M	ECQ-E4394KZ
	.47	1.161	.394	.689	1.004	.0591	.0315	E4474-ND	.97	8.33	65 27	416.00	392.00/M	361.00/M	ECQ-E4474KZ
	.56	1.161	.433	.709	1.004	.0591	.0315	E4564-ND	1.06	9.11	71.33	454.00	428.00/M	394.00/M	ECQ-E4564KZ
	.68	1.161	.472	.748	1.004	.0591	.0315	E4684-ND	1.19	10.18	79.75	508.00	479.00/M	441.00/M	ECQ-E4684KZ
	.82	1.161	.512	.827	1.004	.0591	.0315	E4824-ND	1.30	11.12	87.12	555.00	523.00/M	481.00/M	ECQ-E4824KZ
	1.0	1.161	.591	.866	1.004	.0591	.0315	E4105-ND	1.42	12.16	95.28	607.00	572.00/M	527.00/M	ECQ-E4105KZ
	1.2	1.161	.591	.984	1.004	.0591	.0315	E4125-ND	2.00	17.17	134.50	857.00	807.00/M	743.00/M	ECQ-E4125KZ
	1.5	1.713	.512	.866	1.516	.0591	.0315	E4155-ND	2.16	18.48	144.76	922.00	869.00/M	800.00/M	ECQ-E4155KZ
	1.8	1.713	.571	.945	1 516	.0591	.0315	E4185-ND	2.56	21.91	171.61	1093.00	1030.00/M	948.00/M	ECQ-E4185KZ
	2.2	1.713	.630	1.004	1.516	.0591	.0315	E4225-ND	2.92	25.00	195.82	1247.00	1175.00/M	1082.00/M	ECQ-E4225KZ
630	.01	.551	.217	.335	.413	.0394	.0236	E6103-ND	.38	3.26	25.53	163.00	153.00/M	141.00/M	ECQ-E6103KZ
	.015	.551	.236	.413	.413	.0394	.0236	E6153-ND	.41	3.49	27 37	174.00	164.00/M	151.00/M	ECQ-E6153KZ
	.018	.551	.236	.433	.413	.0394	.0236	E6183-ND	.42	3.60	28.16	179.00	169.00/M	156.00/M	ECQ-E6183KZ
	.022	.551	.256	.472	.413	.0394	.0236	E6223-ND	.44	3.73	29.22	186.00	175.00/M	161.00/M	ECQ-E6223KZ
	.027	.669	.217	.492	.531	.0394	.0236	E6273-ND	.45	3.86	30.27	193.00	182.00/M	167.00/M	ECQ-E6273KZ
	.033	.669	.236	.472	.531	.0394	0236	E6333-ND	.47	4.00	31.32	200.00	188.00/M	173.00/M	ECQ-E6333KZ
	.039	.669	.256	.472	.531	.0394	.0236	E6393-ND	.48	4.10	32.11	205.00	193.00/M	177.00/M	ECQ-E6393KZ
	.047	.669	.276	.531	.531	.0394	.0236	E6473-ND	.49	4.20	32.90	210.00	197.00/M	182.00/M	ECQ-E6473KZ
	.056	.669	.295	.551	531	.0394	.0236	E6563-ND	.53	4.50	35.27	225.00	212.00/M	195.00/M	ECQ-E6563KZ
	.068	.669	.335	.591	.531	.0394	.0236	E6683-ND	.56	4.84	37.90	241.00	227.00/M	209.00/M	ECQ-E6683KZ
	.082	.669	.354	.630	.531	.0394	.0315	E6823-ND	.60	5.17	40.53	258.00	243.00/M	224.00/M	ECQ-E6823KZ
	.10	.965	.276	.551	.807	.0591	.0315	E6104-ND	.65	5.54	43.43	277.00	261.00/M	240.00/M	ECQ-E6104KZ
	.12	.965	.335	.610	.807	.0591	.0315	E6124-ND	.71	6.12	47.90	305.00	288.00/M	265.00/M	ECQ-E6124KZ
	.15	.965	.354	.650	.807	.0591	.0315	E6154-ND	.80	6.85	53.69	342.00	322.00/M	297.00/M	ECQ-E6154KZ
	.18	.965	.394	.669	.807	.0591	.0315	E6184-ND	.85	7.29	57.11	364.00	343.00/M	316.00/M	ECQ-E6184KZ
	.22	1.161	.374	.669	1.004	.0591	.0315	E6224-ND	.93	7.96	62.38	397.00	374.00/M	345.00/M	ECQ-E6224KZ
	.27	1.161	.413	.689	1.004	.0591	.0315	E6274-ND	1.05	8.97	70.27	448.00	422.00/M	388.00/M	ECQ-E6274KZ
	.33	1.161	.453	.728	1.004	.0591	.0315	E6334-ND	1.18	10.11	79.22	505.00	475.00/M	438.00/M	ECQ-E6334KZ
	.39	1.161	.472	.768	1.004	.0591	.0315	E6394-ND	1.28	10.99	86.07	548.00	517.00/M	476.00/M	ECQ-E6394KZ
	.47	1.161	.512	.807	1.004	.0591	.0315	E6474-ND	1.38	11.86	92.91	592.00	558.00/M	513.00/M	ECQ-E6474KZ
	.56	1.161	.591	.846	1.004	.0591	.0315	E6564-ND	1.64	14.04	110.02	701.00	660.00/M	608.00/M	ECQ-E6564KZ
	.68	1.713	.492	.768	1.516	.0591	.0315	E6684-ND	2.12	18.18	142.39	907.00	855.00/M	787.00/M	ECQ-E6684KZ
	.82	1.713	.551	.827	1.516	.0591	.0315	E6824-ND	2.33	19.96	156.34	996.00	938.00/M	864.00/M	ECQ-E6824KZ
	1.0	1.713	.571	.945	1.516	.0591	.0315	E6105-ND	2.83	24.23	189.77	1209.00	1139.00/M	1049.00/M	ECQ-E6105KZ
	1.2	1.713	.630	1.004	1.516	.0591	.0315	E6125-ND	2.97	25.47	199.51	1271.00	1197.00/M	1103.00/M	ECQ-E6125KZ
	1.5	1.713	.728	1.063	1.516	.0591	.0315	E6155-ND	3.63	31.11	243.72	1553.00	1463.00/M	1347.00/M	ECQ-E6155KZ

***E-KIT-ND** 10 each of all values denoted (except #E2104 which has 30 pcs.) - 170 total pcs. Notebook style storage case **$59.95**

Panasonic® Dry Film AC Capacitors

Stack Type

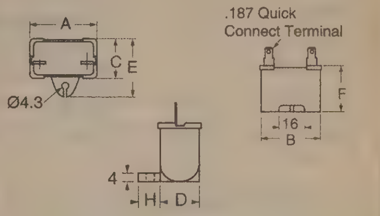
Panasonic's "stack type" construction offers significant reduction in case size (compared to oil-filled can type) with a built-in mounting foot. **Features:** • Compact size compared to oil-filled type capacitors. • 0.187 inch terminals standard (0.250 inch available). • 180, 200, 230 are standard voltages. • U.L. 810 (File # E76560) and C.S.A listed. (CSA-C22.2 No. 0-M91 File # LR99617) • JIS standard is available. (JIS C 4908). • Primary applications: refrigeration, motor run, lighting, etc. • Flame retardant plastice case is rated 94 V-0.



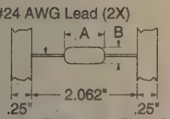
Voltage VAC	Cap. µF	Dimensions A	B	C	D	E	F	H	Digi-Key Part No	Pricing 1	10	100	500	Panasonic Part No.
Stack Type - SQ Case														
180	7.5	39.5	38.0	17.5	16.0	28.0	30.5	11.0	P9400-ND	3.38	27.00	229.50	1012.50	JSU18X755AQF
180	10	39.5	38.0	22.0	20.5	32.5	30.5	11.0	P9401-ND	4.03	32.20	273.70	1207.50	JSU18X106AQJ
180	12	39.5	38.0	22.0	20.5	34.2	32.0	13.0	P9402-ND	4.50	36.00	306.00	1350.00	JSU18X126AQH
180	15	39.5	38.0	26.7	25.2	37.0	32.0	11.0	P9403-ND	5.03	40.20	341.70	1507.50	JSU18X156AQP
180	20	39.5	38.0	26.7	25.2	37.0	41.0	11.0	P9404-ND	6.00	48.00	408.00	1800.00	JSU18X206AQD
210	10	39.5	38.0	22.0	20.5	34.2	32.0	13.0	P9405-ND	4.15	33.20	282.20	1245.00	JSU21X106AQB
210	12	39.5	38.0	26.7	25.2	37.0	32.0	11.0	P9406-ND	4.65	37.20	316.20	1395.00	JSU21X126AQE
210	15	39.5	38.0	26.7	25.2	37.0	32.0	11.0	P9407-ND	5.58	44.60	379.10	1672.50	JSU21X156AQH
230	10	39.5	38.0	22.0	20.5	34.2	32.0	13.0	P9408-ND	4.88	39.00	331.50	1462.50	JSU23X106AQC
230	12	39.5	38.0	26.7	25.2	37.0	32.0	11.0	P9409-ND	5.38	43.00	365.50	1612.50	JSU23X126AQE
230	15	39.5	38.0	26.7	25.2	37.0	41.0	11.0	P9410-ND	6.95	55.60	472.60	2085.00	JSU23X156AQE
Wound Type - Q Case														
250	10	49.7	48.3	24.0	22.5	34.5	34.5	11.5	P9411-ND	6.68	53.40	453.90	2002.50	SPU25X106AQSD
250	12	50.0	48.5	26.7	25.3	37.5	38.0	11.5	P9412-ND	7.60	60.80	516.80	2280.00	SPU25X126AQSA
250	15	50.0	48.5	30.5	28.8	41.0	36.0	11.5	P9413-ND	8.98	71.80	610.30	2692.50	SPU25X156AQSA

Wound Type

Panasonic's "wound type" construction brings dry film technology to higher voltage and microfarad applications, not available from our "stack type" construction. **Features:** • Replacement for typical oil-filled aluminum or plastic can capacitor. • Compact size —ideal where space is a premium. • Built-in mounting bracket eliminates need for mounting strap. • Meets U.L. 810 (File # E76560). • Primary applications: motor run, lighting, etc. • Terminals: 0.187 inch.



PHILIPS Axial Ceramic Capacitors



Taped and Reeled per EIA RS-296E

Size Code	A	B
15	.150"Max	.100"Max
20	.200"Max	.120"Max
29	.290"Max	.150"Max

MECHANICAL PARAMETERS:

Terminal Strength: 2.2 Kg (5 lbs) Minimum pull to destruction, per Method B5 of RS-198-CII, Test Condition A.

Lead Materials: #24 AWG (.020" ± 0.001") Tinned, Copper Clad Steel. 30% Conductivity. Temper: Soft; Tensile Strength: 65000 PSI Max.

Body: Conformally coated Epoxy.

ELECTRICAL PARAMETERS:

Capacitance: Measured @ 1Mhz @ 1.0 ± 0.2 VRMS @ 25°C for C0G types with C ≤ 1000pF. Measured @ Khz @ 1.0 ± 0.2 VRMS @ 25°C for C0G types with C > 1000pF. Measured @ 1Khz @ 1.0 VRMS ± .2 VRMS @ 25°C for X7R types. Measure @ 1Khz @ .5 VRMS ± .1 VRMS @ 25°C for Z5U types.

Dissipation Factor: .1% Maximum for C0G types, 2.5% Maximum for X7R types and 4.0% for Z5U types; Measurement conditions are the same as for Capacitance measurement.

Dielectric Strength: Parts are subjected for up to 5 seconds @ 25°C to 250% of Rated Voltage and will exhibit no evidence of breakdown.

Insulation Resistance: When measured @ 25°C and Rated Voltage, the following Minimum Values will be met: 100K MegΩ or 1000ΩF (whichever is less) for C0G and X7R types, 10K MegΩ or 1000ΩF (whichever is less) for Z5U types.

Body Insulation: 500VDC Minimum, in accordance with RS-198-CII.

Operating Temperature Range: -55°C to +125°C for C0G, -55°C to +125°C for X7R, -55°C to +85°C for Z5U

Packaging: Mono-Axial parts are supplied in tape and reel and form per EIA RS-296.

Type	Volt.	Cap.	Cap. Tol.(%)	Size Code	Digi-Key Part No.	Pricing 1	10	100	1000	Digi-Key Part No.	Tape & Reel Pricing 2500	5000	10,000	Philips Part No.
COG	100V	10pf	±5	15	1011PHCT-ND	.30	2.25	16.25	112.50	1011PHTR-ND	—	75.00/M	70.00/M	A100J15C0GHVVWA
		15pf	±5	15	1012PHCT-ND	.30	2.25	16.25	112.50	1012PHTR-ND	—	75.00/M	70.00/M	A150J15C0GHVVWA
		18pf	±5	15	1013PHCT-ND	.30	2.25	16.25	112.50	1013PHTR-ND	—	75.00/M	70.00/M	A180J15C0GHVVWA
		22pf	±5	15	1014PHCT-ND	.30	2.25	16.25	112.50	1014PHTR-ND	—	75.00/M	70.00/M	A220J15C0GHVVWA
		27pf	±5	15	1015PHCT-ND	.30	2.25	16.25	112 50	1015PHTR-ND	—	75.00/M	70.00/M	A270J15C0GHVVWA
		33pf	±5	15	1016PHCT-ND	.30	2.25	16.25	112.50	1016PHTR-ND	—	75.00/M	70.00/M	A330J15C0GHVVWA
		47pf	±5	15	1017PHCT-ND	.31	2.30	16.58	114.75	1017PHTR-ND	—	76.50/M	71.40/M	A470J15C0GHVVWA
		68pf	±5	15	1018PHCT-ND	.31	2.34	16.90	117.00	1018PHTR-ND	—	78.00/M	72.80/M	A680J15C0GHVVWA
		82pf	±5	15	1019PHCT-ND	.32	2.39	17.23	119.25	1019PHTR-ND	—	79.50/M	74.20/M	A820J15C0GHVVWA
	50V	100pf	±5	15	1001PHCT-ND	.32	2.39	17.23	119.25	1001PHTR-ND	—	79.50/M	74.20/M	A101J15C0GFVVWA
		150pf	±5	15	1002PHCT-ND	.34	2.52	18.20	126.00	1002PHTR-ND	—	84.00/M	78.40/M	A151J15C0GFVVWA
		180pf	±5	15	1003PHCT-ND	.34	2.52	18.20	126.00	1003PHTR-ND	—	84.00/M	78.40/M	A181J15C0GFVVWA
		220pf	±5	15	1004PHCT-ND	.34	2.52	18.20	126.00	1004PHTR-ND	—	84.00/M	78.40/M	A221J15C0GFVVWA
		330pf	±5	15	1005PHCT-ND	.34	2.52	18.20	126.00	1005PHTR-ND	—	84.00/M	78.40/M	A331J15C0GFVVWA
		390pf	±5	15	1006PHCT-ND	.34	2.52	18.20	126.00	1006PHTR-ND	—	84.00/M	78.40/M	A391J15C0GFVVWA
		470pf	±5	15	1007PHCT-ND	.34	2.52	18.20	126.00	1007PHTR-ND	—	84.00/M	78.40/M	A471J15C0GFVVWA
		560pf	±5	15	1008PHCT-ND	.34	2.52	18.20	126.00	1008PHTR-ND	—	84.00/M	78.40/M	A561J15C0GFVVWA
		680pf	±5	15	1009PHCT-ND	.34	2.52	18.20	126.00	1009PHTR-ND	—	84.00/M	78.40/M	A681J15C0GFVVWA
		1000pf	±5	15	1010PHCT-ND	.37	2.79	20.15	139.50	1010PHTR-ND	—	93.00/M	86.80/M	A102J15C0GFVVWA
X7R	100V	220pf	±10	15	1110PHCT-ND	.29	2.16	15.60	108.00	1110PHTR-ND	—	72.00/M	67.20/M	A221K15X7RHVVWA
		270pf	±10	15	1111PHCT-ND	.29	2.16	15.60	108.00	1111PHTR-ND	—	72.00/M	67.20/M	A271K15X7RHVVWA
		330pf	±10	15	1112PHCT-ND	.29	2.16	15.60	108.00	1112PHTR-ND	—	72.00/M	67.20/M	A331K15X7RHVVWA
		470pf	±10	15	1113PHCT-ND	.29	2.16	15.60	108.00	1113PHTR-ND	—	72.00/M	67.20/M	A471K15X7RHVVWA
		680pf	±10	15	1114PHCT-ND	.29	2.16	15.60	108.00	1114PHTR-ND	—	72.00/M	67.20/M	A681K15X7RHVVWA
		820pf	±10	15	1115PHCT-ND	.29	2.16	15.60	108.00	1115PHTR-ND	—	72.00/M	67.20/M	A821K15X7RHVVWA
		.001µf	±10	15	1116PHCT-ND	.29	2.16	15.60	108.00	1116PHTR-ND	—	72.00/M	67.20/M	A102K15X7RHVVWA
		.0012µf	±10	15	1117PHCT-ND	.29	2.16	15.60	108.00	1117PHTR-ND	—	72.00/M	67.20/M	A122K15X7RHVVWA
		.0015µf	±10	15	1118PHCT-ND	.29	2.16	15.60	108.00	1118PHTR-ND	—	72.00/M	67.20/M	A152K15X7RHVVWA
		.0022µf	±10	15	1119PHCT-ND	.29	2.16	15.60	108.00	1119PHTR-ND	—	72.00/M	67.20/M	A222K15X7RHVVWA
	50V	.0033µf	±10	15	1101PHCT-ND	.26	1.94	13.98	96.75	1101PHTR-ND	—	73.50/M	68.60/M	A332K15X7RFVVWA
		.0047µf	±10	15	1102PHCT-ND	.29	2.21	15.93	110.25	1102PHTR-ND	—	73.50/M	68.60/M	A472K15X7RFVVWA
		.01µf	±10	15	1103PHCT-ND	.19	1.40	10.08	69.75	1103PHTR-ND	—	46.50/M	43.40/M	A103K15X7RFVVWA
		.015µf	±10	15	1104PHCT-ND	.34	2.52	18.20	126.00	1104PHTR-ND	—	84.00/M	78.40/M	A153K15X7RFVVWC
		.022µf	±10	15	1105PHCT-ND	.37	2.79	20.15	139.50	1105PHTR-ND	—	93.00/M	86.80/M	A223K15X7RFVVWE
		.033µf	±10	15	1106PHCT-ND	.40	3.02	21.78	150.75	1106PHTR-ND	—	100.50/M	93.80/M	A333K15X7RFVVWG
		.047µf	±10	20	1107PHCT-ND	.41	3.11	22.43	155.25	1107PHTR-ND	—	103.50/M	96.60/M	A473K20X7RFVVWJ
		.056µf	±10	20	1108PHCT-ND	.45	3.38	24.38	168.75	1108PHTR-ND	—	112.50/M	105.00/M	A563K20S7RFVVWK
		.1µf	±10	29	1109PHCT-ND	.54	4.05	29.25	202.50	1109PHTR-ND	—	135.00/M	126.00/M	A104K29X7RFVVWN
Z5U	50V	.01µf	±20	15	1206PHCT-ND	.18	1.35	9.75	67.50	1206PHTR-ND	—	45.00/M	42.00/M	A103M15Z5UFVVWA
		.01µf	+80, -20	15	1201PHCT-ND	.18	1.35	9.75	67.50	1201PHTR-ND	—	45.00/M	42.00/M	A103Z15Z5UFVVWA
		.022µf	±20	15	1207PHCT-ND	.22	1.62	11.70	81.00	1207PHTR-ND	—	54.00/M	50.40/M	A223M15Z5UFVVWE
		.033µf	±20	15	1208PHCT-ND	.22	1.62	11.70	81.00	1208PHTR-ND	—	54.00/M	50.40/M	A333M15Z5UFVVWG
		.047µf	±20	15	1209PHCT-ND	.23	1.71	12.35	85.50	1209PHTR-ND	—	57.00/M	53.20/M	A473M15Z5UFVVWJ
		.047µf	+80, -20	15	1202PHCT-ND	.22	1.62	11.70	81.00	1202PHTR-ND	—	54.00/M	50.40/M	A473Z15Z5UFVVWJ
		.1µf	±20	15	1210PHCT-ND	.18	1.35	9.75	67.50	1210PHTR-ND	—	45.00/M	42.00/M	A104M15Z5UFVVWN
		.1µf	+80, -20	15	1203PHCT-ND	.18	1.35	9.75	67.50	1203PHTR-ND	—	45.00/M	42.00/M	A104Z15Z5UFVVWN
		.22µf	±20	20	1211PHCT-ND	.47	3.56	25.68	177.75	1211PHTR-ND	—	118.50/M	110.60/M	A224M20Z5UFVVWT
		.22µf	+80, -20	20	1204PHCT-ND	.46	3.47	25.03	173.25	1204PHTR-ND	—	115.50/M	107.80/M	A224Z20Z5UFVVWT
		.27µf	+80, -20	29	1212PHCT-ND	.46	3.47	25.03	173.25	1212PHTR-ND	—	115.50/M	107.80/M	A274Z29Z5UFVVWV
		.33µf	±20	29	1213PHCT-ND	.48	3.60	26.00	180.00	1213PHTR-ND	132.80/M	120.00/M	112.00/M	A334M29Z5UFVVWW
		.33µf	+80, -20	29	1205PHCT-ND	.47	3.51	25.35	175.50	1205PHTR-ND	—	117.00/M	109.20/M	A334Z29Z5UFVVWW
		.47µf	+80, -20	29	1214PHCT-ND	.89	6.71	48.43	335.25	1214PHTR-ND	—	223.50/M	208.60/M	A474Z20Z5UFVVWY

Panasonic Monolithic Ceramic Capacitors

Type C0G, X7R, Z5U

Features:

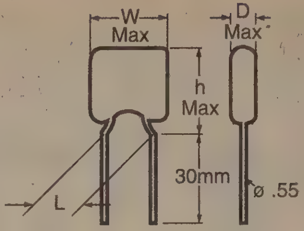
- High capacitance per unit volume.
- Suitable for automatic assembly in accordance with IEC standard.
- High reliability and damp heat resistance.
- Non-polar.
- Low-loss.
- Pulse strength.

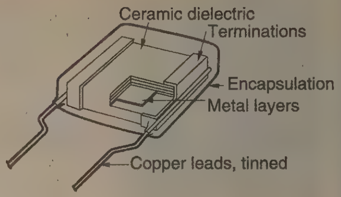
Applications:

- Data processing.
- Communications engineering.
- Measuring and control equipment.
- Photo industry.
- Entertainment industry.
- Medical engineering.
- Automotive electronic systems.

Temperature Range:

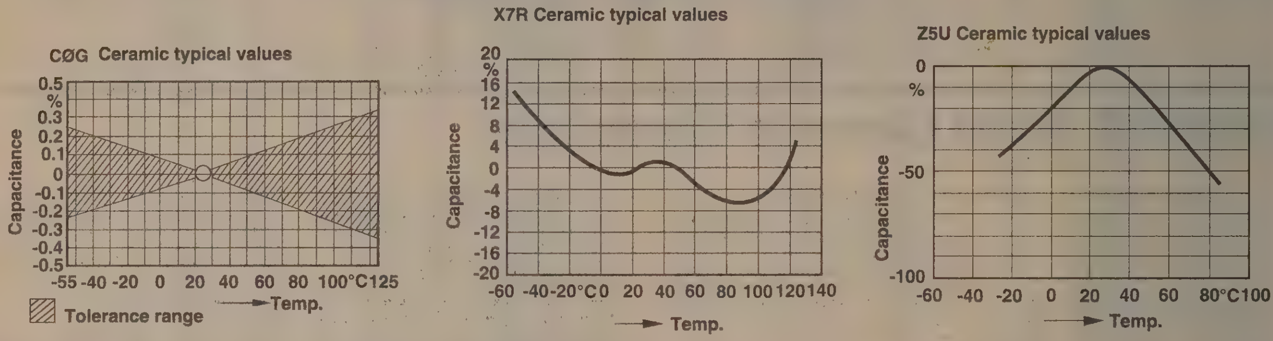
C0G/X7R: -55 to +125°C.
Z5U: -25 to +85°C.





Marking: Rated capacitance, tolerance, manufacturer's logo, ceramic material, voltage

Capacitance Change vs. Temperature



Type	VDC	Cap.	Dimensions (mm) W*	D*	H*	L	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
C0G ±5%	63	100pf	5.0	2.5	5.5	2.54	P4800-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J101JCA
	63	120pf	5.0	2.5	5.5	2.54	P4801-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J121JCA
	63	150pf	5.0	2.5	5.5	2.54	P4802-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J151JCA
	63	180pf	5.0	2.5	5.5	2.54	P4803-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J181JCA
	63	220pf	5.0	2.5	5.5	2.54	P4804-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J221JCA
	63	270pf	5.0	2.5	5.5	2.54	P4805-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J271JCA
	63	330pf	5.0	2.5	5.5	2.54	P4806-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S1J331JCA
	63	390pf	5.0	2.5	5.5	2.54	P4807-ND	.21	1.84	14.13	84.00	80.00/M	73.00/M	ECU-S1J391JCA
	63	470pf	5.0	2.5	5.5	2.54	P4808-ND	.21	1.84	14.13	84.00	80.00/M	73.00/M	ECU-S1J471JCA
	63	560pf	5.0	2.5	5.5	2.54	P4809-ND	.21	1.84	14.13	84.00	80.00/M	73.00/M	ECU-S1J561JCA
	63	680pf	5.0	3.1	6.5	5.08	P4810-ND	.27	2.31	17.80	106.00	101.00/M	92.00/M	ECU-S1J681JCB
	63	820pf	5.0	3.1	6.5	5.08	P4811-ND	.27	2.31	17.80	106.00	101.00/M	92.00/M	ECU-S1J821JCB
	63	1000pf	5.0	3.1	6.5	5.08	P4812-ND	.27	2.31	17.80	106.00	101.00/M	92.00/M	ECU-S1J102JCB
	63	1200pf	5.0	3.1	6.5	5.08	P4813-ND	.32	2.79	21.47	128.00	121.00/M	111.00/M	ECU-S1J122JCB
	63	1500pf	5.0	3.1	6.5	5.08	P4814-ND	.32	2.79	21.47	128.00	121.00/M	111.00/M	ECU-S1J152JCB
	63	1800pf	5.0	3.1	6.5	5.08	P4815-ND	.39	3.42	26.27	157.00	148.00/M	136.00/M	ECU-S1J182JCB
	63	2200pf	5.0	3.1	6.5	5.08	P4816-ND	.39	3.42	26.27	157.00	148.00/M	136.00/M	ECU-S1J222JCB
	63	2700pf	5.0	3.1	6.5	5.08	P4817-ND	.53	4.55	35.03	209.00	198.00/M	181.00/M	ECU-S1J272JCB
	63	3300pf	5.0	3.1	6.5	5.08	P4818-ND	.53	4.55	35.03	209.00	198.00/M	181.00/M	ECU-S1J332JCB
	63	4700pf	5.0	3.1	6.5	5.08	P4820-ND	.64	5.58	42.94	256.00	242.00/M	222.00/M	ECU-S1J472JCB
	63	5600pf	7.5	3.8	9.0	5.08	P4821-ND	1.13	9.77	75.15	448.00	424.00/M	389.00/M	ECU-S1J562JCB
	63	6800pf	7.5	3.8	9.0	5.08	P4822-ND	1.13	9.77	75.15	448.00	424.00/M	389.00/M	ECU-S1J682JCB
	63	8200pf	7.5	3.8	9.0	5.08	P4823-ND	1.33	11.53	88.71	529.00	501.00/M	459.00/M	ECU-S1J822JCB
	63	.01µf	7.5	3.8	9.0	5.08	P4824-ND	1.33	11.53	88.71	529.00	501.00/M	459.00/M	ECU-S1J103JCB
	63	.012µf	7.5	3.8	9.0	5.08	P4825-ND	1.86	16.09	123.74	738.00	699.00/M	641.00/M	ECU-S1J123JCB
	63	.018µf	7.5	3.8	9.0	5.08	P4827-ND	2.62	22.70	174.59	1041.00	986.00/M	904.00/M	ECU-S1J183JCB
	63	.027µf	7.5	3.8	9.0	5.08	P4829-ND	3.63	31.44	241.82	1441.00	1366.00/M	1252.00/M	ECU-S1J273JCB
	63	.033µf	10.0	5.0	11.5	5.08	P4830-ND	3.87	33.53	257.92	1537.00	1456.00/M	1335.00/M	ECU-S1J333JCB
	63	.039µf	10.0	5.0	11.5	5.08	P4831-ND	5.16	44.73	344.09	2051.00	1943.00/M	1781.00/M	ECU-S1J393JCB
C0G ±.5pF	100	4.7pf	5.0	2.5	5.5	2.54	P4833-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A4R7DCA
	100	8.2pf	5.0	2.5	5.5	2.54	P4836-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A8R2DCA
C0G ±5%	100	10pf	5.0	2.5	5.5	2.54	P4837-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A100JCA
	100	12pf	5.0	2.5	5.5	2.54	P4838-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A120JCA
	100	15pf	5.0	2.5	5.5	2.54	P4839-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A150JCA
	100	18pf	5.0	2.5	5.5	2.54	P4840-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A180JCA
	100	22pf	5.0	2.5	5.5	2.54	P4841-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A220JCA
	100	27pf	5.0	2.5	5.5	2.54	P4842-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A270JCA

* Max Dimensions. Actual Dimensions may be smaller.

Type	VDC	Cap.	Dimensions (mm)				Digi-Key	Pricing						Panasonic
			W*	D*	H*	L	Part No.	1	10	100	1,000	5,000	10,000	Part No.
C0G ±5%	100	33pf	5.0	2.5	5.5	2.54	P4843-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A330JCA
	100	39pf	5.0	2.5	5.5	2.54	P4844-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A390JCA
	100	47pf	5.0	2.5	5.5	2.54	P4845-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A470JCA
	100	56pf	5.0	2.5	5.5	2.54	P4846-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A560JCA
	100	68pf	5.0	2.5	5.5	2.54	P4847-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A680JCA
	100	82pf	5.0	2.5	5.5	2.54	P4848-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A820JCA
	100	100pf	5.0	2.5	5.5	2.54	P4849-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A101JCA
	100	120pf	5.0	2.5	5.5	2.54	P4850-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A121JCA
	100	150pf	5.0	2.5	5.5	2.54	P4851-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A151JCA
	100	180pf	5.0	2.5	5.5	2.54	P4852-ND	.18	1.58	12.15	72.00	69.00/M	63.00/M	ECU-S2A181JCA
	100	220pf	5.0	3.1	6.5	5.08	P4853-ND	.26	2.28	17.52	104.00	99.00/M	91.00/M	ECU-S2A221JCB
	100	270pf	5.0	3.1	6.5	5.08	P4854-ND	.26	2.28	17.52	104.00	99.00/M	89.00/M	ECU-S2A271JCB
	100	330pf	5.0	3.1	6.5	5.08	P4855-ND	.26	2.28	17.52	104.00	99.00/M	91.00/M	ECU-S2A331JCB
	100	390pf	5.0	3.1	6.5	5.08	P4856-ND	.26	2.28	17.52	104.00	99.00/M	91.00/M	ECU-S2A391JCB
	100	470pf	5.0	3.1	6.5	5.08	P4857-ND	.26	2.28	17.52	104.00	99.00/M	91.00/M	ECU-S2A471JCB
	100	560pf	5.0	3.1	6.5	5.08	P4858-ND	.29	2.50	19.21	115.00	108.00/M	99.00/M	ECU-S2A561JCB
	100	680pf	5.0	3.1	6.5	5.08	P4859-ND	.29	2.50	19.21	115.00	108.00/M	99.00/M	ECU-S2A681JCB
	100	820pf	5.0	3.1	6.5	5.08	P4860-ND	.33	2.90	22.32	133.00	126.00/M	116.00/M	ECU-S2A821JCB
	100	1000pf	5.0	3.1	6.5	5.08	P4861-ND	.33	2.90	22.32	133.00	126.00/M	116.00/M	ECU-S2A102JCB
	100	1200pf	5.0	3.1	6.5	5.08	P4862-ND	.40	3.49	26.84	160.00	152.00/M	139.00/M	ECU-S2A122JCB
	100	1500pf	5.0	3.1	6.5	5.08	P4863-ND	.40	3.49	26.84	160.00	152.00/M	139.00/M	ECU-S2A152JCB
	100	1800pf	7.5	3.8	9.0	5.08	P4864-ND	.81	6.98	53.68	320.00	303.00/M	278.00/M	ECU-S2A182JCB
	100	2200pf	7.5	3.8	9.0	5.08	P4865-ND	.81	6.98	53.68	320.00	303.00/M	278.00/M	ECU-S2A222JCB
	100	2700pf	7.5	3.8	9.0	5.08	P4866-ND	.93	8.04	61.87	369.00	349.00/M	320.00/M	ECU-S2A272JCB
	100	3300pf	7.5	3.8	9.0	5.08	P4867-ND	.93	8.04	61.87	369.00	349.00/M	320.00/M	ECU-S2A332JCB
	100	5600pf	7.5	3.8	9.0	5.08	P4870-ND	1.33	11.53	88.71	529.00	501.00/M	459.00/M	ECU-S2A562JCB
	100	8200pf	7.5	3.8	9.0	5.08	P4872-ND	2.06	17.81	137.01	817.00	774.00/M	709.00/M	ECU-S2A822JCB
	100	.012µf	10.0	5.0	11.5	5.08	P4874-ND	2.98	25.85	198.88	1185.00	1123.00/M	1029.00/M	ECU-S2A123JCB
	100	.015µf	10.0	5.0	11.5	5.08	P4875-ND	3.26	28.22	217.07	1294.00	1226.00/M	1124.00/M	ECU-S2A153JCB
	100	.018µf	10.0	5.0	11.5	5.08	P4876-ND	4.15	35.99	276.85	1650.00	1563.00/M	1433.00/M	ECU-S2A183JCB
	100	.022µf	10.0	5.0	11.5	5.08	P4877-ND	4.15	35.99	276.85	1650.00	1563.00/M	1433.00/M	ECU-S2A223JCB
X7R ±10%	63	3300pf	5.0	2.5	5.5	2.54	P4878-ND	.18	1.59	12.22	73.00	69.00/M	63.00/M	ECU-S1J332KBA
	63	4700pf	5.0	2.5	5.5	2.54	P4879-ND	.18	1.59	12.22	73.00	69.00/M	63.00/M	ECU-S1J472KBA
	63	6800pf	5.0	2.5	5.5	2.54	P4880-ND	.18	1.59	12.22	73.00	69.00/M	63.00/M	ECU-S1J682KBA
	63	.010µf	5.0	2.5	5.5	2.54	P4881-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S1J103KBA
	63	.015µf	5.0	2.5	5.5	2.54	P4882-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S1J153KBA
	63	.022µf	5.0	2.5	5.5	2.54	P4883-ND	.19	1.65	12.71	76.00	72.00/M	66.00/M	ECU-S1J223KBA
	63	.033µf	5.0	2.5	5.5	5.08	P4884-ND	.24	2.06	15.82	94.00	89.00/M	82.00/M	ECU-S1J333KBB
	63	.047µf	5.0	2.5	5.5	5.08	P4885-ND	.24	2.06	15.82	94.00	89.00/M	82.00/M	ECU-S1J473KBB
	63	.068µf	5.0	2.5	5.5	5.08	P4886-ND	.28	2.42	18.65	111.00	105.00/M	97.00/M	ECU-S1J683KBB
	63	.10µf	5.0	2.5	5.5	5.08	P4887-ND	.32	2.79	21.47	128.00	121.00/M	111.00/M	ECU-S1J104KBB
	63	.15µf	5.0	2.5	5.5	5.08	P4888-ND	.46	3.97	30.51	182.00	172.00/M	158.00/M	ECU-S1J154KBB
	63	.22µf	7.5	3.8	9.0	5.08	P4889-ND	.76	6.61	50.85	303.00	287.00/M	263.00/M	ECU-S1J224KBB
	63	.33µf	7.5	3.8	9.0	5.08	P4890-ND	.94	8.12	62.43	372.00	353.00/M	323.00/M	ECU-S1J334KBB
	63	.47µf	7.5	3.8	9.0	5.08	P4891-ND	1.21	10.47	80.51	480.00	455.00/M	417.00/M	ECU-S1J474KBB
	63	.68µf	7.5	3.8	9.0	5.08	P4892-ND	1.67	14.51	111.59	665.00	630.00/M	578.00/M	ECU-S1J684KBB
	63	1.0µf	10.0	5.0	11.5	5.08	P4893-ND	2.47	21.37	164.42	980.00	928.00/M	851.00/M	ECU-S1J105KBB
	100	220pf	5.0	2.5	5.5	2.54	P4894-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A221KBA
	100	470pf	5.0	2.5	5.5	2.54	P4896-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A471KBA
	100	680pf	5.0	2.5	5.5	2.54	P4897-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A681KBA
	100	1000pf	5.0	2.5	5.5	2.54	P4898-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A102KBA
	100	1500pf	5.0	2.5	5.5	2.54	P4899-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A152KBA
	100	2200pf	5.0	2.5	5.5	2.54	P4900-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A222KBA
	100	3300pf	5.0	2.5	5.5	2.54	P4901-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A332KBA
	100	4700pf	5.0	2.5	5.5	2.54	P4902-ND	.17	1.47	11.30	67.00	64.00/M	58.00/M	ECU-S2A472KBA
	100	6800pf	5.0	3.1	6.5	2.54	P4903-ND	.21	1.84	14.13	84.00	80.00/M	73.00/M	ECU-S2A682KBA
	100	.010µf	5.0	3.1	6.5	2.54	P4904-ND	.21	1.84	14.13	84.00	80.00/M	73.00/M	ECU-S2A103KBA
	100	.015µf	5.0	3.1	6.5	2.54	P4905-ND	.21	1.84	14.13	84.00	80.00/M	73.00/M	ECU-S2A153KBA
	100	.022µf	5.0	3.1	6.5	2.54	P4906-ND	.23	1.98	15.26	91.00	86.00/M	79.00/M	ECU-S2A223KBA
	100	.033µf	5.0	3.1	6.5	2.54	P4907-ND	.26	2.28	17.52	104.00	99.00/M	91.00/M	ECU-S2A333KBA
	100	.047µf	5.0	3.1	6.5	2.54	P4908-ND	.30	2.61	20.06	120.00	113.00/M	104.00/M	ECU-S2A473KBA
	100	.068µf	5.0	3.1	6.5	2.54	P4909-ND	.35	3.01	23.17	138.00	131.00/M	120.00/M	ECU-S2A683KBA
	100	.10µf	5.0	3.1	6.5	2.54	P4910-ND	.43	3.75	28.82	172.00	163.00/M	149.00/M	ECU-S2A104KBA
	100	.15µf	7.5	3.8	9.0	5.08	P4911-ND	.80	6.90	53.11	317.00	300.00/M	275.00/M	ECU-S2A154KBB
Z5U ±20%	63	.010µf	5.0	2.5	5.5	2.54	P4914-ND	.15	1.32	10.17	61.00	57.00/M	53.00/M	ECU-S1J103MEA
	63	.022µf	5.0	2.5	5.5	2.54	P4915-ND	.15	1.32	10.17	61.00	57.00/M	53.00/M	ECU-S1J223MEA
	63	.047µf	5.0	2.5	5.5	2.54	P4916-ND	.18	1.54	11.87	71.00	67.00/M	61.00/M	ECU-S1J473MEA
	63	.10µf	5.0	3.1	6.5	2.54	P4917-ND	.21	1.80	13.84	83.00	78.00/M	72.00/M	ECU-S1J104MEA
	63	.22µf	5.0	3.1	6.5	2.54	P4918-ND	.32	2.79	21.47	128.00	121.00/M	111.00/M	ECU-S1J224MEA
	63	.47µf	7.5	3.8	9.0	5.08	P4919-ND	.64	5.51	42.38	253.00	239.00/M	219.00/M	ECU-S1J474MEB
	63	1.0µf	7.5	3.8	9.0	5.08	P4920-ND	.93	8.04	61.87	369.00	349.00/M	320.00/M	ECU-S1J105MEB
	63	2.2µf	10.0	5.0	11.5	5.08	P4921-ND	2.57	22.26	171.20	1020.00	967.00/M	886.00/M	ECU-S1J225MEB

* Max Dimensions. Actual Dimensions may be smaller.

Panasonic® Ceramic Disc Capacitors

Class 1

Temperature Compensating 50 VDC, 500 VDC

Features: • Wide product range for temperature compensation • Liner temperature coefficient of capacitance • High stability of capacitance and close tolerance • Low loss at wide range of frequency.

Applications: • Temperature compensation of resonant circuit and filters • Where low losses and high stability of capacitance tolerance and high insulation resistance are required

Specifications: Operating Temperature Range; -25 to 85°C • Rated Voltage; 50 VDC, 500 VDC • Dielectric Withstanding Voltage; 300% of the rated voltage for 1 to 5 seconds - No damage occurs when the test voltage is applied between terminals • Capacitance; measured at 1 MHz±20%, 5 Vrms. max. and 20°C - Within the specified tolerance Standard capacitance tolerance; ±0.25 pF (1 to 5 pF), ±0.5 pF (1 to 10 pF), ±1 pF (10pF), ±5% (Over 10 pF NPO), ±10% (Over 10 pF GP) • Q Factor ; Cap. <30 pF: Q≥400+20XC (c: Rated capacitance in pF), Cap≥30 pF: Q≥1000. • Insulation Resistance; Measured at the rated voltage and 1 minute electrification - I.R. ≥ 10000 MΩ. • Temperature Coefficient of Capacitance; Temperature Range: -25 to 85°C, Reference Temperature; 20°C, T.C. = $\frac{\Delta C}{C_{20} \times \Delta T}$

Where: C20: Capacitance value in pF at the specified reference temperature of 20 °C. △C: Capacitance drifts in pF from the capacitance value at 20 °C. △T: The specified temperature range to be measured in °C.

Capacitance (pF)	Rated temperature Coefficient (ppm/°C)	
	NPO	GP
1 to 2	±250	+350
3	±120	to
4 and above	±60	-1000

Class 2

High Dielectric Constant 25V DC, 50 V DC, 500 V DC

Features: • Large capacitance in small size • Minimum coating resin on leads

Applications: • Coupling and By-pass, where low losses and high stability of capacitance are not so important

Specifications: • Operating Temperature Range; -25 to 85°C • Rated Voltage; 25 VDC, 50VDC, 500VDC • Dielectric Withstanding Voltage; 250% of the rated voltage for 1 to 5 seconds - no damage occurs when the test voltage is applied between terminals • Capacitance; measured at 1 kHz±10 %, 1 Vrms and 20 °C - within the specified tolerance; standard capacitance tolerance [Y5P]; ±10% [Y5V, Z4V]: +80/-20% • Dissipation Factor; [Y5P]: D.F.≤ 0.025 [Y5V, Z4V]: D.F.≤0.05 • Insulation Resistance; measured at the rated voltage and 1 minute electrification - C≤0.02 µF: I.R. ≥ 10000 MΩ - C>0.02 µF: CR products ≥ 200 MΩ • µF • Temperature Characteristics:

$$\text{Cap. Change} = \frac{\Delta C}{C20} \times 100\%$$

Where C20: Capacitance value in pF at the specified reference temperature of 20 °C.

△C: Capacitance drifts in pF from the capacitance value at 20 °C over the specified temperature range.

Temp. Char.	Max. Cap. Change	Temp. Range
Y5P	± 10%	-25 to 85 °C
Y5V	+30/-80%	-25 to 85 °C
Z4V	+30/-80%	0 to 70 °C

Type RS Class 1 Safety

Ceramic disc capacitors, Type RS, are recognized by the following safety regulations: • UL1414 (125 VAC) and CSA (125 VAC) • European safety regulations for "Class I" equipment: VDE, SEV, BSI, SEMKO, FIMKO, NEMKO and DEMKO.

Specifications:

Operating Temperature Range	-25 to 85 °V		
Rated Voltage	Applicable Standards	Rated Voltage	
	UL, CSA	125 VAC	
	VDE (565-1)	250 VAC	
	VDE (560-2), FIMKO, SEV, BS, SEMKO, NEMKO, DEMKO	400 VAC,	
Dileletric Withstanding Voltage	T.C.	Voltage	
	B, E	2600 VAC for 1 min	
	V	2500 VAC for 1 min	
Capacitance	Within the tolerance, when measured at 1 kHz, 5 Vrms max. and 20°C		
Dissipation Factor	B, E: 0.025 max. V: 0.05 max when measured at 1 kHz, 5 Vrms max. and 20°C		
Insulation Resistance	10000 MΩ min. at 500 VDC, 1 minute		
Temperature Characteristics	T.C.	Cap. Change	Temp. Range
	B	±10% max.	-25 to 85°C
	E	+20/-55% max	-25 to 85°C
	V	+30/-80% max	0 to 70°C
	The reference temperature: 20°C		

Voltage	Capacitance	Tolerance	Temp. Char.	Dimensions (mm) Dia.	Thickness	Lead Space	Digi-Key Part No.	Pricing 10	100	1,000	5,000	10,000	25,000	Panasonic Part No.
Class 1 Temperature Compensating														
50	10pf	±0.5pf	GP	5.0	3.5	2.5	P4012A-ND	.63	4.93	26.00	25.00/M	24.00/M	22.00/M	ECC-F1H100D
50	12pf	±5%	GP	5.0	3.5	2.5	P4013A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H120J
50	15pf	±5%	GP	5.0	3.5	2.5	P4014A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H150J
50	18pf	±5%	GP	5.0	3.5	2.5	P4015A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H180J
50	22pf	±5%	GP	5.0	3.5	2.5	P4016A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H220J
50	27pf	±5%	GP	5.0	3.5	2.5	P4017A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H270J
50	33pf	±5%	GP	5.0	3.5	2.5	P4018A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H330J
50	39pf	±5%	GP	5.0	3.5	2.5	P4019A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H390J
50	47pf	±5%	GP	5.0	3.5	2.5	P4020A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H470J
50	56pf	±5%	GP	5.0	3.5	2.5	P4021A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H560J
50	68pf	±5%	GP	5.0	3.5	2.5	P4022A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H680J
50	82pf	±5%	GP	5.0	3.5	2.5	P4023A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H820J
50	100pf	±5%	GP	5.0	3.5	2.5	P4024A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H101J
50	120pf	±5%	GP	5.0	3.5	2.5	P4025A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H121J
50	150pf	±5%	GP	5.0	3.5	2.5	P4026A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H151J
50	180pf	±5%	GP	5.0	3.5	2.5	P4027A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H181J
50	220pf	±5%	GP	6.5	3.5	5.0	P4028A-ND	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECC-F1H221J
50	270pf	±5%	GP	6.5	3.5	5.0	P4029A-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECC-F1H271J
50	330pf	±5%	GP	6.5	3.5	5.0	P4030A-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECC-F1H331J
50	390pf	±5%	GP	8.0	3.5	5.0	P4031A-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECC-F1H391J
50	470pf	±5%	GP	8.0	3.5	5.0	P4032A-ND	.94	7.39	40.00	38.00/M	35.00/M	33.00/M	ECC-F1H471J
50	560pf	±5%	GP	9.5	3.5	5.0	P4033A-ND	.94	7.39	40.00	38.00/M	35.00/M	33.00/M	ECC-F1H561J
50	680pf	±5%	GP	9.5	3.5	5.0	P4034A-ND	.94	7.39	40.00	38.00/M	35.00/M	33.00/M	ECC-F1H681J
50	820pf	±5%	GP	10.5	3.5	5.0	P4035A-ND	.94	7.39	40.00	38.00/M	35.00/M	33.00/M	ECC-F1H821J
50	1000pf	±5%	GP	10.5	3.5	5.0	P4036A-ND	1.65	12.94	69.00	67.00/M	62.00/M	57.00/M	ECC-F1H102J
50	10pf	±0.5pf	NPO	5.0	3.5	2.5	P4444A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H100DC
50	12pf	±5%	NPO	5.0	3.5	2.5	P4445A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H120JC
50	15pf	±5%	NPO	5.0	3.5	2.5	P4446A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H150JC
50	18pf	±5%	NPO	5.0	3.5	2.5	P4447A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H180JC
50	22pf	±5%	NPO	5.0	3.5	2.5	P4448A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H220JC
50	27pf	±5%	NPO	5.0	3.5	2.5	P4449A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H270JC
50	33pf	±5%	NPO	5.0	3.5	2.5	P4450A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H330JC
50	39pf	±5%	NPO	5.0	3.5	2.5	P4451A-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECC-F1H390JC
50	47pf	±5%	NPO	5.0	3.5	2.5	P4452A-ND	1.76	13.86	74.00	72.00/M	66.00/M	61.00/M	ECC-F1H470JC4
50	56pf	±5%	NPO	6.5	3.5	5.0	P4453A-ND	1.76	13.86	74.00	72.00/M	66.00/M	61.00/M	ECC-F1H560JC
50	68pf	±5%	NPO	6.5	3.5	5.0	P4454A-ND	1.76	13.86	74.00	72.00/M	66.00/M	61.00/M	ECC-F1H680JC
50	82pf	±5%	NPO	6.5	3.5	5.0	P4455A-ND	1.76	13.86	74.00	72.00/M	66.00/M	61.00/M	ECC-F1H820JC4
50	100pf	±5%	NPO	6.5	3.5	5.0	P4456A-ND	2.12	16.63	89.00	86.00/M	80.00/M	73.00/M	ECC-F1H101JC4
50	120pf	±5%	NPO	8.0	3.5	5.0	P4457A-ND	2.12	16.63	89.00	86.00/M	80.00/M	73.00/M	ECC-F1H121JC4
50	150pf	±5%	NPO	8.0	3.5	5.0	P4458A-ND	2.35	18.48	99.00	95.00/M	88.00/M	81.00/M	ECC-F1H151JC4
50	180pf	±5%	NPO	9.5	3.5	5.0	P4459A-ND	2.35	18.48	99.00	95.00/M	88.00/M	81.00/M	ECC-F1H181JC4
50	220pf	±5%	NPO	9.5	3.5	5.0	P4460A-ND	2.35	18.48	99.00	95.00/M	88.00/M	81.00/M	ECC-F1H221JC4
50	270pf	±5%	NPO	10.5	3.5	5.0	P4461A-ND	2.35	18.48	99.00	95.00/M	88.00/M	81.00/M	ECC-F1H271JC4
500	10pf	±10%	GP	6.0	3.5	5.0	P4000A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H100F5
500	15pf	±10%	GP	6.0	3.5	5.0	P4002A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H150K5
500	18pf	±10%	GP	6.0	3.5	5.0	P4003A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H180K5
500	22pf	±10%	GP	6.0	3.5	5.0	P4004A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H220K5
500	27pf	±10%	GP	6.0	3.5	5.0	P4005A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H270K5
500	33pf	±10%	GP	6.0	3.5	5.0	P4006A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H330K5
500	39pf	±10%	GP	6.0	3.5	5.0	P4007A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H390K5
500	47pf	±10%	GP	6.0	3.5	5.0	P4008A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H470K5
500	56pf	±10%	GP	6.0	3.5	5.0	P4009A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H560K5
500	68pf	±10%	GP	7.0	3.5	5.0	P4010A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H680K5
500	82pf	±10%	GP	7.0	3.5	5.0	P4011A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H820K5

Voltage	Capacitance	Tolerance	Temp. Char.	Dimensions (mm)			Digi-Key Part No.	Pricing						Panasonic Part No.
				Dia.	Thickness	Lead Space		10	100	1,000	5,000	10,000	25,000	
500	10pf	±0.5pf	NPO	6.0	3.5	5.0	P4400A-ND	1.06	8.32	45.00	43.00/M	40.00/M	37.00/M	ECC-D2H100DC5
500	15pf	±5%	NPO	6.0	3.5	5.0	P4402A-ND	1.92	15.09	81.00	78.00/M	72.00/M	66.00/M	ECC-D2H150JC5
500	18pf	±5%	NPO	6.0	3.5	5.0	P4403A-ND	1.92	15.09	81.00	78.00/M	72.00/M	66.00/M	ECC-D2H180JC5
500	22pf	±5%	NPO	6.0	3.5	5.0	P4404A-ND	1.92	15.09	81.00	78.00/M	72.00/M	66.00/M	ECC-D2H220JC5
500	27pf	±5%	NPO	7.0	3.5	5.0	P4405A-ND	1.92	15.09	81.00	78.00/M	72.00/M	66.00/M	ECC-D2H270JC5
500	33pf	±5%	NPO	7.0	3.5	5.0	P4406A-ND	1.92	15.09	81.00	78.00/M	72.00/M	66.00/M	ECC-D2H330JC5
500	39pf	±5%	NPO	7.0	3.5	5.0	P4407A-ND	2.00	15.71	84.00	81.00/M	75.00/M	69.00/M	ECC-D2H390JC5
500	47pf	±5%	NPO	8.5	3.5	5.0	P4408A-ND	2.27	17.86	96.00	92.00/M	85.00/M	79.00/M	ECC-D2H470JC5
500	56pf	±5%	NPO	8.5	3.5	5.0	P4409A-ND	2.27	17.86	96.00	92.00/M	85.00/M	79.00/M	ECC-D2H560JC5
500	68pf	±5%	NPO	8.5	3.5	5.0	P4410A-ND	2.31	18.17	97.00	94.00/M	87.00/M	80.00/M	ECC-D2H680JC5
500	82pf	±5%	NPO	10.0	3.5	5.0	P4411A-ND	3.96	31 11	167.00	161.00/M	149.00/M	137.00/M	ECC-D2H820JC5
500	100pf	±5%	NPO	10.0	3.5	5.0	P4412A-ND	3.92	30.80	165.00	159.00/M	147.00/M	136.00/M	ECC-D2H101JC5
500	120pf	±5%	NPO	11.0	3.5	5.0	P4413A-ND	3.96	31.11	167.00	161.00/M	149.00/M	137.00/M	ECC-D2H121JC5
500	150pf	±5%	NPO	13.0	3.5	10.0	P4414A-ND	4.16	32.65	175.00	169.00/M	156.00/M	144.00/M	ECC-D2H151JC5
500	180pf	±5%	NPO	13.0	3.5	10.0	P4415A-ND	4.16	32.65	175.00	169.00/M	156.00/M	144.00/M	ECC-D2H181JC5
500	220pf	±5%	NPO	14.0	3.5	10.0	P4416A-ND	4.16	32.65	175.00	169.00/M	156.00/M	144.00/M	ECC-D2H221JC5
							Class 2 High Dielectric Constant							
25	.01µF	+80, -20%	Z4V	5.0	3.5	2.5	P4300A-ND•	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECK-F1E103ZV
25	.022µF	+80, -20%	Z4V	6.5	3.5	5.0	P4303A-ND•	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-F1E223ZV
25	.033µF	+80, -20%	Z4V	8.5	3.5	5.0	P4305A-ND•	.98	7.70	41.00	40.00/M	37.00/M	34.00/M	ECK-F1E333ZV
25	.047µF	+80, -20%	Z4V	8.5	3.5	5.0	P4307A-ND•	1.10	8.62	46.00	45.00/M	41.00/M	38.00/M	ECK-F1E473ZV
25	.1µF	+80, -20%	Z4V	12.5	3.5	5.0	P4201-ND•	2.00	15.71	84.00	81.00/M	75.00/M	69.00/M	ECK-F1E104ZV
50	100pf	±10%	Y5P	5.0	3.5	2.5	P4037A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H101KB
50	120pf	±10%	Y5P	5.0	3.5	2.5	P4038A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H121KB
50	150pf	±10%	Y5P	5.0	3.5	2.5	P4039A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H151KB
50	180pf	±10%	Y5P	5.0	3.5	2.5	P4040A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H181KB
50	220pf	±10%	Y5P	5.0	3.5	2.5	P4041A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H221KB
50	270pf	±10%	Y5P	5.0	3.5	2.5	P4042A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H271KB
50	330pf	±10%	Y5P	5.0	3.5	2.5	P4043A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H331KB
50	390pf	±10%	Y5P	5.0	3.5	2.5	P4044A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H391KB
50	470pf	±10%	Y5P	5.0	3.5	2.5	P4045A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H471KB
50	560pf	±10%	Y5P	5.0	3.5	2.5	P4046A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H561KB
50	680pf	±10%	Y5P	5.0	3.5	2.5	P4047A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H681KB
50	820pf	±10%	Y5P	5.0	3.5	2.5	P4048A-ND	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H821KB
50	1000pf	±10%	Y5P	5.0	3.5	2.5	P4049A-ND	.82	6.47	35.00	33.00/M	31.00/M	28.00/M	ECK-F1H102KB
50	1200pf	±10%	Y5P	5.0	3.5	2.5	P4050A-ND	.82	6.47	35.00	33.00/M	31.00/M	28.00/M	ECK-F1H122KB
50	1500pf	±10%	Y5P	5.0	3.5	2.5	P4051A-ND	.82	6.47	35.00	33.00/M	31.00/M	28.00/M	ECK-F1H152KB
50	1800pf	±10%	Y5P	6.5	3.5	5.0	P4052A-ND	.82	6.47	35.00	33.00/M	31.00/M	28.00/M	ECK-F1H182KB
50	2200pf	±10%	Y5P	6.5	3.5	5.0	P4053A-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECK-F1H222KB
50	2700pf	±10%	Y5P	6.5	3.5	5.0	P4054A-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECK-F1H272KB
50	3300pf	±10%	Y5P	8.0	3.5	5.0	P4055A-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECK-F1H332KB
50	3900pf	±10%	Y5P	8.0	3.5	5.0	P4056A-ND	.98	7.70	41.00	40.00/M	37.00/M	34.00/M	ECK-F1H392KB
50	4700pf	±10%	Y5P	8.0	3.5	5.0	P4057A-ND	.98	7.70	41.00	40.00/M	37.00/M	34.00/M	ECK-F1H472KB
50	5600pf	±10%	Y5P	9.5	3.5	5.0	P4058A-ND	.98	7.70	41.00	40.00/M	37.00/M	34.00/M	ECK-F1H562KB
50	6800pf	±10%	Y5P	9.5	3.5	5.0	P4059A-ND	1.88	14.78	79.00	76.00/M	71.00/M	65 00/M	ECK-F1H682KB
50	1000pf	+80, -20%	Y5V	4.5	3.5	2.5	P4060A-ND•	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECK-F1H102ZF
50	1500pf	+80, -20%	Y5V	5.0	3.5	2.5	P4061A-ND•	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECK-F1H152ZF
50	2200pf	+80, -20%	Y5V	5.0	3.5	2.5	P4062A-ND•	.71	5.54	30.00	29.00/M	27.00/M	24.00/M	ECK-F1H222ZF
50	3300pf	+80, -20%	Y5V	5.0	3.5	2.5	P4063A-ND•	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F1H332ZF
50	4700pf	+80, -20%	Y5V	5.0	3.5	2.5	P4064A-ND•	.74	5.85	31.00	30.00/M	28.00/M	26.00/M	ECK-F1H472ZF
50	6800pf	+80, -20%	Y5V	6.5	3.5	5.0	P4065A-ND•	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F1H682ZF
50	10000pf	+80, -20%	Y5V	6.5	3.5	5.0	P4066A-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F1H103ZF
50	22000pf	+80, -20%	Y5V	8.5	3.5	5.0	P4067A-ND	1.80	14.17	76.00	73.00/M	68.00/M	62.00/M	ECK-F1H223ZF
500	100pf	±10%	Y5P	6.0	4.0	5.0	P4100A-ND•	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H101KB5
500	150pf	±10%	Y5P	6.0	4.0	5.0	P4102A-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H151KB5
500	180pf	±10%	Y5P	6.0	4.0	5.0	P4103A-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H181KB5
500	220pf	±10%	Y5P	6.0	4.0	5.0	P4104A-ND•	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H221KB5
500	270pf	±10%	Y5P	6.0	4.0	5.0	P4105A-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H271KB5
500	330pf	±10%	Y5P	6.0	4.0	5.0	P4106A-ND•	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H331KB5
500	390pf	±10%	Y5P	6.0	4.0	5.0	P4107A-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H391KB5
500	470pf	±10%	Y5P	6.0	4.0	5.0	P4108A-ND•	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H471KB5
500	560pf	±10%	Y5P	6.0	4.0	5.0	P4109A-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H561KB5
500	680pf	±10%	Y5P	6.0	4.0	5.0	P4110A-ND•	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H681KB5
500	820pf	±10%	Y5P	7.0	4.0	5.0	P4111A-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECK-D2H821KB5
500	1000pf	±10%	Y5P	7.0	4.0	5.0	P4112A-ND	1.33	10.47	56.00	54.00/M	50.00/M	46.00/M	ECK-D2H102KB5
500	1500pf	±10%	Y5P	7.0	4.0	5.0	P4115A-ND	1.33	10.47	56.00	54.00/M	50.00/M	46.00/M	ECK-D2H152KB5
500	1800pf	±10%	Y5P	8.5	4.0	5.0	P4116A-ND	1.33	10.47	56.00	54.00/M	50.00/M	46.00/M	ECK-D2H182KB5
500	2200pf	±10%	Y5P	8.5	4.0	5.0	P4165A-ND	1.33	10.47	56.00	54.00/M	50.00/M	46.00/M	ECK-D2H222KB5
500	2700pf	±10%	Y5P	10.0	4.0	5.0	P4166A-ND	1.71	13.42	72.00	69.00/M	64.00/M	59.00/M	ECK-D2H272KB5
500	3300pf	±10%	Y5P	10.0	4.0	5.0	P4167A-ND	1.68	13.20	71.00	68.00/M	63.00/M	58.00/M	ECK-D2H332KB5
500	3900pf	±10%	Y5P	11.0	4.0	5.0	P4168A-ND	1.68	13.20	71.00	68.00/M	63.00/M	58.00/M	ECK-D2H392KB5
500	4700pf	±10%	Y5P	13.0	4.0	10.0	P4169A-ND	2.04	16.02	86.00	83.00/M	77.00/M	71.00/M	ECK-D2H472KB5
500	5600pf	±10%	Y5P	13.0	4.0	10.0	P4170A-ND	2.04	16.02	86.00	83.00/M	77.00/M	71.00/M	ECK-D2H562KB5
500	6800pf	±10%	Y5P	14.0	4.0	10.0	P4171A-ND	2.08	16.32	87.00	84.00/M	78.00/M	72.00/M	ECK-D2H682KB5
500	8200pf	±10%	Y5P	16.0	4.0	10.0	P4172A-ND	2.08	16.32	87.00	84.00/M	78.00/M	72.00/M	ECK-D2H822KB5
500	10000pf	±10%	Y5P	17.5	4.0	10.0	P4198A-ND	2.08	16.32	87.00	84.00/M	78.00/M	72.00/M	ECK-D2H103KB5
							RS Safety Type Class 1							
125	100pf	±20%	B	9.5	7.0	7.5	P4462A-ND	2.59	20.35	109.00	105.00/M	97.00/M	90.00/M	ECK-DRS101MB
125	150pf	±20%	B	9.5	7.0	7.5	P4463A-ND	2.66	20.90	112.00	108.00/M	100.00/M	92.00/M	ECK-DRS151MB
125	220pf	±20%	B	9.5	7.0	7.5	P4464A-ND	2.73	21.45	115.00	111.00/M	103.00/M	94.00/M	ECK-DRS221MB
125	470pf	±20%	B	9.5	7.0	7.5	P4465A-ND	2.77	21.73	116.00	112.00/M	104.00/M	96.00/M	ECK-DRS471MB
125	1000pf	±20%	B	10.0	7.0	7.5	P4466A-ND	3.36	26.40	141.00	136.00/M	126.00/M	116.00/M	ECK-DRS102MB
125	1500pf	±20%	E	10.0	7.0	7.5	P4467A-ND	4.23	33.26	178.00	172.00/M	159.00/M	146.00/M	ECK-DRS152ME
125	2200pf	±20%	E	10.5	7.0	7.5	P4468A-ND	4.41	34.65	186.00	179.00/M	166.00/M	153.00/M	ECK-DRS222ME
125	3300pf	±20%	E	12.5	7.0	7.5	P4469A-ND	5.01	39.33	211.00	203.00/M	188.00/M	173.00/M	ECK-DRS332ME
125	4700pf	±20%	E	16.0	7.0	10.0	P4470A-ND	5.92	46.48	249.00	240.00/M	222.00/M	205.00/M	ECK-DRS472ME
125	4700pf	+80, -20%	V	11.5	7.0	7.5	P4472A-ND	3.71	29.15	156.00	151.00/M	139.00/M	128.00/M	ECK-DRS472ZV
125	10000pf	+80, -20%	V	17.5	7.0	10.0	P4473A-ND	6.06	47.58	255.00	246.00/M	228.00/M	209.00/M	ECK-DRS103ZV

• PDC1-KIT-ND 20 each of values denoted (360 pieces) $25.95

Panasonic. Ceramic Disc Capacitors

PANASONIC ECC SERIES (CLASS I)

Features

- Conform to EIA Standard
- Linear temperature coefficient of capacitance
- High stability of capacitance
- Low loss at wide range of frequency

Specifications

- Operating temperrature range: −55°C to +85°C
- Temperature characteristics: Conform to EIA classes GP and NPO.
  GP: General purpose capacitors with temp. char. between +150 and −1500PPM/°C (EIA U2M char.)
  NPO: Max. cap. change of ±5% from −55°C to +85°C.

PANASONIC ECK SERIES (CLASS II)

Features • Conform to EIA Standard • Large capacitance in small sizes • Non linear temperature coefficient of capacitance • High temperature stability (for 1-3KV, Y5P char.) • Low loss at pulse voltage (for pulse circuit only)

Specifications • Operating temperature range: −30°C to +85°C (25-500V), −25°C to +125°C (1-3KV) • Dissipation factor: Y5P: 2.5% max., Y5V and Z4V: 5% max., 1K (tan.): 25 x 10^{-3} at 1KHz 1 to 5Vrms, and 20°C • Temperature characteristics: Per EIA code. Y5P: Max. cap. change of ±10% from −25°C to +85°C, Y5V: Max. cap. change of +22, −82% from +10°C to +60°C, E: Max. cap. change is +20 ~ −55% over temp. range of −25°C to +85°C, B: Max. cap. change is ±10% over temp. range of −25°C to +85°C, V: Max. cap. change is +30 ~ −80% over temp. range of 0°C to +70°C. • Insulation resistance: 10,000M ohms min. • Dielectric strength: 250% (200% for 1-3KV) of rated voltage for 1-5 sec.

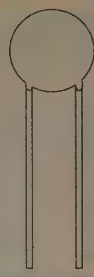
PANASONIC ECF SERIES (CLASS III)

Features SB/SR (Intergranular barrier layer type)

- Linear temperature characteristics of capacitance
- Stable capacitance change over the specified temperature
- Low loss at wide range of frequency
- Cost saving by replacing film capacitors
  SF (Surface barrier layer type)
- Ultra large capacitance in small sizes

Specifications

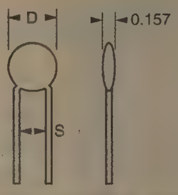
- Operating temperature range: −25°C to +85°C
- Dissipation factor/tan (at 1KHz, 1 ±0.2 Vrms, 20°C): SR, SB 1 ±0.2 V, SF 0.1 ±0.2 V; SB, SR…25 × 10^{-3} max., SF…75 × 10^{-3} max.
- Insulation resistance (at 20°C): SB, SR, SF…1,000M ohms or 100M ohms µF, whichever is the smaller
- Temperature characteristics: SB: +10% from −25 to +85°C, SR: ±15% from −25 to +85°C, SF: +30, −85% from −25 to +85°C



Voltage	Capacitance	Tolerance	Temp. Char.	Dimensions (mm)			Digi-Key Part No.	Pricing						Panasonic Part No.
				Dia.	Thickness	Lead Space		10	100	1,000	5,000	10,000	25,000	
100	10pf	±0.5pf	GP	5.0	3.5	6.35	P4012-ND	.78	6.16	33.01	31.84/M	29.48/M	27.12/M	ECC-F2A100DE
100	470pf	±5%	GP	8.0	3.5	6.35	P4032-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECC-F2A471JE
100	560pf	±5%	GP	9.5	3.5	6.35	P4033-ND	1.18	9.24	50.00	48.00/M	44.00/M	41.00/M	ECC-F2A561JE
100	820pf	±5%	GP	10.5	3.5	6.35	P4035-ND	1.25	9.86	53.00	51.00/M	47.00/M	43.00/M	ECC-F2A821JE
100	1000pf	±5%	GP	10.5	3.5	6.35	P4036-ND	1.25	9.86	53.00	51.00/M	47.00/M	43.00/M	ECC-F2A102JE
100	22pf	±5%	NPO	5.0	3.5	6.35	P4448-ND	.83	6.55	35.00	34.00/M	31.00/M	29.00/M	ECC-F2A220JCE
100	39pf	±5%	NPO	5.0	3.5	6.35	P4451-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECC-F2A390JCE
100	47pf	±5%	NPO	6.5	3.5	6.35	P4452-ND	1.29	10.16	54.00	53.00/M	49.00/M	45.00/M	ECC-F2A470JCE
100	56pf	±5%	NPO	6.5	3.5	6.35	P4453-ND	1.29	10.16	54.00	53.00/M	49.00/M	45.00/M	ECC-F2A560JCE
100	82pf	±5%	NPO	8.0	3.5	6.35	P4455-ND	1.29	10.16	54.00	53.00/M	49.00/M	45.00/M	ECC-F2A820JCE
100	120pf	±5%	NPO	9.5	3.5	6.35	P4457-ND	1.61	12.63	68.00	65.00/M	60.00/M	56.00/M	ECC-F2A121JCE
500	18pf	±10%	GP	5.5	3.5	6.35	P4003-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECC-D2H180KE
500	33pf	±10%	GP	5.5	3.5	6.35	P4006-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECC-D2H330KE
500	39pf	±10%	GP	5.5	3.5	6.35	P4007-ND	.86	6.78	36.00	35.00/M	32.00/M	30.00/M	ECC-D2H390KE
500	10pf	±0.5pf	NPO	5.5	3.5	6.35	P4400-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECC-D2H100DCE
500	15pf	±5%	NPO	7.0	3.5	6.35	P4402-ND	1.41	11.09	59.00	57.00/M	53.00/M	49.00/M	ECC-D2H150JCE
500	18pf	±5%	NPO	7.0	3.5	6.35	P4403-ND	1.41	11.09	59.00	57.00/M	53.00/M	49.00/M	ECC-D2H180JCE
500	22pf	±5%	NPO	7.0	3.5	6.35	P4404-ND	1.41	11.09	59.00	57.00/M	53.00/M	49.00/M	ECC-D2H220JCE
500	27pf	±5%	NPO	7.0	3.5	6.35	P4405-ND	1.41	11.09	59.00	57.00/M	53.00/M	49.00/M	ECC-D2H270JCE
500	39pf	±5%	NPO	8.5	3.5	6.35	P4407-ND	1.53	12.01	64.00	62.00/M	57.00/M	53.00/M	ECC-D2H390JCE
500	56pf	±5%	NPO	10.0	3.5	9.5	P4409-ND	1.69	13.24	71.00	68.00/M	63.00/M	58.00/M	ECC-D2H560JCE
500	82pf	±5%	NPO	13.0	3.5	9.5	P4411-ND	2.98	23.41	125.00	121.00/M	112.00/M	103.00/M	ECC-D2H820JCE
500	120pf	±5%	NPO	13.0	3.5	9.5	P4413-ND	2.90	22.79	122.00	118.00/M	109.00/M	100.00/M	ECC-D2H121JCE
500	150pf	±5%	NPO	13.0	3.5	9.5	P4414-ND	3.14	24.64	132.00	127.00/M	118.00/M	108.00/M	ECC-D2H151JCE
500	220pf	±5%	NPO	14.0	3.5	9.5	P4416-ND	3.14	24.64	132.00	127.00/M	118.00/M	108.00/M	ECC-D2H221JCE
25	.01µf	+80%-20%	Z4V	5.0	3.5	6.35	P4300-ND	.63	4.93	26.00	25.00/M	24.00/M	22.00/M	ECK-F1E103ZVE
25	.022µf	+80%-20%	Z4V	6.5	3.5	6.35	P4303-ND	.82	6.47	35.00	33.00/M	31.00/M	28.00/M	ECK-F1E223ZVE
25	.033µf	+80%-20%	Z4V	8.5	3.5	6.35	P4305-ND	.90	7.08	38.00	37.00/M	34.00/M	31.00/M	ECK-F1E333ZVE
25	.047µf	+80%-20%	Z4V	8.5	3.5	6.35	P4307-ND	1.02	8.01	43.00	41.00/M	38.00/M	35.00/M	ECK-F1E473ZVE
25	.1µf	+80%-20%	Z4V	12.5	3.5	6.35	P4311-ND	1.80	14.17	76.00	73.00/M	68.00/M	62.00/M	ECK-F1E104ZVE
25	1µf	+80%-20%	Z4V	12.5	3.5	5.0	P4201-ND	2.00	15.71	84.00	81.00/M	75.00/M	69.00/M	ECK-F1E104ZV
100	120pf	±10%	Y5P	5.0	3.5	6.35	P4174-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A121KBE
100	180pf	±10%	Y5P	5.0	3.5	6.35	P4176-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A181KBE
100	220pf	±10%	Y5P	5.0	3.5	6.35	P4177-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A221KBE
100	680pf	±10%	Y5P	5.0	3.5	6.35	P4183-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A681KBE
100	820pf	±10%	Y5P	5.0	3.5	6.35	P4184-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A821KBE
100	6800pf	±10%	Y5P	12.5	3.5	6.35	P4195-ND	1.96	15.40	83.00	80.00/M	74.00/M	68.00/M	ECK-F2A682KBE
100	1500pf	+80%-20%	Y5V	5.0	3.5	6.35	P4202-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A152ZFE
100	3300pf	+80%-20%	Y5V	6.5	3.5	6.35	P4205-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A332ZFE
100	6800pf	+80%-20%	Y5V	8.0	3.5	6.35	P4209-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-F2A682ZFE
500	100pf	±10%	Y5P	5.5	4.0	6.35	P4100-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-D2H101KBE
500	270pf	±10%	Y5P	5.5	4.0	6.35	P4105-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-D2H271KBE
500	330pf	±10%	Y5P	5.5	4.0	6.35	P4106-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-D2H331KBE
500	390pf	±10%	Y5P	5.5	4.0	6.35	P4107-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-D2H391KBE
500	470pf	±10%	Y5P	7.0	4.0	6.35	P4108-ND	.78	6.16	33.00	32.00/M	29.00/M	27.00/M	ECK-D2H471KBE
500	1500pf	±10%	Y5P	8.5	4.0	6.35	P4114-ND	1.18	9.24	50.00	48.00/M	44.00/M	41.00/M	ECK-D2H152KBE
500	1800pf	±10%	Y5P	10.0	4.0	6.35	P4115-ND	1.18	9.24	50.00	48.00/M	44.00/M	41.00/M	ECK-D2H182KBE
500	2700pf	±10%	Y5P	10.0	4.0	9.53	P4166-ND	1.14	8.93	48.00	46.00/M	43.00/M	39.00/M	ECK-D2H272KBE
500	3300pf	±10%	Y5P	13.0	4.0	9.53	P4167-ND	2.16	16.94	91.00	88.00/M	81.00/M	75.00/M	ECK-D2H332KBE
500	4700pf	±10%	Y5P	13.0	4.0	9.53	P4169-ND	2.43	19.10	102.00	99.00/M	91.00/M	84.00/M	ECK-D2H472KBE
500	6800pf	±10%	Y5P	17.0	4.0	9.53	P4171-ND	3.29	25.87	139.00	134.00/M	124.00/M	114.00/M	ECK-D2H682KBE
500	8200pf	±10%	Y5P	17.0	4.0	9.53	P4172-ND	2.55	20.02	107.00	103.00/M	96.00/M	88.00/M	ECK-D2H822KBE
1K	100pf	±10%	Y5P	6.0	5.0	5.00	P4116-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A101KBN
1K	120pf	±10%	Y5P	6.0	5.0	5.00	P4117-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A121KBN
1K	150pf	±10%	Y5P	6.0	5.0	5.00	P4118-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A151KBN
1K	180pf	±10%	Y5P	6.0	5.0	5.00	P4119-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A181KBN
1K	220pf	±10%	Y5P	6.0	5.0	5.00	P4120-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A221KBN
1K	270pf	±10%	Y5P	6.0	5.0	5.00	P4121-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A271KBN
1K	330pf	±10%	Y5P	8.0	5.0	5.00	P4122-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A331KBN
1K	390pf	±20%	Y5P	8.0	5.0	5.00	P4123-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A391KBN
1K	470pf	±10%	Y5P	8.0	5.0	5.00	P4124-ND	2.35	18.43	99.00	95.00/M	88.00/M	81.00/M	ECK-D3A471KBN
1K	560pf	±10%	Y5P	8.0	5.0	5.00	P4125-ND	2.80	22.00	118.00	114.00/M	105.00/M	97.00/M	ECK-D3A561KBN
1K	680pf	±10%	Y5P	8.0	5.0	5.00	P4126-ND	2.80	22.00	118.00	114.00/M	105.00/M	97.00/M	ECK-D3A681KBN
1K	820pf	±10%	Y5P	10.0	5.0	5.00	P4127-ND	2.80	22.00	118.00	114.00/M	105.00/M	97.00/M	ECK-D3A821KBN
1K	1000pf	±10%	Y5P	10.0	5.0	5.00	P4128-ND	3.05	23.93	128.00	124.00/M	114.00/M	105.00/M	ECK-D3A102KBN
1K	1200pf	±10%	Y5P	10.0	5.0	5.00	P4129-ND	3.05	23.93	128.00	124.00/M	114.00/M	105.00/M	ECK-D3A122KBN
1K	1500pf	±10%	Y5P	11.0	5.0	5.00	P4130-ND	3.43	26.95	144.00	139.00/M	129.00/M	119.00/M	ECK-D3A152KBN
1K	1800pf	±10%	Y5P	11.0	5.0	5.00	P4131-ND	3.43	26.95	144.00	139.00/M	129.00/M	119.00/M	ECK-D3A182KBN
1K	2200pf	±10%	Y5P	13.0	5.0	5.00	P4199-ND	3.92	30.80	165.00	159.00/M	147.00/M	136.00/M	ECK-D3A222KBP
1K	2700pf	±10%	Y5P	13.0	5.0	5.00	P4211-ND	3.14	24.64	132.00	127.00/M	118.00/M	108.00/M	ECK-D3A272KBP

Voltage	Capacitance	Tolerance	Temp. Char.	Dimensions (mm)			Digi-Key Part No.	Pricing						Panasonic Part No.
				Dia.	Thickness	Lead Space		10	100	1,000	5,000	10,000	25,000	
1K	3300pf	±10%	Y5P	13.5	5.0	10.00	P4134-ND	4.90	38.50	206.00	199.00/M	184.00/M	169.00/M	ECK-D3A332KBN
1K	3900pf	±10%	Y5P	15.5	5.0	10.00	P4135-ND	4.90	38.50	206.00	199.00/M	184.00/M	169.00/M	ECK-D3A392KBN
1K	4700pf	±10%	Y5P	18.0	5.0	10.00	P4136-ND	5.71	44.83	240.00	232.00/M	214.00/M	197.00/M	ECK-D3A472KBN
1K	5600pf	±10%	Y5P	18.0	5.0	10.00	P4137-ND	7.81	61.33	329.00	317.00/M	293.00/M	270.00/M	ECK-D3A562KBN
1K	6800pf	±10%	Y5P	22.0	5.0	10.00	P4138-ND	8.27	64.96	348.00	336.00/M	311.00/M	286.00/M	ECK-D3A682KBN
1K	8200pf	±10%	Y5P	22.0	5.0	10.00	P4139-ND	8.27	64.96	348.00	336.00/M	311.00/M	286.00/M	ECK-D3A822KBN
1K	10000pf	±10%	Y5P	22.0	5.0	10.00	P4140-ND	9.41	73.92	396.00	382.00/M	354.00/M	325.00/M	ECK-D3A103KBN
2K	100pf	±10%	Y5P	7.0	5.0	7.5	P4474A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D101KBP
2K	120pf	±10%	Y5P	7.0	5.0	7.5	P4475A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D121KBP
2K	150pf	±10%	Y5P	7.0	5.0	7.5	P4476A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D151KBP
2K	180pf	±10%	Y5P	7.0	5.0	7.5	P4477A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D181KBP
2K	220pf	±10%	Y5P	7.0	5.0	7.5	P4478A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D221KBP
2K	270pf	±10%	Y5P	7.0	5.0	7.5	P4479A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D271KBP
2K	330pf	±10%	Y5P	7.0	5.0	7.5	P4480A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D331KBP
2K	390pf	±10%	Y5P	7.0	5.0	7.5	P4481A-ND ***NEW!***	2.94	23.10	124.00	119.00/M	111.00/M	102.00/M	ECK-D3D391KBP
2K	470pf	±10%	Y5P	7.5	5.0	7.5	P4482A-ND ***NEW!***	3.19	25.03	134.00	129.00/M	120.00/M	110.00/M	ECK-D3D471KBP
2K	560pf	±10%	Y5P	8.0	5.0	7.5	P4483A-ND ***NEW!***	3.19	25.03	134.00	129.00/M	120.00/M	110.00/M	ECK-D3D561KBP
2K	680pf	±10%	Y5P	9.0	5.0	7.5	P4484A-ND ***NEW!***	3.36	26.40	141.00	136.00/M	126.00/M	116.00/M	ECK-D3D681KBP
2K	820pf	±10%	Y5P	9.0	5.0	7.5	P4485A-ND ***NEW!***	3.36	26.40	141.00	136.00/M	126.00/M	116.00/M	ECK-D3D821KBP
2K	1000pf	±10%	Y5P	10.0	5.0	7.5	P4486A-ND ***NEW!***	4.10	32.18	172.00	166.00/M	154.00/M	142.00/M	ECK-D3D102KBP
2K	1200pf	±10%	Y5P	10.5	5.0	7.5	P4487A-ND ***NEW!***	4.62	36.30	195.00	188.00/M	174.00/M	160.00/M	ECK-D3D122KBP
2K	1500pf	±10%	Y5P	12.0	5.0	7.5	P4488A-ND ***NEW!***	5.39	42.35	227.00	219.00/M	203.00/M	186.00/M	ECK-D3D152KBP
2K	1800pf	±10%	Y5P	12.5	5.0	7.5	P4489A-ND ***NEW!***	5.39	42.35	227.00	219.00/M	203.00/M	186.00/M	ECK-D3D182KBP
2K	2200pf	±10%	Y5P	14.0	5.0	10.0	P4490A-ND ***NEW!***	8.33	65.45	351.00	338.00/M	313.00/M	288.00/M	ECK-D3D222KBP
2K	2700pf	±10%	Y5P	16.0	5.0	10.0	P4491A-ND ***NEW!***	8.79	69.03	370.00	357.00/M	330.00/M	304.00/M	ECK-D3D272KBP
2K	3300pf	±10%	Y5P	17.0	5.0	10.0	P4492A-ND ***NEW!***	10.68	83.88	449.00	433.00/M	401.00/M	369.00/M	ECK-D3D332KBP
2K	3900pf	±10%	Y5P	18.0	5.0	10.0	P4493A-ND ***NEW!***	11.27	88.55	475.00	458.00/M	424.00/M	390.00/M	ECK-D3D392KBP
2K	4700pf	±10%	Y5P	25.0	5.0	10.0	P4494A-ND ***NEW!***	12.32	96.80	519.00	500.00/M	463.00/M	426.00/M	ECK-D3D472KBP
2K	5600pf	±10%	Y5P	25.0	5.0	10.0	P4495A-ND ***NEW!***	12.32	96.80	519.00	500.00/M	463.00/M	426.00/M	ECK-D3D562KBP
3K	100pf	±10%	Y5P	7.5	6.0	7.5	P4496A-ND ***NEW!***	3.01	23.65	127.00	122.00/M	113.00/M	104.00/M	ECK-D3F101KBP
3K	120pf	±10%	Y5P	7.5	6.0	7.5	P4497A-ND ***NEW!***	3.01	23.65	127.00	122.00/M	113.00/M	104.00/M	ECK-D3F121KBP
3K	150pf	±10%	Y5P	7.5	6.0	7.5	P4498A-ND ***NEW!***	3.01	23.65	127.00	122.00/M	113.00/M	104.00/M	ECK-D3F151KBP
3K	180pf	±10%	Y5P	7.5	6.0	7.5	P4499A-ND ***NEW!***	3.01	23.65	127.00	122.00/M	113.00/M	104.00/M	ECK-D3F181KBP
3K	220pf	±10%	Y5P	7.5	6.0	7.5	P4500A-ND ***NEW!***	3.01	23.65	127.00	122.00/M	113.00/M	104.00/M	ECK-D3F221KBP
3K	270pf	±10%	Y5P	7.5	6.0	7.5	P4501A-ND ***NEW!***	3.01	23.65	127.00	122.00/M	113.00/M	104.00/M	ECK-D3F271KBP
3K	330pf	±10%	Y5P	8.0	6.0	7.5	P4502A-ND ***NEW!***	3.22	25.30	136.00	131.00/M	121.00/M	111.00/M	ECK-D3F331KBP
3K	390pf	±10%	Y5P	9.0	6.0	7.5	P4503A-ND ***NEW!***	3.40	26.68	143.00	138.00/M	128.00/M	117.00/M	ECK-D3F391KBP
3K	470pf	±10%	Y5P	9.5	6.0	7.5	P4504A-ND ***NEW!***	3.64	28.60	153.00	148.00/M	137.00/M	126.00/M	ECK-D3F471KBP
3K	560pf	±10%	Y5P	10.0	6.0	7.5	P4505A-ND ***NEW!***	3.92	30.80	165.00	159.00/M	147.00/M	136.00/M	ECK-D3F561KBP
3K	680pf	±10%	Y5P	11.0	6.0	7.5	P4506A-ND ***NEW!***	5.39	42.35	227.00	219.00/M	203.00/M	186.00/M	ECK-D3F681KBP
3K	820pf	±10%	Y5P	11.0	6.0	7.5	P4507A-ND ***NEW!***	5.39	42.35	227.00	219.00/M	203.00/M	186.00/M	ECK-D3F821KBP
3K	1000pf	±10%	Y5P	12.5	6.0	7.5	P4508A-ND ***NEW!***	5.50	43.18	231.00	223.00/M	207.00/M	190.00/M	ECK-D3F102KBP
3K	1200pf	±10%	Y5P	14.5	6.0	10.0	P4509A-ND ***NEW!***	8.86	69.58	373.00	360.00/M	333.00/M	306.00/M	ECK-D3F122KBP
3K	1500pf	±10%	Y5P	14.5	6.0	10.0	P4510A-ND ***NEW!***	8.72	68.48	367.00	354.00/M	328.00/M	301.00/M	ECK-D3F152KBP
3K	1800pf	±10%	Y5P	16.0	6.0	10.0	P4511A-ND ***NEW!***	12.04	94.60	507.00	489.00/M	453.00/M	416.00/M	ECK-D3F182KBP
3K	2200pf	±10%	Y5P	17.0	6.0	10.0	P4512A-ND ***NEW!***	12.64	99.28	532.00	513.00/M	475.00/M	437.00/M	ECK-D3F222KBP
3K	2700pf	±10%	Y5P	18.5	6.0	10.0	P4513A-ND ***NEW!***	15.05	118.25	634.00	611.00/M	566.00/M	521.00/M	ECK-D3F272KBP
25	1000pf	±10%	SB	4.5	3.5	2.50	P4141-ND	1.80	14.17	76.00	73.00/M	68.00/M	62.00/M	ECF-F1E102KB
25	2200pf	±10%	SB	4.5	3.5	2.50	P4143-ND	1.80	14.17	76.00	73.00/M	68.00/M	62.00/M	ECF-F1E222KB
25	6800pf	±10%	SB	5.0	3.5	2.50	P4146-ND	2.39	18.82	101.00	97.00/M	90.00/M	83.00/M	ECF-F1E682KB
25	10000pf	±10%	SB	6.5	3.5	5.00	P4147-ND	2.20	17.25	92.00	89.00/M	83.00/M	76.00/M	ECF-F1E103KB
25	15000pf	±10%	SB	8.0	3.5	5.00	P4148-ND	2.21	17.33	93.00	90.00/M	83.00/M	76.00/M	ECF-F1E153KB
25	22000pf	±10%	SB	8.0	3.5	5.00	P4149-ND	3.06	24.02	129.00	124.00/M	115.00/M	106.00/M	ECF-F1E223KB
25	47000pf	±10%	SB	11.0	3.5	5.00	P4151-ND	3.14	24.64	132.00	127.00/M	118.00/M	108.00/M	ECF-F1E473KB
25	1000pf	±20%	SR	4.5	3.5	2.50	P4418-ND	2.04	16.02	86.00	83.00/M	77.00/M	71.00/M	ECF-F1E102MR
25	1500pf	±20%	SR	4.5	3.5	2.50	P4419-ND	1.29	10.16	54.00	53.00/M	49.00/M	45.00/M	ECF-F1E152MR
25	2200pf	±20%	SR	4.5	3.5	2.50	P4420-ND	1.14	8.93	48.00	46.00/M	43.00/M	39.00/M	ECF-F1E222MR
25	3300pf	±20%	SR	4.5	3.5	2.50	P4421-ND	1.14	8.93	48.00	46.00/M	43.00/M	39.00/M	ECF-F1E332MR
25	4700pf	±20%	SR	4.5	3.5	2.50	P4422-ND	1.14	8.93	48.00	46.00/M	43.00/M	39.00/M	ECF-F1E472MR
25	6800pf	±20%	SR	5.0	3.5	2.50	P4423-ND	1.29	10.16	54.00	53.00/M	49.00/M	45.00/M	ECF-F1E682MR
25	10000pf	±20%	SR	5.0	3.5	2.50	P4424-ND	1.22	9.55	51.00	49.00/M	46.00/M	42.00/M	ECF-F1E103MR
25	33000pf	±20%	SR	8.0	3.5	5.00	P4427-ND	1.18	9.24	50.00	48.00/M	44.00/M	41.00/M	ECF-F1E333MR
50	1000pf	±10%	SB	4.5	3.5	2.50	P4152-ND	2.04	16.02	86.00	83.00/M	77.00/M	71.00/M	ECF-F1H102KB
50	1500pf	±10%	SB	4.5	3.5	2.50	P4153-ND	2.04	16.02	86.00	83.00/M	77.00/M	71.00/M	ECF-F1H152KB
50	2200pf	±10%	SB	4.5	3.5	2.50	P4154-ND	2.04	16.02	86.00	83.00/M	77.00/M	71.00/M	ECF-F1H222KB
50	4700pf	±10%	SB	5.0	3.5	2.50	P4156-ND	2.16	16.94	91.00	88.00/M	81.00/M	75.00/M	ECF-F1H472KB
50	6800pf	±10%	SB	6.5	3.5	5.00	P4157-ND	2.39	18.79	101.00	97.00/M	90.00/M	83.00/M	ECF-F1H682KB
50	10000pf	±10%	SB	6.5	3.5	5.00	P4158-ND	2.20	17.25	92.00	89.00/M	83.00/M	76.00/M	ECF-F1H103KB
50	15000pf	±10%	SB	8.0	3.5	5.00	P4159-ND	2.35	18.48	99.00	95.00/M	88.00/M	81.00/M	ECF-F1H153KB
50	22000pf	±10%	SB	10.0	3.5	5.00	P4160-ND	3.25	25.56	137.00	132.00/M	122.00/M	113.00/M	ECF-F1H223KB
50	10000pf	+80%-20%	SF	4.5	3.5	2.50	P4161-ND	1.61	12.63	68.00	65.00/M	60.00/M	56.00/M	ECF-F1H103ZF5
50	22000pf	+80%-20%	SF	5.0	3.5	2.50	P4162-ND	1.57	12.32	66.00	64.00/M	59.00/M	54.00/M	ECF-F1H223ZF5
50	47000pf	+80%-20%	SF	6.5	3.5	5.00	P4163-ND	1.49	11.70	63.00	60.00/M	56.00/M	52.00/M	ECF-F1H473ZF5
50	100000pf	+80%-20%	SF	8.0	3.5	5.00	P4164-ND	1.88	14.78	79.00	76.00/M	71.00/M	65.00/M	ECF-F1H104ZF5
50	1000pf	±20%	SR	4.5	3.5	2.50	P4431-ND	1.25	9.86	53.00	51.00/M	47.00/M	43.00/M	ECF-F1H102MR
50	1500pf	±20%	SR	4.5	3.5	2.50	P4432-ND	1.25	9.86	53.00	51.00/M	47.00/M	43.00/M	ECF-F1H152MR
50	2200pf	±20%	SR	4.5	3.5	2.50	P4433-ND	1.25	9.86	53.00	51.00/M	47.00/M	43.00/M	ECF-F1H222MR
50	4700pf	±20%	SR	4.5	3.5	2.50	P4435-ND	1.25	9.86	53.00	51.00/M	47.00/M	43.00/M	ECF-F1H472MR
50	6800pf	±20%	SR	5.0	3.5	2.50	P4436-ND	1.33	10.47	56.00	54.00/M	50.00/M	46.00/M	ECF-F1H682MR
50	10000pf	±20%	SR	6.5	3.5	5.00	P4437-ND	1.41	11.09	59.00	57.00/M	53.00/M	49.00/M	ECF-F1H103MR
50	15000pf	±20%	SR	6.5	3.5	5.00	P4438-ND	1.41	11.09	59.00	57.00/M	53.00/M	49.00/M	ECF-F1H153MR
50	22000pf	±20%	SR	8.0	3.5	5.00	P4439-ND	1.72	13.55	73.00	70.00/M	65.00/M	60.00/M	ECF-F1H223MR
50	33000pf	±20%	SR	11.0	3.5	5.00	P4440-ND	2.43	19.10	102.00	99.00/M	91.00/M	84.00/M	ECF-F1H333MR
50	47000pf	±20%	SR	11.0	3.5	5.00	P4441-ND	2.43	19.10	102.00	99.00/M	91.00/M	84.00/M	ECF-F1H473MR

PHILIPS Ceramic Disc Capacitors



EIA Temperature Coefficient Code	COG	N750	Y5V	Y5P
Capacitance Temperature Coefficient	30PPM/°C	-1000PPM/°C (1425PH-ND: ±120ppms)	+22%, -82%	±10%
Operating Temperature Range	-25 to +85°C	-25 to +85°C	-30 to +85°C	-30 to +85°C
Tolerance on Capacitance	±5%	±5%	+80/-20%	±10%
Q Factor	C ≥ 30pf: Q ≥ 1000 C < 30pf: Q ≥ 400 +20°C	C ≥ 30pf: Q ≥ 1000 C < 30pf: Q ≥ 400 +20°C	—	—
Dissipation Factor	—	—	4.0% max.	2.5% max.
Insulation Resistance	10000 MΩ	10000 MΩ min.	10000 MΩ min.	10000 MΩ min.

Toler-ance	Dimensions D	S	Cap. Value	Digi-Key Part No.	Pricing 10	100	1000	5000	Philips Part No.
Type N750, 100V									
±.5	0.197	0.250	10pF	1301PH-ND•	.63	4.93	26.00	25.00/M	D100D20U2MHAAAC
5%	0.197	0.250	12pF	1302PH-ND	.63	4.93	26.00	25.00/M	D120J20U2MHAAAC
5%	0.197	0.250	15pF	1303PH-ND•	.63	4.93	26.00	25.00/M	D150J20U2MHAAAC
5%	0.197	0.250	18pF	1304PH-ND•	.63	4.93	26.00	25.00/M	D180J20U2MHAAAC
5%	0.197	0.250	22pF	1305PH-ND•	.63	4.93	26.00	25.00/M	D220J20U2MHAAAC
5%	0.197	0.250	27pF	1306PH-ND•	.63	4.93	26.00	25.00/M	D270J20U2MHAAAC
5%	0.197	0.250	33pF	1307PH-ND•	.63	4.93	26.00	25.00/M	D330J20U2MHAAAC
5%	0.197	0.250	39pF	1308PH-ND•	.63	4.93	26.00	25.00/M	D390J20U2MHAAAC
5%	0.197	0.250	47pF	1309PH-ND•	.63	4.93	26.00	25.00/M	D470J20U2MHAAAC
5%	0.197	0.250	56pF	1310PH-ND•	.63	4.93	26.00	25.00/M	D560J20U2MHAAAC
5%	0.256	0.250	68pF	1311PH-ND•	.63	4.93	26.00	25.00/M	D680J25U2MHAAAC
5%	0.256	0.250	82pF	1312PH-ND	.63	4.93	26.00	25.00/M	D820J25U2MHAAAC
5%	0.256	0.250	100pF	1313PH-ND•	.63	4.93	26.00	25.00/M	D101J25U2MHAAAC
5%	0.256	0.250	120pF	1314PH-ND	.63	4.93	26.00	25.00/M	D121J25U2MHAAAC
5%	0.290	0.250	150pF	1315PH-ND•	.63	4.93	26.00	25.00/M	D151J29U2MHAAAC
5%	0.290	0.250	180pF	1316PH-ND•	.63	4.93	26.00	25.00/M	D181J31U2MHAAAC
5%	0.394	0.250	220pF	1317PH-ND•	.63	4.93	26.00	25.00/M	D221J39U2MHAAAC
5%	0.394	0.250	270pF	1318PH-ND•	.63	4.93	26.00	25.00/M	D271J39U2MHAAAC
5%	0.394	0.250	330pF	1319PH-ND•	.63	4.93	26.00	25.00/M	D331J39U2MHAAAC
5%	0.472	0.250	390pF	1320PH-ND	.63	4.93	26.00	25.00/M	D391J47U2MHAAAC
5%	0.472	0.250	470pF	1321PH-ND•	.63	4.93	26.00	25.00/M	D471J47U2MHAAAC
5%	0.472	0.250	560pF	1322PH-ND	.63	4.93	26.00	25.00/M	D561J49U2MHAAAC
5%	0.472	0.250	680pF	1323PH-ND	1.40	11.00	59.00	57.00/M	D681J59U2MHAAAC
5%	0.472	0.250	820pF	1425PH-ND	1.40	11.00	59.00	57.00/M	D821J59U2JHAAAC
5%	0.472	0.250	1000pF	1325PH-ND•	1.40	11.00	59.00	57.00/M	D102J69U2MHAAAC
Type COG, 100V									
±.5	0.197	0.250	10pF	1326PH-ND	.63	4.93	26.00	25.00/M	D100D20COGHAAAC
5%	0.197	0.250	12pF	1327PH-ND	.63	4.93	26.00	25.00/M	D120J20COGHAAAC
5%	0.197	0.250	15pF	1328PH-ND	.63	4.93	26.00	25.00/M	D150J20COGHAAAC
5%	0.197	0.250	18pF	1329PH-ND	.63	4.93	26.00	25.00/M	D180J20COGHAAAC
5%	0.197	0.250	22pF	1330PH-ND	.63	4.93	26.00	25.00/M	D220J20COGHAAAC
5%	0.197	0.250	27pF	1331PH-ND	.63	4.93	26.00	25.00/M	D270J20COGHAAAC
5%	0.197	0.250	33pF	1332PH-ND	.63	4.93	26.00	25.00/M	D330J20COGHAAAC
5%	0.256	0.250	39pF	1333PH-ND	.63	4.93	26.00	25.00/M	D390J25COGHAAAC
5%	0.256	0.250	47pF	1334PH-ND	.63	4.93	26.00	25.00/M	D470J25COGHAAAC
5%	0.256	0.250	56pF	1335PH-ND	.63	4.93	26.00	25.00/M	D560J25COGHAAAC
5%	0.256	0.250	68pF	1336PH-ND	.63	4.93	26.00	25.00/M	D680J25COGHAAAC
5%	0.290	0.250	82pF	1337PH-ND	.67	5.23	28.00	27.00/M	D820J29COGHAAAC
5%	0.290	0.250	100pF	1338PH-ND	.67	5.23	28.00	27.00/M	D101J29COGHAAAC
5%	0.290	0.250	120pF	1339PH-ND	.67	5.23	28.00	27.00/M	D121J29COGHAAAC
5%	0.394	0.250	150pF	1340PH-ND	.67	5.23	28.00	27.00/M	D151J39COGHAAAC
5%	0.394	0.250	180pF	1341PH-ND	.67	5.23	28.00	27.00/M	D181J39COGHAAAC
5%	0.394	0.250	220pF	1342PH-ND	.67	5.23	28.00	27.00/M	D221J39COGHAAAC
5%	0.472	0.250	270pF	1343PH-ND	.67	5.23	28.00	27.00/M	D271J47COGHAAAC
Type N750, 500V									
10%	0.197	0.250	10pF	1344PH-ND	1.37	10.73	57.00	55.00/M	D100K20U2MLAAAA
10%	0.197	0.250	15pF	1345PH-ND	1.37	10.73	57.00	55.00/M	D150K20U2MLAAAA
10%	0.197	0.250	18pF	1346PH-ND	1.37	10.73	57.00	55.00/M	D180K20U2MLAAAA
10%	0.197	0.250	22pF	1347PH-ND	1.37	10.73	57.00	55.00/M	D220K20U2MLAAAA
10%	0.256	0.250	27pF	1348PH-ND	1.72	13.48	72.00	70.00/M	D270K25U2MLAAAA
10%	0.256	0.250	33pF	1349PH-ND	1.72	13.48	72.00	70.00/M	D330K25U2MLAAAA
10%	0.256	0.250	39pF	1350PH-ND	1.72	13.48	72.00	70.00/M	D390K25U2MLAAAA
10%	0.256	0.250	47pF	1351PH-ND	1.72	13.48	72.00	70.00/M	D470K25U2MLAAAA
10%	0.256	0.250	56pF	1352PH-ND	1.72	13.48	72.00	70.00/M	D560K25U2MLAAAA
10%	0.290	0.250	68pF	1353PH-ND	1.82	14.30	77.00	74.00/M	D680K29U2MLAAAA
10%	0.310	0.250	82pF	1354PH-ND	1.82	14.30	77.00	74.00/M	D820K31U2MLAAAA
Type COG, 500V									
±.5	0.197	0.250	10pF	1355PH-ND	1.37	10.73	57.00	55.00/M	D100D20COGLAAAA
5%	0.197	0.250	15pF	1356PH-ND	1.37	10.73	57.00	55.00/M	D150J20COGLAAAA
5%	0.256	0.250	18pF	1357PH-ND	1.72	13.48	72.00	70.00/M	D180J25COGLAAAA
5%	0.256	0.250	22pF	1358PH-ND	1.72	13.48	72.00	70.00/M	D220J25COGLAAAA
5%	0.256	0.250	27pF	1359PH-ND	1.72	13.48	72.00	70.00/M	D270J25COGLAAAA
5%	0.256	0.250	33pF	1360PH-ND	1.72	13.48	72.00	70.00/M	D330J25COGLAAAA
5%	0.290	0.250	39pF	1361PH-ND	1.82	14.30	77.00	74.00/M	D390J29COGLAAAA
5%	0.290	0.250	47pF	1362PH-ND	2.07	16.23	87.00	84.00/M	D470J29COGLAAAA
5%	0.310	0.375	56pF	1363PH-ND	1.82	14.30	77.00	74.00/M	D560J31COGLABAA
5%	0.394	0.375	68pF	1364PH-ND	2.07	16.23	87.00	84.00/M	D680J39COGLABAA
5%	0.394	0.375	82pF	1365PH-ND	2.07	16.23	87.00	84.00/M	D820J39COGLABAA
5%	0.394	0.375	100pF	1366PH-ND	2.07	16.23	87.00	84.00/M	D101J39COGLABAA
5%	0.472	0.375	120pF	1367PH-ND	2.77	21.73	116.00	112.00/M	D121J47COGLABAA
5%	0.490	0.375	150pF	1368PH-ND	2.77	21.73	116.00	112.00/M	D151J49COGLABAA
5%	0.590	0.375	180pF	1369PH-ND	2.98	23.38	125.00	121.00/M	D181J59COGLABAA
5%	0.590	0.375	220pF	1370PH-ND	2.98	23.38	125.00	121.00/M	D221J59COGLABAA
Type Y5P, 100V									
10%	0.197	0.250	100pF	1371PH-ND	.77	6.05	32.00	31.00/M	D101K20Y5PHAAEU
10%	0.197	0.250	120pF	1372PH-ND	.77	6.05	32.00	31.00/M	D121K20Y5PHAAEU
10%	0.197	0.250	150pF	1373PH-ND	.77	6.05	32.00	31.00/M	D151K20Y5PHAAEU
10%	0.197	0.250	180pF	1374PH-ND	.77	6.05	32.00	31.00/M	D181K20Y5PHAAEU
10%	0.197	0.250	220pF	1375PH-ND	.77	6.05	32.00	31.00/M	D221K20Y5PHAAEU
10%	0.197	0.250	270pF	1376PH-ND	.77	6.05	32.00	31.00/M	D271K20Y5PHAAEU
10%	0.197	0.250	330pF	1377PH-ND	.77	6.05	32.00	31.00/M	D331K20Y5PHAAEU
10%	0.197	0.250	390pF	1378PH-ND	.77	6.05	32.00	31.00/M	D391K20Y5PHAAEU
10%	0.197	0.250	470pF	1379PH-ND	.77	6.05	32.00	31.00/M	D471K20Y5PHAAEU
10%	0.197	0.250	560pF	1380PH-ND	.77	6.05	32.00	31.00/M	D561K20Y5PHAAEU
10%	0.197	0.250	680pF	1381PH-ND	.77	6.05	32.00	31.00/M	D681K20Y5PHAAEU
10%	0.197	0.250	820pF	1382PH-ND	.77	6.05	32.00	31.00/M	D821K20Y5PHAAEU
10%	0.197	0.250	1000pF	1383PH-ND	.77	6.05	32.00	31.00/M	D102K20Y5PHAAEU
10%	0.197	0.250	1200pF	1384PH-ND	.77	6.05	32.00	31.00/M	D122K20Y5PHAAEU
10%	0.256	0.250	1500pF	1385PH-ND	.77	6.05	32.00	31.00/M	D152K25Y5PHAAEU
10%	0.256	0.250	1800pF	1386PH-ND	.77	6.05	32.00	31.00/M	D182K25Y5PHAAEU
10%	0.256	0.250	2200pF	1387PH-ND	.77	6.05	32.00	31.00/M	D222K25Y5PHAAEU
10%	0.290	0.250	2700pF	1388PH-ND	.77	6.05	32.00	31.00/M	D272K29Y5PHAAEU
10%	0.290	0.250	3300pF	1389PH-ND	.77	6.05	32.00	31.00/M	D332K29Y5PHAAEU
10%	0.310	0.250	3900pF	1390PH-ND	.77	6.05	32.00	31.00/M	D392K31Y5PHAAEU
10%	0.394	0.250	4700pF	1391PH-ND	.77	6.05	32.00	31.00/M	D472K39Y5PHAAEU
10%	0.394	0.250	5600pF	1392PH-ND	.77	6.05	32.00	31.00/M	D562K39Y5PHAAEU
10%	0.394	0.250	6800pF	1393PH-ND	.77	6.05	32.00	31.00/M	D682K39Y5PHAAEU
Type Y5V, 100V									
+80/-20	0.197	0.250	1000pF	1394PH-ND	.77	6.05	32.00	31.00/M	D102Z20Y5VHAAEU
+80/-20	0.197	0.250	1500pF	1395PH-ND	.77	6.05	32.00	31.00/M	D152Z20Y5VHAAEU
+80/-20	0.197	0.250	2200pF	1396PH-ND	.77	6.05	32.00	31.00/M	D222Z20Y5VHAAEU
+80/-20	0.197	0.250	3300pF	1397PH-ND	.77	6.05	32.00	31.00/M	D332Z20Y5VHAAEU
+80/-20	0.256	0.250	4700pF	1398PH-ND	.77	6.05	32.00	31.00/M	D472Z25Y5VHAAEU
+80/-20	0.197	0.250	6800pF	1399PH-ND	.77	6.05	32.00	31.00/M	D682Z20Y5VHAAEU
+80/-20	0.310	0.250	0.01µf	1400PH-ND	.77	6.05	32.00	31.00/M	D103Z31Y5VHAAEU
Type Y5P, 500V									
10%	0.197	0.250	100pF	1401PH-ND	1.37	10.73	57.00	55.00/M	D101K20Y5PLAAEU
10%	0.197	0.250	150pF	1402PH-ND	1.37	10.73	57.00	55.00/M	D151K20Y5PLAAEU
10%	0.197	0.250	180pF	1403PH-ND	1.37	10.73	57.00	55.00/M	D181K20Y5PLAAEU
10%	0.197	0.250	220pF	1404PH-ND	1.37	10.73	57.00	55.00/M	D221K20Y5PLAAEU
10%	0.197	0.250	270pF	1405PH-ND	1.37	10.73	57.00	55.00/M	D271K20Y5PLAAEU
10%	0.197	0.250	330pF	1406PH-ND	1.37	10.73	57.00	55.00/M	D331K20Y5PLAAEU
10%	0.197	0.250	390pF	1407PH-ND	1.37	10.73	57.00	55.00/M	D391K20Y5PLAAEU
10%	0.197	0.250	470pF	1408PH-ND	1.37	10.73	57.00	55.00/M	D471K20Y5PLAAEU
10%	0.256	0.250	560pF	1409PH-ND	1.72	13.48	72.00	70.00/M	D561K25Y5PLAAEC
10%	0.256	0.250	680pF	1410PH-ND	1.72	13.48	72.00	70.00/M	D681K25Y5PLAAEC
10%	0.256	0.250	820pF	1411PH-ND	1.72	13.48	72.00	70.00/M	D821K25Y5PLAAEC
10%	0.256	0.250	1000pF	1412PH-ND	1.72	13.48	72.00	70.00/M	D102K25Y5PLAAEC
10%	0.310	0.250	1500pF	1413PH-ND	1.82	14.30	77.00	74.00/M	D152K31Y5PLAAEC
10%	0.390	0.250	1800pF	1414PH-ND	2.07	16.23	87.00	84.00/M	D182K39Y5PLAAEC
10%	0.390	0.375	2200pF	1415PH-ND	2.07	16.23	87.00	84.00/M	D222K39Y5PLABEC
10%	0.390	0.375	2700pF	1416PH-ND	2.07	16.23	87.00	84.00/M	D272K39Y5PLABEC
10%	0.472	0.375	3300pF	1417PH-ND	2.77	21.73	116.00	112.00/M	D332K47Y5PLABEC
10%	0.472	0.375	3900pF	1418PH-ND	2.77	21.73	116.00	112.00/M	D392K47Y5PLABEC
10%	0.490	0.375	4700pF	1419PH-ND	2.87	22.55	121.00	117.00/M	D472K49Y5PLABEC
10%	0.590	0.375	5600pF	1420PH-ND	2.98	23.38	125.00	121.00/M	D562K59Y5PLABEC
10%	0.590	0.375	6800pF	1421PH-ND	2.98	23.38	125.00	121.00/M	D682K59Y5PLABEC
10%	0.590	0.375	8200pF	1422PH-ND	3.71	29.15	156.00	151.00/M	D822K59Y5PLABEC
10%	0.690	0.375	0.01µf	1424PH-ND	5.25	41.25	221.00	213.00/M	D103K69Y5PLABEC

• *NEW!* PHD1-KIT-ND 20 each of values denoted (360 total pieces) $21.95

Panasonic. Multilayer Ceramic Chip Capacitors 0402, 0603, 0805 & 1206

FEATURES:

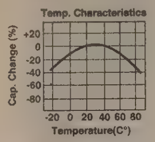
• Small in size and large in capacitance. • Superior humidity characteristic and long life due to complete sealing of inner electrodes. • Low inductance and excellent frequency characteristic. • Excellent solderability and resistance to soldering heat due to solder plating.

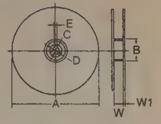
APPLICATIONS:

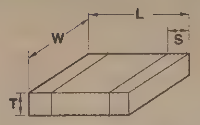
• Hybrid thick and thin film integrated circuits. • Tele-communication equipment. • Computers. • Electronic wrist watches and cameras. • TV tuner. • Video cameras. • Radio and Tape Recorder.

RELATED STANDARDS:

• J15 C 6429 • E1A RS198 • 1 EC Pub. 384-10. Operating Temperature Range: 155 to 1258C. Insulation Resistance (IR): IR © 10000 MV or 500/C MV, whichever is less (C***Rated capacitance in mF).



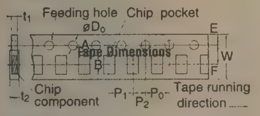




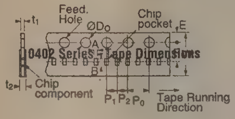
Reel Diagram

All dimensions shown in mm.

Series	A	B	C	D	E	W	W1
0402	180 ± 1	60 ± 0.5	13.0 ± 0.5	21.0 ± 0.8	2.0 ± 0.5	9.0 ± 0.3	1.1 ± 0.2
0603							
0805							
1206							



Tape Dimensions



0402 Series - Tape Dimensions

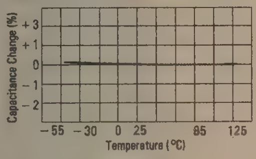
Tape Diagram

Series	A	B	W	F	E	P_1	P_2	P_0	D_0	t_1	t_2
0402	0.65 ± 0.5	1.15 ± 0.5	8.0 ± .2	3.5 ± .05	1.75 ± .1	2.00 ± 0.05	2.0 ± 0.5	4.0 ± .1	1.5 + .1 – 0	0.7 max.	1.0 max.
0603	1.1 ±0.1	1.9 ±0.1	8.0 ± .2	3.5 ± .05	1.75 ± .1	4.0 ± .1	2.0 ± 0.5	4.0 ± .1	1.5 + .1 – 0	1.1 max.	1.4 max.
0805	1.65 ± 0.2	2.4 x 0.2									
1206	2.0 ± .2	3.6 ± .2									

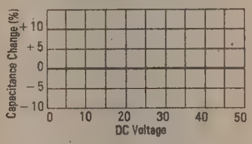
NPO Dielectric Type Specifications:

- **Operating temperature range:** 1558C ; `1258C.
- **Capacitance range:** 1.0 pF ; 1000 pF.
- **Voltage:** 50 V DC.
- **Q factor (1 MHz, 0.5 ; 5 V rms, 258C):** Capacitance 30 pF . . . 400 ` 20C min. 30 pF Capacitance 1,000 pF . . . 1,000 min.
- **Dissipation factor (1 kHz, 0.5 ; 5 V rms, 258C):** Capacitance 1,000 pF . . . 0.2% max.
- **Insulation resistance (rated voltage applied at 258C):** 10,000 MV min.

Temperature Coeffecient



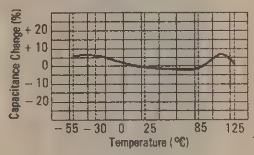
Voltage Coeffecient



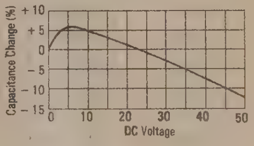
X7R Dielectric Type Specifications:

- **Operating temperature range:** 1558C ; `1258C.
- **Capacitance range (1 kHz, 1.0 V rms, 258C):** 220 pF ; 47,000 pF. • Voltage: 50 V DC.
- **Dissipation factor (1 kHz, 1.0 V rms, 258C):** 2.5% max.
- **Insulation resistance (rated voltage applied at 258C):** 10,000 MV min. or 500 MVxmF min. whichever is the smaller.

Temperature Coeffecient



Voltage Coeffecient



Size Code	Type	WV DC	Cap. pF	Tolerance	Dimensions				Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing				Panasonic Part No.
					L ±0.2	W ±0.2	T Max.	S ±0.3		100	500	1,000		4,000	5,000	10,000	12,000	
0402	NPO	50	0.5	±.25pF	1.0	0.5	0.5	0.2	PCC0R5CQCT-ND•	26.50	106.00	159.00	PCC0R5CQTR-ND	—	—	79.00/M	—	ECU-E1H0R5CCQ
		50	1.0	±.25pF	1.0	0.5	0.5	0.2	PCC010CQCT-ND•	26.50	106.00	159.00	PCC010CQTR-ND	—	—	79.00/M	—	ECU-E1H010CCQ
		50	1.5	±.25pF	1.0	0.5	0.5	0.2	PCC1R5CQCT-ND•	26.50	106.00	159.00	PCC1R5CQTR-ND	—	—	79.00/M	—	ECU-E1H1R5CCQ
		50	2.0	±.25pF	1.0	0.5	0.5	0.2	PCC020CQCT-ND•	26.50	106.00	159.00	PCC020CQTR-ND	—	—	79.00/M	—	ECU-E1H020CCQ
		50	3.0	±.25pF	1.0	0.5	0.5	0.2	PCC030CQCT-ND•	26.50	106.00	159.00	PCC030CQTR-ND	—	—	79.00/M	—	ECU-E1H030CCQ
		50	4.0	±.25pF	1.0	0.5	0.5	0.2	PCC040CQCT-ND•	26.50	106.00	159.00	PCC040CQTR-ND	—	—	79.00/M	—	ECU-E1H040CCQ
		50	5.0	±.25pF	1.0	0.5	0.5	0.2	PCC050CQCT-ND•	26.50	106.00	159.00	PCC050CQTR-ND	—	—	79.00/M	—	ECU-E1H050CCQ
		50	6.0	±.5pF	1.0	0.5	0.5	0.2	PCC060CQCT-ND•	26.50	106.00	159.00	PCC060CQTR-ND	—	—	79.00/M	—	ECU-E1H060DCQ
		50	7.0	±.5pF	1.0	0.5	0.5	0.2	PCC070CQCT-ND•	26.50	106.00	159.00	PCC070CQTR-ND	—	—	79.00/M	—	ECU-E1H070DCQ
		50	8.0	±.5pF	1.0	0.5	0.5	0.2	PCC080CQCT-ND•	26.50	106.00	159.00	PCC080CQTR-ND	—	—	79.00/M	—	ECU-E1H080DCQ
		50	9.0	±.5pF	1.0	0.5	0.5	0.2	PCC090CQCT-ND•	26.50	106.00	159.00	PCC090CQTR-ND	—	—	79.00/M	—	ECU-E1H090DCQ
		50	10	±.5pF	1.0	0.5	0.5	0.2	PCC100CQCT-ND•	26.50	106.00	159.00	PCC100CQTR-ND	—	—	79.00/M	—	ECU-E1H100DCQ
		50	11	±5%	1.0	0.5	0.5	0.2	PCC110CQCT-ND	26.50	106.00	159.00	PCC110CQTR-ND	—	—	79.00/M	—	ECU-E1H110JCQ
		50	12	±5%	1.0	0.5	0.5	0.2	PCC120CQCT-ND	26.50	106.00	159.00	PCC120CQTR-ND	—	—	79.00/M	—	ECU-E1H120JCQ
		50	13	±5%	1.0	0.5	0.5	0.2	PCC130CQCT-ND	26.50	106.00	159.00	PCC130CQTR-ND	—	—	79.00/M	—	ECU-E1H130JCQ
		50	15	±5%	1.0	0.5	0.5	0.2	PCC150CQCT-ND•	26.50	106.00	159.00	PCC150CQTR-ND	—	—	79.00/M	—	ECU-E1H150JCQ
		50	16	±5%	1.0	0.5	0.5	0.2	PCC160CQCT-ND	26.50	106.00	159.00	PCC160CQTR-ND	—	—	79.00/M	—	ECU-E1H160JCQ
		50	18	±5%	1.0	0.5	0.5	0.2	PCC180CQCT-ND•	26.50	106.00	159.00	PCC180CQTR-ND	—	—	79.00/M	—	ECU-E1H180JCQ
		50	20	±5%	1.0	0.5	0.5	0.2	PCC200CQCT-ND	26.50	106.00	159.00	PCC200CQTR-ND	—	—	79.00/M	—	ECU-E1H200JCQ
		50	22	±5%	1.0	0.5	0.5	0.2	PCC220CQCT-ND•	26.50	106.00	159.00	PCC220CQTR-ND	—	—	79.00/M	—	ECU-E1H220JCQ
		50	24	±5%	1.0	0.5	0.5	0.2	PCC240CQCT-ND•	26.50	106.00	159.00	PCC240CQTR-ND	—	—	79.00/M	—	ECU-E1H240JCQ
		50	27	±5%	1.0	0.5	0.5	0.2	PCC270CQCT-ND•	26.50	106.00	159.00	PCC270CQTR-ND	—	—	79.00/M	—	ECU-E1H270JCQ
		50	30	±5%	1.0	0.5	0.5	0.2	PCC300CQCT-ND•	26.50	106.00	159.00	PCC300CQTR-ND	—	—	79.00/M	—	ECU-E1H300JCQ
		50	33	±5%	1.0	0.5	0.5	0.2	PCC330CQCT-ND•	26.50	106.00	159.00	PCC330CQTR-ND	—	—	79.00/M	—	ECU-E1H330JCQ
		50	36	±5%	1.0	0.5	0.5	0.2	PCC360CQCT-ND	26.50	106.00	159.00	PCC360CQTR-ND	—	—	79.00/M	—	ECU-E1H360JCQ
		50	39	±5%	1.0	0.5	0.5	0.2	PCC390CQCT-ND•	26.50	106.00	159.00	PCC390CQTR-ND	—	—	79.00/M	—	ECU-E1H390JCQ
		50	43	±5%	1.0	0.5	0.5	0.2	PCC430CQCT-ND	26.50	106.00	159.00	PCC430CQTR-ND	—	—	79.00/M	—	ECU-E1H430JCQ
		50	47	±5%	1.0	0.5	0.5	0.2	PCC470CQCT-ND•	26.50	106.00	159.00	PCC470CQTR-ND	—	—	79.00/M	—	ECU-E1H470JCQ
		50	51	±5%	1.0	0.5	0.5	0.2	PCC510CQCT-ND	26.50	106.00	159.00	PCC510CQTR-ND	—	—	79.00/M	—	ECU-E1H510JCQ
		50	56	±5%	1.0	0.5	0.5	0.2	PCC560CQCT-ND•	26.50	106.00	159.00	PCC560CQTR-ND	—	—	79.00/M	—	ECU-E1H560JCQ
		50	62	±5%	1.0	0.5	0.5	0.2	PCC620CQCT-ND	26.50	106.00	159.00	PCC620CQTR-ND	—	—	79.00/M	—	ECU-E1H620JCQ
		50	68	±5%	1.0	0.5	0.5	0.2	PCC680CQCT-ND•	26.50	106.00	159.00	PCC680CQTR-ND	—	—	79.00/M	—	ECU-E1H680JCQ
		50	75	±5%	1.0	0.5	0.5	0.2	PCC750CQCT-ND	26.50	106.00	159.00	PCC750CQTR-ND	—	—	79.00/M	—	ECU-E1H750JCQ
		50	82	±5%	1.0	0.5	0.5	0.2	PCC820CQCT-ND•	28.00	112.00	168.00	PCC820CQTR-ND	—	—	83.00/M	—	ECU-E1H820JCQ
		50	91	±5%	1.0	0.5	0.5	0.2	PCC910CQCT-ND	28.00	112.00	168.00	PCC910CQTR-ND	—	—	83.00/M	—	ECU-E1H910JCQ
		50	100	±5%	1.0	0.5	0.5	0.2	PCC101CQCT-ND•	28.00	112.00	168.00	PCC101CQTR-ND	—	—	83.00/M	—	ECU-E1H101JCQ
		50	110	±5%	1.0	0.5	0.5	0.2	PCC111CQCT-ND	29.50	118.00	177.00	PCC111CQTR-ND	—	—	87.00/M	—	ECU-E1H111JCQ
		50	120	±5%	1.0	0.5	0.5	0.2	PCC121CQCT-ND•	29.50	118.00	177.00	PCC121CQTR-ND	—	—	87.00/M	—	ECU-E1H121JCQ
		50	130	±5%	1.0	0.5	0.5	0.2	PCC131CQCT-ND	31.00	124.00	186.00	PCC131CQTR-ND	—	—	92.00/M	—	ECU-E1H131JCQ
		50	150	±5%	1.0	0.5	0.5	0.2	PCC151CQCT-ND•	31.00	124.00	186.00	PCC151CQTR-ND	—	—	92.00/M	—	ECU-E1H151JCQ

Size Code	Type	WV DC	Cap. pF	Tolerance	Dimensions L ±0.2	Dimensions W ±0.2	Dimensions T Max.	Dimensions S ±0.3	Digi-Key Part No.	Pricing 100	Pricing 500	Pricing 1,000	Digi-Key Part No.	Tape & Reel Pricing 4,000	Tape & Reel Pricing 5,000	Tape & Reel Pricing 10,000	Tape & Reel Pricing 12,000	Panasonic Part No.
0402	NPO	50	160	±5%	1.0	0.5	0.5	0.2	PCC161CQCT-ND	33.00	132.00	198.00	PCC161CQTR-ND	—	—	98.00/M	—	ECU-E1H161JCQ
		50	180	±5%	1.0	0.5	0.5	0.2	PCC181CQCT-ND•	34.50	138.00	207.00	PCC181CQTR-ND	—	—	102.00/M	—	ECU-E1H181JCQ
		50	200	±5%	1.0	0.5	0.5	0.2	PCC201CQCT-ND•	36.50	146.00	219.00	PCC201CQTR-ND	—	—	108.00/M	—	ECU-E1H201JCQ
		50	220	±5%	1.0	0.5	0.5	0.2	PCC221CQCT-ND•	38.50	154.00	231.00	PCC221CQTR-ND	—	—	114.00/M	—	ECU-E1H221JCQ
	X7R	25	270	±10%	1.0	0.5	0.5	0.2	PCC271BQCT-ND•	26.50	106.00	159.00	PCC271BQTR-ND	—	—	79.00/M	—	ECU-E1E271KBQ
		25	330	±10%	1.0	0.5	0.5	0.2	PCC331BQCT-ND•	26.50	106.00	159.00	PCC331BQTR-ND	—	—	79.00/M	—	ECU-E1E331KBQ
		25	391	±10%	1.0	0.5	0.5	0.2	PCC391BQCT-ND•	26.50	106.00	159.00	PCC391BQTR-ND	—	—	79.00/M	—	ECU-E1E391KBQ
		25	470	±10%	1.0	0.5	0.5	0.2	PCC471BQCT-ND•	26.50	106.00	159.00	PCC471BQTR-ND	—	—	79.00/M	—	ECU-E1E471KBQ
		25	560	±10%	1.0	0.5	0.5	0.2	PCC561BQCT-ND•	26.50	106.00	159.00	PCC561BQTR-ND	—	—	79.00/M	—	ECU-E1E561KBQ
		25	680	±10%	1.0	0.5	0.5	0.2	PCC681BQCT-ND•	26.50	106.00	159.00	PCC681BQTR-ND	—	—	79.00/M	—	ECU-E1E681KBQ
		25	820	±10%	1.0	0.5	0.5	0.2	PCC821BQCT-ND•	26.50	106.00	159.00	PCC821BQTR-ND	—	—	79.00/M	—	ECU-E1E821KBQ
		25	1000	±10%	1.0	0.5	0.5	0.2	PCC102BQCT-ND•	26.50	106.00	159.00	PCC102BQTR-ND	—	—	79.00/M	—	ECU-E1E102KBQ
		25	1200	±10%	1.0	0.5	0.5	0.2	PCC122BQCT-ND•	26.50	106.00	159.00	PCC122BQTR-ND	—	—	79.00/M	—	ECU-E1E122KBQ
		25	1500	±10%	1.0	0.5	0.5	0.2	PCC152BQCT-ND•	26.50	106.00	159.00	PCC152BQTR-ND	—	—	79.00/M	—	ECU-E1E152KBQ
		25	1800	±10%	1.0	0.5	0.5	0.2	PCC182BQCT-ND•	26.50	106.00	159.00	PCC182BQTR-ND	—	—	79.00/M	—	ECU-E1E182KBQ
		25	2200	±10%	1.0	0.5	0.5	0.2	PCC222BQCT-ND•	26.50	106.00	159.00	PCC222BQTR-ND	—	—	79.00/M	—	ECU-E1E222KBQ
		25	2700	±10%	1.0	0.5	0.5	0.2	PCC272BQCT-ND•	28.75	115.00	172.50	PCC272BQTR-ND	—	—	85.00/M	—	ECU-E1E272KBQ
		25	3300	±10%	1.0	0.5	0.5	0.2	PCC332BQCT-ND•	31.05	124.20	186.30	PCC332BQTR-ND	—	—	92.00/M	—	ECU-E1E332KBQ
		25	3900	±10%	1.0	0.5	0.5	0.2	PCC392BQCT-ND•	32.20	128.80	193.20	PCC392BQTR-ND	—	—	95.00/M	—	ECU-E1E392KBQ
		25	4700	±10%	1.0	0.5	0.5	0.2	PCC472BQCT-ND•	32.78	131.10	196.65	PCC472BQTR-ND	—	—	97.00/M	—	ECU-E1E472KBQ
		16	5600	±10%	1.0	0.5	0.5	0.2	PCC562BQCT-ND•	31.05	124.20	186.30	PCC562BQTR-ND	—	—	92.00/M	—	ECU-E1C562KBQ
		16	6800	±10%	1.0	0.5	0.5	0.2	PCC682BQCT-ND•	32.20	128.80	193.20	PCC682BQTR-ND	—	—	95.00/M	—	ECU-E1C682KBQ
		16	8200	±10%	1.0	0.5	0.5	0.2	PCC822BQCT-ND•	32.78	131.10	196.65	PCC822BQTR-ND	—	—	97.00/M	—	ECU-E1C822KBQ
		16	10000	±10%	1.0	0.5	0.5	0.2	PCC103BQCT-ND•	33.35	133.40	200.10	PCC103BQTR-ND	—	—	99.00/M	—	ECU-E1C103KBQ
	Y5V	16	15000	+80%/-20%	1.0	0.5	0.5	0.2	PCC153FQCT-ND•	28.18	112.70	169.05	PCC153FQTR-ND	—	—	83.00/M	—	ECU-E1C153ZFQ
		16	22000	+80%/-20%	1.0	0.5	0.5	0.2	PCC223FQCT-ND•	29.90	119.60	179.40	PCC223FQTR-ND	—	—	89.00/M	—	ECU-E1C223ZFQ
		16	33000	+80%/-20%	1.0	0.5	0.5	0.2	PCC333FQCT-ND•	31.05	124.20	186.30	PCC333FQTR-ND	—	—	92.00/M	—	ECU-E1C333ZFQ
0603	NPO	50	0.5	±0.25pF	1.6	0.8	0.8	0.3	PCC0R5CVCT-ND•	7.50	30.00	45.00	PCC0R5CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H0R5CCV
		50	1	±0.25pF	1.6	0.8	0.8	0.3	PCC010CVCT-ND•	7.50	30.00	45.00	PCC010CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H010CCV
		50	1.5	±0.25pF	1.6	0.8	0.8	0.3	PCC1R5CVCT-ND•	7.50	30.00	45.00	PCC1R5CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H1R5CCV
		50	2	±0.25pF	1.6	0.8	0.8	0.3	PCC020CVCT-ND•	7.50	30.00	45.00	PCC020CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H020CCV
		50	3	±0.25pF	1.6	0.8	0.8	0.3	PCC030CVCT-ND•	7.50	30.00	45.00	PCC030CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H030CCV
		50	4	±0.25pF	1.6	0.8	0.8	0.3	PCC040CVCT-ND•	7.50	30.00	45.00	PCC040CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H040CCV
		50	5	±0.25pF	1.6	0.8	0.8	0.3	PCC050CVCT-ND•	7.50	30.00	45.00	PCC050CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H050CCV
		50	6	±0.5pF	1.6	0.8	0.8	0.3	PCC060CVCT-ND•	7.50	30.00	45.00	PCC060CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H060DCV
		50	7	±0.5pF	1.6	0.8	0.8	0.3	PCC070CVCT-ND•	7.50	30.00	45.00	PCC070CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H070DCV
		50	8	±0.5pF	1.6	0.8	0.8	0.3	PCC080CVCT-ND•	7.50	30.00	45.00	PCC080CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H080DCV
		50	9	±0.5pF	1.6	0.8	0.8	0.3	PCC090CVCT-ND•	7.50	30.00	45.00	PCC090CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H090DCV
		50	10	±1pF	1.6	0.8	0.8	0.3	PCC100CVCT-ND•	7.50	30.00	45.00	PCC100CVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H100FCV
		50	12	±5%	1.6	0.8	0.8	0.3	PCC120ACVCT-ND	7.50	30.00	45.00	PCC120ACVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H120JCV
		50	12	±10%	1.6	0.8	0.8	0.3	PCC120CVCT-ND	10.20	40.80	61.20	PCC120CVTR-ND	30.00/M	—	—	28.00/M	ECU-V1H120KCV
		50	15	±5%	1.6	0.8	0.8	0.3	PCC150ACVCT-ND•	7.50	30.00	45.00	PCC150ACVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H150JCV
		50	15	±10%	1.6	0.8	0.8	0.3	PCC150CVCT-ND	10.20	40.80	61.20	PCC150CVTR-ND	30.00/M	—	—	28.00/M	ECU-V1H150KCV
		50	18	±5%	1.6	0.8	0.8	0.3	PCC180ACVCT-ND•	7.50	30.00	45.00	PCC180ACVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H180JCV
		50	22	±5%	1.6	0.8	0.8	0.3	PCC220ACVCT-ND•	7.50	30.00	45.00	PCC220ACVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H220JCV
		50	27	±5%	1.6	0.8	0.8	0.3	PCC270ACVCT-ND•	8.50	34.00	51.00	PCC270ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H270JCV
		50	27	±10%	1.6	0.8	0.8	0.3	PCC270CVCT-ND	10.80	43.20	64.80	PCC270CVTR-ND	32.00/M	—	—	30.00/M	ECU-V1H270KCV
		50	33	±5%	1.6	0.8	0.8	0.3	PCC330ACVCT-ND•	8.50	34.00	51.00	PCC330ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H330JCV
		50	39	±5%	1.6	0.8	0.8	0.3	PCC390ACVCT-ND•	8.50	34.00	51.00	PCC390ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H390JCV
		50	47	±5%	1.6	0.8	0.8	0.3	PCC470ACVCT-ND•	8.50	34.00	51.00	PCC470ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H470JCV
		50	56	±5%	1.6	0.8	0.8	0.3	PCC560ACVCT-ND•	8.50	34.00	51.00	PCC560ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H560JCV
		50	68	±5%	1.6	0.8	0.8	0.3	PCC680ACVCT-ND•	8.50	34.00	51.00	PCC680ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H680JCV
		50	82	±5%	1.6	0.8	0.8	0.3	PCC820ACVCT-ND•	8.50	34.00	51.00	PCC820ACVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H820JCV
		50	100	±5%	1.6	0.8	0.8	0.3	PCC101ACVCT-ND•	10.50	42.00	63.00	PCC101ACVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H101JCV
		50	120	±5%	1.6	0.8	0.8	0.3	PCC121ACVCT-ND•	10.50	42.00	63.00	PCC121ACVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H121JCV
		50	120	±10%	1.6	0.8	0.8	0.3	PCC121CVCT-ND	12.00	48.00	72.00	—	—	—	—	—	ECU-V1H121KCV
		50	150	±5%	1.6	0.8	0.8	0.3	PCC151ACVCT-ND•	10.50	42.00	63.00	PCC151ACVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H151JCV
		50	150	±10%	1.6	0.8	0.8	0.3	PCC151CVCT-ND	12.97	51.88	77.82	—	—	—	—	—	ECU-V1H151KCV
		50	180	±5%	1.6	0.8	0.8	0.3	PCC181ACVCT-ND•	10.50	42.00	63.00	PCC181ACVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H181JCV
		50	180	±10%	1.6	0.8	0.8	0.3	PCC181CVCT-ND	12.97	51.88	77.82	PCC181CVTR-ND	38.00/M	—	—	36.00/M	ECU-V1H181KCV
		50	220	±5%	1.6	0.8	0.8	0.3	PCC221ACVCT-ND•	10.50	42.00	63.00	PCC221ACVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H221JCV
		50	220	±10%	1.6	0.8	0.8	0.3	PCC221CVCT-ND	12.60	50.40	75.60	PCC221CVTR-ND	37.00/M	—	—	35.00/M	ECU-V1H221KCV
		50	270	±5%	1.6	0.8	0.8	0.3	PCC271ACVCT-ND•	11.00	44.00	66.00	PCC271ACVTR-ND	33.00/M	—	—	30.00/M	ECU-V1H271JCV
		50	270	±10%	1.6	0.8	0.8	0.3	PCC271CVCT-ND	14.40	57.60	86.40	PCC271CVTR-ND	43.00/M	—	—	39.00/M	ECU-V1H271KCV
		50	330	±5%	1.6	0.8	0.8	0.3	PCC331ACVCT-ND•	12.50	50.00	75.00	PCC331ACVTR-ND	37.00/M	—	—	34.00/M	ECU-V1H331JCV
		50	330	±10%	1.6	0.8	0.8	0.3	PCC331CVCT-ND	15.00	60.00	90.00	PCC331CVTR-ND	44.00/M	—	—	41.00/M	ECU-V1H331KCV
		50	390	±5%	1.6	0.8	0.8	0.3	PCC391ACVCT-ND•	14.00	56.00	84.00	PCC391ACVTR-ND	41.00/M	—	—	38.00/M	ECU-V1H391JCV
		50	390	±10%	1.6	0.8	0.8	0.3	PCC391CVCT-ND	16.80	67.20	100.80	PCC391CVTR-ND	50.00/M	—	—	46.00/M	ECU-V1H391KCV
	X7R	50	220	±10%	1.6	0.8	0.8	0.3	PCC221BVCT-ND•	7.00	28.00	42.00	PCC221BVTR-ND	21.00/M	—	—	19.00/M	ECU-V1H221KBV
		50	270	±10%	1.6	0.8	0.8	0.3	PCC271BVCT-ND•	7.00	28.00	42.00	PCC271BVTR-ND	21.00/M	—	—	19.00/M	ECU-V1H271KBV
		50	330	±10%	1.6	0.8	0.8	0.3	PCC331BVCT-ND•	7.00	28.00	42.00	PCC331BVTR-ND	21.00/M	—	—	19.00/M	ECU-V1H331KBV
		50	390	±10%	1.6	0.8	0.8	0.3	PCC391BVCT-ND•	7.00	28.00	42.00	PCC391BVTR-ND	21.00/M	—	—	19.00/M	ECU-V1H391KBV
		50	470	±10%	1.6	0.8	0.8	0.3	PCC471BVCT-ND•	7.50	30.00	45.00	PCC471BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H471KBV
		50	560	±10%	1.6	0.8	0.8	0.3	PCC561BVCT-ND•	7.50	30.00	45.00	PCC561BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H561KBV
		50	680	±10%	1.6	0.8	0.8	0.3	PCC681BVCT-ND•	7.50	30.00	45.00	PCC681BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H681KBV
		50	820	±10%	1.6	0.8	0.8	0.3	PCC821BVCT-ND•	7.50	30.00	45.00	PCC821BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H821KBV
		50	1000	±10%	1.6	0.8	0.8	0.3	PCC102BVCT-ND•	7.50	30.00	45.00	PCC102BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H102KBV
		50	1200	±10%	1.6	0.8	0.8	0.3	PCC122BVCT-ND•	7.50	30.00	45.00	PCC122BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H122KBV

Size Code	Type	WV DC	Cap. pF	Tolerance	Dimensions L ±0.2	W ±0.2	T Max.	S ±0.3	Digi-Key Part No.	Pricing 100	500	1,000	Digi-Key Part No.	Tape & Reel Pricing 4,000	5,000	10,000	12,000	Panasonic Part No.
0603	X7R	50	1500	±10%	1.6	0.8	0.8	0.3	PCC152BVCT-ND•	7.50	30.00	45.00	PCC152BVTR-ND	22.00/M	—	—	21.00/M	ECU-V1H152KBV
		50	1800	±10%	1.6	0.8	0.8	0.3	PCC182BVCT-ND•	8.50	34.00	51.00	PCC182BVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H182KBV
		50	2200	±10%	1.6	0.8	0.8	0.3	PCC222BVCT-ND•	8.50	34.00	51.00	PCC222BVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H222KBV
		50	2700	±10%	1.6	0.8	0.8	0.3	PCC272BVCT-ND•	8.50	34.00	51.00	PCC272BVTR-ND	25.00/M	—	—	23.00/M	ECU-V1H272KBV
		50	3300	±10%	1.6	0.8	0.8	0.3	PCC332BVCT-ND•	9.00	36.00	54.00	PCC332BVTR-ND	27.00/M	—	—	25.00/M	ECU-V1H332KBV
		50	3900	±10%	1.6	0.8	0.8	0.3	PCC392BVCT-ND•	9.50	38.00	57.00	PCC392BVTR-ND	28.00/M	—	—	26.00/M	ECU-V1H392KBV
		50	4700	±10%	1.6	0.8	0.8	0.3	PCC472BVCT-ND•	10.50	42.00	63.00	PCC472BVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H472KBV
		50	5600	±10%	1.6	0.8	0.8	0.3	PCC562BVCT-ND•	10.50	42.00	63.00	PCC562BVTR-ND	31.00/M	—	—	29.00/M	ECU-V1H562KBV
		50	6800	±10%	1.6	0.8	0.8	0.3	PCC682BVCT-ND•	11.60	46.40	69.60	PCC682BVTR-ND	34.00/M	—	—	32.00/M	ECU-V1H682KBV
		50	8200	±10%	1.6	0.8	0.8	0.3	PCC822BVCT-ND•	12.00	48.00	72.00	PCC822BVTR-ND	36.00/M	—	—	33.00/M	ECU-V1H822KBV
		50	10000	±10%	1.6	0.8	0.8	0.3	PCC103BVCT-ND•	12.00	48.00	72.00	PCC103BVTR-ND	36.00/M	—	—	33.00/M	ECU-V1H103KBV
		50	12000	±10%	1.6	0.8	0.8	0.3	PCC123BVCT-ND•	13.00	52.00	78.00	PCC123BVTR-ND	39.00/M	—	—	36.00/M	ECU-V1H123KBV
		50	15000	±10%	1.6	0.8	0.8	0.3	PCC153BVCT-ND•	14.50	58.00	87.00	PCC153BVTR-ND	43.00/M	—	—	40.00/M	ECU-V1H153KBV
		25	18000	±10%	1.6	0.8	0.8	0.3	PCC183BVCT-ND•	20.00	80.00	120.00	PCC183BVTR-ND	59.00/M	—	—	55.00/M	ECU-V1E183KBV
		25	22000	±10%	1.6	0.8	0.8	0.3	PCC223BVCT-ND•	15.50	62.00	93.00	PCC223BVTR-ND	46.00/M	—	—	42.00/M	ECU-V1E223KBV
0805	NPO	50	0.5	±0.25pF	2.0	1.25	0.65	0.5	PCC0R5CNCT-ND•	7.00	28.00	42.00	PCC0R5CNTR-ND	—	21.00/M	19.00/M	—	ECU-V1H0R5CCN
		50	1.0	±0.25pF	2.0	1.25	0.65	0.5	PCC010CNCT-ND•	7.00	28.00	42.00	PCC010CNTR-ND	—	21.00/M	19.00/M	—	ECU-V1H010CCN
		50	1.5	±0.25pF	2.0	1.25	0.65	0.5	PCC1R5CNCT-ND•	7.00	28.00	42.00	PCC1R5CNTR-ND	—	21.00/M	19.00/M	—	ECU-V1H1R5CCN
		50	2.0	±0.25pF	2.0	1.25	0.65	0.5	PCC020CNCT-ND•	7.00	28.00	42.00	PCC020CNTR-ND	—	21.00/M	19.00/M	—	ECU-V1H020CCN
		50	3.0	±0.25pF	2.0	1.25	0.65	0.5	PCC030CNCT-ND•	7.50	30.00	45.00	PCC030CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H030CCN
		50	4.0	±0.25pF	2.0	1.25	0.65	0.5	PCC040CNCT-ND•	7.50	30.00	45.00	PCC040CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H040CCN
		50	5.0	±0.25pF	2.0	1.25	0.65	0.5	PCC050CNCT-ND•	7.50	30.00	45.00	PCC050CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H050CCN
		50	6.0	±0.5pF	2.0	1.25	0.65	0.5	PCC060CNCT-ND•	7.50	30.00	45.00	PCC060CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H060DCN
		50	7.0	±0.5pF	2.0	1.25	0.65	0.5	PCC070CNCT-ND•	7.50	30.00	45.00	PCC070CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H070DCN
		50	8.0	±0.5pF	2.0	1.25	0.65	0.5	PCC080CNCT-ND•	7.50	30.00	45.00	PCC080CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H080DCN
		50	9.0	±0.5pF	2.0	1.25	0.65	0.5	PCC090CNCT-ND•	7.50	30.00	45.00	PCC090CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H090DCN
		50	10	±0.5pF	2.0	1.25	0.65	0.5	PCC100CNCT-ND•	7.50	30.00	45.00	PCC100CNTR-ND	—	22.00/M	21.00/M	—	ECU-V1H100DCN
		50	12	±5%	2.0	1.25	0.65	0.5	PCC120CNCT-ND	8.50	34.00	51.00	PCC120CNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H120JCN
		50	15	±5%	2.0	1.25	0.65	0.5	PCC150CNCT-ND•	8.50	34.00	51.00	PCC150CNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H150JCN
		50	18	±5%	2.0	1.25	0.65	0.5	PCC180CNCT-ND	8.50	34.00	51.00	PCC180CNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H180JCN
		50	22	±5%	2.0	1.25	0.65	0.5	PCC220CNCT-ND•	8.50	34.00	51.00	PCC220CNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H220JCN
		50	27	±5%	2.0	1.25	0.65	0.5	PCC270CGCT-ND	8.50	34.00	51.00	PCC270CGTR-ND	—	25.00/M	23.00/M	—	ECU-V1H270JCG
		50	33	±5%	2.0	1.25	0.65	0.5	PCC330CGCT-ND•	8.50	34.00	51.00	PCC330CGTR-ND	—	25.00/M	23.00/M	—	ECU-V1H330JCG
		50	39	±5%	2.0	1.25	0.65	0.5	PCC390CGCT-ND	8.50	34.00	51.00	PCC390CGTR-ND	—	25.00/M	23.00/M	—	ECU-V1H390JCG
		50	47	±5%	2.0	1.25	0.65	0.5	PCC470CGCT-ND•	8.50	34.00	51.00	PCC470CGTR-ND	—	25.00/M	23.00/M	—	ECU-V1H470JCG
		50	56	±5%	2.0	1.25	0.65	0.5	PCC560CGCT-ND	8.50	34.00	51.00	PCC560CGTR-ND	—	25.00/M	23.00/M	—	ECU-V1H560JCG
		50	68	±5%	2.0	1.25	0.65	0.5	PCC680CGCT-ND•	9.00	36.00	54.00	PCC680CGTR-ND	—	27.00/M	25.00/M	—	ECU-V1H680JCG
		50	82	±5%	2.0	1.25	0.65	0.5	PCC820CGCT-ND	9.00	36.00	54.00	PCC820CGTR-ND	—	27.00/M	25.00/M	—	ECU-V1H820JCG
		50	100	±5%	2.0	1.25	0.65	0.5	PCC101CGCT-ND•	9.00	36.00	54.00	PCC101CGTR-ND	—	27.00/M	25.00/M	—	ECU-V1H101JCG
		50	120	±5%	2.0	1.25	0.65	0.5	PCC121CGCT-ND•	9.00	36.00	54.00	PCC121CGTR-ND	—	27.00/M	25.00/M	—	ECU-V1H121JCG
		50	150	±5%	2.0	1.25	0.65	0.5	PCC151CGCT-ND•	9.00	36.00	54.00	PCC151CGTR-ND	—	27.00/M	25.00/M	—	ECU-V1H151JCG
		50	180	±5%	2.0	1.25	0.65	0.5	PCC181CGCT-ND•	9.00	36.00	54.00	PCC181CGTR-ND	—	27.00/M	25.00/M	—	ECU-V1H181JCG
		50	220	±5%	2.0	1.25	0.65	0.5	PCC221CGCT-ND•	9.50	38.00	57.00	PCC221CGTR-ND	—	28.00/M	26.00/M	—	ECU-V1H221JCG
		50	270	±5%	2.0	1.25	0.65	0.5	PCC271CGCT-ND•	9.50	38.00	57.00	PCC271CGTR-ND	—	28.00/M	26.00/M	—	ECU-V1H271JCG
		50	330	±5%	2.0	1.25	0.65	0.5	PCC331CGCT-ND•	9.50	38.00	57.00	PCC331CGTR-ND	—	28.00/M	26.00/M	—	ECU-V1H331JCG
		50	390	±5%	2.0	1.25	0.65	0.5	PCC391CGCT-ND•	10.50	42.00	63.00	PCC391CGTR-ND	—	31.00/M	29.00/M	—	ECU-V1H391JCG
		50	470	±5%	2.0	1.25	0.65	0.5	PCC471CGCT-ND•	11.50	46.00	69.00	PCC471CGTR-ND	—	34.00/M	32.00/M	—	ECU-V1H471JCX
		50	560	±5%	2.0	1.25	0.65	0.5	PCC561CGCT-ND•	12.50	50.00	75.00	PCC561CGTR-ND	—	37.00/M	34.00/M	—	ECU-V1H561JCX
		50	680	±5%	2.0	1.25	0.65	0.5	PCC681CGCT-ND•	13.00	52.00	78.00	PCC681CGTR-ND	—	39.00/M	36.00/M	—	ECU-V1H681JCX
		50	820	±5%	2.0	1.25	0.65	0.5	PCC821CGCT-ND•	14.00	56.00	84.00	PCC821CGTR-ND	—	41.00/M	38.00/M	—	ECU-V1H821JCX
		50	1000	±5%	2.0	1.25	0.65	0.5	PCC102CGCT-ND•	15.00	60.00	90.00	PCC102CGTR-ND	—	44.00/M	41.00/M	—	ECU-V1H102JCX
	X7R	50	220	±10%	2.0	1.25	0.65	0.5	PCC221BNCT-ND•	8.00	32.00	48.00	PCC221BNTR-ND	—	24.00/M	22.00/M	—	ECU-V1H221KBN
		50	270	±10%	2.0	1.25	0.65	0.5	PCC271BNCT-ND•	8.00	32.00	48.00	PCC271BNTR-ND	—	24.00/M	22.00/M	—	ECU-V1H271KBN
		50	330	±10%	2.0	1.25	0.65	0.5	PCC331BNCT-ND•	8.00	32.00	48.00	PCC331BNTR-ND	—	24.00/M	22.00/M	—	ECU-V1H331KBN
		50	390	±10%	2.0	1.25	0.65	0.5	PCC391BNCT-ND•	8.00	32.00	48.00	PCC391BNTR-ND	—	24.00/M	22.00/M	—	ECU-V1H391KBN
		50	470	±10%	2.0	1.25	0.65	0.5	PCC471BNCT-ND•	8.00	32.00	48.00	PCC471BNTR-ND	—	24.00/M	22.00/M	—	ECU-V1H471KBN
		50	560	±10%	2.0	1.25	0.65	0.5	PCC561BNCT-ND•	8.50	34.00	51.00	PCC561BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H561KBN
		50	680	±10%	2.0	1.25	0.65	0.5	PCC681BNCT-ND•	8.50	34.00	51.00	PCC681BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H681KBN
		50	820	±10%	2.0	1.25	0.65	0.5	PCC821BNCT-ND•	8.50	34.00	51.00	PCC821BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H821KBN
		50	1000	±10%	2.0	1.25	0.65	0.5	PCC102BNCT-ND•	8.50	34.00	51.00	PCC102BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H102KBN
		50	1200	±10%	2.0	1.25	0.65	0.5	PCC122BNCT-ND•	8.50	34.00	51.00	PCC122BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H122KBN
		50	1500	±10%	2.0	1.25	0.65	0.5	PCC152BNCT-ND•	8.50	34.00	51.00	PCC152BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H152KBN
		50	1800	±10%	2.0	1.25	0.65	0.5	PCC182BNCT-ND•	8.50	34.00	51.00	PCC182BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H182KBN
		50	2200	±10%	2.0	1.25	0.65	0.5	PCC222BNCT-ND•	8.50	34.00	51.00	PCC222BNTR-ND	—	25.00/M	23.00/M	—	ECU-V1H222KBN
		50	2700	±10%	2.0	1.25	0.65	0.5	PCC272BNCT-ND•	9.50	38.00	57.00	PCC272BNTR-ND	—	28.00/M	26.00/M	—	ECU-V1H272KBN
		50	3300	±10%	2.0	1.25	0.65	0.5	PCC332BNCT-ND•	9.50	38.00	57.00	PCC332BNTR-ND	—	28.00/M	26.00/M	—	ECU-V1H332KBN
		50	3900	±10%	2.0	1.25	0.65	0.5	PCC392BNCT-ND•	9.50	38.00	57.00	PCC392BNTR-ND	—	28.00/M	26.00/M	—	ECU-V1H392KBN
		50	4700	±10%	2.0	1.25	0.65	0.5	PCC472BNCT-ND•	9.50	38.00	57.00	PCC472BNTR-ND	—	28.00/M	26.00/M	—	ECU-V1H472KBG
		50	5600	±10%	2.0	1.25	0.65	0.5	PCC562BNCT-ND•	10.00	40.00	60.00	PCC562BNTR-ND	—	30.00/M	27.00/M	—	ECU-V1H562KBG
		50	6800	±10%	2.0	1.25	0.65	0.5	PCC682BNCT-ND•	10.00	40.00	60.00	PCC682BNTR-ND	—	30.00/M	27.00/M	—	ECU-V1H682KBG
		50	8200	±10%	2.0	1.25	0.65	0.5	PCC822BNCT-ND•	10.50	42.00	63.00	PCC822BNTR-ND	—	31.00/M	29.00/M	—	ECU-V1H822KBG
		50	10000	±10%	2.0	1.25	0.65	0.5	PCC103BNCT-ND•	10.50	42.00	63.00	PCC103BNTR-ND	—	31.00/M	29.00/M	—	ECU-V1H103KBG
		50	12000	±10%	2.0	1.25	0.65	0.5	PCC123BGCT-ND•	11.00	44.00	66.00	PCC123BGTR-ND	—	33.00/M	30.00/M	—	ECU-V1H123KBX
		50	15000	±10%	2.0	1.25	0.65	0.5	PCC153BGCT-ND•	12.00	48.00	72.00	PCC153BGTR-ND	—	36.00/M	33.00/M	—	ECU-V1H153KBX
		50	18000	±10%	2.0	1.25	0.65	0.5	PCC183BGCT-ND•	13.00	52.00	78.00	PCC183BGTR-ND	—	39.00/M	36.00/M	—	ECU-V1H183KBX
		50	22000	±10%	2.0	1.25	0.65	0.5	PCC223BGCT-ND•	14.00	56.00	84.00	PCC223BGTR-ND	—	41.00/M	38.00/M	—	ECU-V1H223KBX
		50	27000	±10%	2.0	1.25	1.0	0.5	PCC273BGCT-ND•	15.50	62.00	93.00	PCC273BGTR-ND	46.00/M	—	—	42.00/M	ECU-V1H273KBX
1206	NPO	50	.5	±0.25pF	3.2	1.6	0.65	0.6	PCC0R5CCT-ND•	10.01	40.02	60.03	PCC0R5CTR-ND	—	30.00/M	27.00/M	—	ECU-V1H0R5CCM
		50	1.0	±0.25pF	3.2	1.6	0.65	0.6	PCC010CCT-ND•	10.12	40.48	60.72	PCC010CTR-ND	—	30.00/M	28.00/M	—	ECU-V1H010CCM
		50	1.5	±0.25pF	3.2	1.6	0.65	0.6	PCC1R5CCT-ND•	10.12	40.48	60.72	PCC1R5CTR-ND	—	30.00/M	28.00/M	—	ECU-V1H1R5CCM

Size Code	Type	WV DC	Cap. pF	Tolerance	Dimensions L ±0.2	W ±0.2	T Max.	S ±0.3	Digi-Key Part No.	Pricing 100	500	1,000	Digi-Key Part No.	Tape & Reel Pricing 4,000	5,000	10,000	12,000	Panasonic Part No.
1206	NPO	50	1.8	±0.25pF	3.2	1.6	0.65	0.6	PCC1R8CCT-ND	12.00	48.00	72.00	PCC1R8CTR-ND	—	36.00/M	33.00/M	—	ECU-V1H1R8CCM
		50	2.2	±0.25pF	3.2	1.6	0.65	0.6	PCC2R2CCT-ND•	10.55	42.20	63.30	PCC2R2CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H2R2CCM
		50	2.7	±0.25pF	3.2	1.6	0.65	0.6	PCC2R7CCT-ND•	10.55	42.20	63.30	PCC2R7CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H2R7CCM
		50	3.3	±0.25pF	3.2	1.6	0.65	0.6	PCC3R3CCT-ND•	10.56	42.24	63.36	PCC3R3CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H3R3CCM
		50	3.9	±0.25pF	3.2	1.6	0.65	0.6	PCC3R9CCT-ND•	10.56	42.24	63.36	PCC3R9CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H3R9CCM
		50	4.7	±0.25pF	3.2	1.6	0.65	0.6	PCC4R7CCT-ND•	10.56	42.24	63.36	PCC4R7CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H4R7CCM
		50	5.1	±0.25pF	3.2	1.6	0.65	0.6	PCC5R1CCT-ND•	10.56	42.24	63.36	PCC5R1CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H5R1CCM
		50	5.6	±0.25pF	3.2	1.6	0.65	0.6	PCC5R6CCT-ND•	10.56	42.24	63.36	PCC5R6CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H5R6CCM
		50	6.8	±0.5pF	3.2	1.6	0.65	0.6	PCC6R8CCT-ND•	10.59	42.34	63.51	PCC6R8CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H6R8DCM
		50	7.5	±0.5pF	3.2	1.6	0.65	0.6	PCC7R5CCT-ND•	10.59	42.34	63.51	PCC7R5CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H7R5DCM
		50	8.2	±0.5pF	3.2	1.6	0.65	0.6	PCC8R2CCT-ND•	10.59	42.34	63.51	PCC8R2CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H8R2DCM
		50	9.1	±0.5pF	3.2	1.6	0.65	0.6	PCC9R1CCT-ND•	10.56	42.24	63.36	PCC9R1CTR-ND	—	31.00/M	29.00/M	—	ECU-V1H9R1DCM
		50	10	±0.5pF	3.2	1.6	0.65	0.6	PCC100CCT-ND•	10.15	40.58	60.87	PCC100CTR-ND	—	30.00/M	28.00/M	—	ECU-V1H100DCM
		50	12	±5%	3.2	1.6	0.65	0.6	PCC120CCT-ND•	10.88	43.52	65.28	PCC120CTR-ND	—	32.00/M	30.00/M	—	ECU-V1H120JCM
		50	15	±5%	3.2	1.6	0.65	0.6	PCC150CCT-ND•	10.87	43.48	65.22	PCC150CTR-ND	—	32.00/M	30.00/M	—	ECU-V1H150JCM
		50	18	±5%	3.2	1.6	0.65	0.6	PCC180CCT-ND•	10.87	43.48	65.22	PCC180CTR-ND	—	32.00/M	30.00/M	—	ECU-V1H180JCM
		50	20	±5%	3.2	1.6	0.65	0.6	PCC200CCT-ND•	10.18	40.70	61.05	PCC200CTR-ND	—	30.00/M	28.00/M	—	ECU-V1H200JCM
		50	22	±5%	3.2	1.6	0.65	0.6	PCC220CCT-ND•	10.18	40.70	61.05	PCC220CTR-ND	—	30.00/M	28.00/M	—	ECU-V1H220JCM
		50	27	±5%	3.2	1.6	0.65	0.6	PCC270CCT-ND•	10.87	43.48	65.22	PCC270CTR-ND	—	32.00/M	30.00/M	—	ECU-V1H270JCM
		50	33	±5%	3.2	1.6	0.65	0.6	PCC330CCT-ND•	11.33	45.32	67.98	PCC330CTR-ND	—	34.00/M	31.00/M	—	ECU-V1H330JCM
		50	39	±5%	3.2	1.6	0.65	0.6	PCC390CCT-ND•	10.88	43.52	65.28	PCC390CTR-ND	—	32.00/M	30.00/M	—	ECU-V1H390JCM
		50	47	±5%	3.2	1.6	0.65	0.6	PCC470CCT-ND•	12.70	50.78	76.17	PCC470CTR-ND	—	38.00/M	35.00/M	—	ECU-V1H470JCM
		50	51	±5%	3.2	1.6	0.65	0.6	PCC510CCT-ND•	12.70	50.78	76.17	PCC510CTR-ND	—	38.00/M	35.00/M	—	ECU-V1H510JCM
		50	56	±5%	3.2	1.6	0.65	0.6	PCC560CCT-ND•	12.70	50.78	76.17	PCC560CTR-ND	—	38.00/M	35.00/M	—	ECU-V1H560JCM
		50	68	±5%	3.2	1.6	0.65	0.6	PCC680CCT-ND•	12.70	50.78	76.17	PCC680CTR-ND	—	38.00/M	35.00/M	—	ECU-V1H680JCM
		50	100	±5%	3.2	1.6	0.65	0.6	PCC101CCT-ND•	12.17	48.66	72.99	PCC101CTR-ND	—	36.00/M	33.00/M	—	ECU-V1H101JCH
		50	120	±5%	3.2	1.6	0.65	0.6	PCC121CCT-ND•	12.15	48.58	72.87	PCC121CTR-ND	—	36.00/M	33.00/M	—	ECU-V1H121JCH
		50	1000	±5%	3.2	1.6	0.65	0.6	PCC102CCT-ND•	20.98	83.90	125.85	PCC102CTR-ND	—	62.00/M	57.00/M	—	ECU-V1H102JCH
	X7R	50	220	±10%	3.2	1.6	0.65	0.6	PCC221BCT-ND•	9.05	36.18	54.27	PCC221BTR-ND	—	27.00/M	25.00/M	—	ECU-V1H221KBM
		50	270	±10%	3.2	1.6	0.65	0.6	PCC271BCT-ND•	9.66	38.64	57.96	PCC271BTR-ND	—	29.00/M	26.00/M	—	ECU-V1H271KBM
		50	330	±10%	3.2	1.6	0.65	0.6	PCC331BCT-ND•	10.70	42.80	64.20	PCC331BTR-ND	—	30.00/M	28.00/M	—	ECU-V1H331KBM
		50	390	±10%	3.2	1.6	0.65	0.6	PCC391BCT-ND•	9.66	38.64	57.96	PCC391BTR-ND	—	29.00/M	26.00/M	—	ECU-V1H391KBM
		50	470	±10%	3.2	1.6	0.65	0.6	PCC471BCT-ND•	10.08	40.32	60.48	PCC471BTR-ND	—	32.00/M	30.00/M	—	ECU-V1H471KBM
		50	560	±10%	3.2	1.6	0.65	0.6	PCC561BCT-ND•	10.08	40.32	60.48	PCC561BTR-ND	—	30.00/M	28.00/M	—	ECU-V1H561KBM
		50	680	±10%	3.2	1.6	0.65	0.6	PCC681BCT-ND•	10.03	40.12	60.18	PCC681BTR-ND	—	30.00/M	27.00/M	—	ECU-V1H681KBM
		50	820	±10%	3.2	1.6	0.65	0.6	PCC821BCT-ND•	10.03	40.12	60.18	PCC821BTR-ND	—	30.00/M	27.00/M	—	ECU-V1H821KBM
		50	1000	±10%	3.2	1.6	0.65	0.6	PCC102BCT-ND•	10.50	42.00	63.00	PCC102BTR-ND	—	31.00/M	29.00/M	—	ECU-V1H102KBM
		50	1200	±10%	3.2	1.6	0.65	0.6	PCC122BCT-ND•	10.50	42.00	63.00	PCC122BTR-ND	—	31.00/M	29.00/M	—	ECU-V1H122KBM
		50	1500	±10%	3.2	1.6	0.65	0.6	PCC152BCT-ND•	10.50	42.00	63.00	PCC152BTR-ND	—	31.00/M	29.00/M	—	ECU-V1H152KBM
		50	1800	±10%	3.2	1.6	0.65	0.6	PCC182BCT-ND•	10.50	42.00	63.00	PCC182BTR-ND	—	31.00/M	29.00/M	—	ECU-V1H182KBM
		50	2200	±10%	3.2	1.6	0.65	0.6	PCC222BCT-ND•	9.83	39.32	58.98	PCC222BTR-ND	—	29.00/M	27.00/M	—	ECU-V1H222KBM
		50	2700	±10%	3.2	1.6	0.65	0.6	PCC272BCT-ND•	10.63	42.50	63.75	PCC272BTR-ND	—	31.00/M	29.00/M	—	ECU-V1H272KBM
		50	3300	±10%	3.2	1.6	0.65	0.6	PCC332BCT-ND•	10.58	42.32	63.48	PCC332BTR-ND	—	31.00/M	29.00/M	—	ECU-V1H332KBM
		50	3900	±10%	3.2	1.6	0.65	0.6	PCC392BCT-ND•	11.64	46.56	69.84	PCC392BTR-ND	—	34.00/M	32.00/M	—	ECU-V1H392KBM
		50	4700	±10%	3.2	1.6	0.65	0.6	PCC472BCT-ND•	11.77	47.08	70.62	PCC472BTR-ND	—	35.00/M	32.00/M	—	ECU-V1H472KBM
		50	5600	±10%	3.2	1.6	0.65	0.6	PCC562BCT-ND•	12.17	48.66	72.99	PCC562BTR-ND	—	36.00/M	33.00/M	—	ECU-V1H562KBM
		50	6800	±10%	3.2	1.6	0.65	0.6	PCC682BCT-ND•	12.57	50.26	75.39	PCC682BTR-ND	—	37.00/M	34.00/M	—	ECU-V1H682KBM
		50	8200	±10%	3.2	1.6	0.65	0.6	PCC822BCT-ND•	12.96	51.84	77.76	PCC822BTR-ND	—	38.00/M	36.00/M	—	ECU-V1H822KBM
		50	10000	±10%	3.2	1.6	0.65	0.6	PCC103BCT-ND•	13.25	53.00	79.50	PCC103BTR-ND	—	39.00/M	36.00/M	—	ECU-V1H103KBM
		50	12000	±10%	3.2	1.6	0.65	0.6	PCC123BCT-ND•	13.98	55.90	83.85	PCC123BTR-ND	—	41.00/M	38.00/M	—	ECU-V1H123KBM
		50	15000	±10%	3.2	1.6	0.65	0.6	PCC153BCT-ND•	14.84	59.36	89.04	PCC153BTR-ND	—	44.00/M	41.00/M	—	ECU-V1H153KBM
		50	18000	±10%	3.2	1.6	0.65	0.6	PCC183BCT-ND•	17.50	70.00	105.00	PCC183BTR-ND	—	52.00/M	48.00/M	—	ECU-V1H183KBM
		50	22000	±10%	3.2	1.6	0.65	0.6	PCC223BCT-ND•	16.32	65.28	97.92	PCC223BTR-ND	—	48.00/M	45.00/M	—	ECU-V1H223KBM
		50	27000	±10%	3.2	1.6	0.65	0.6	PCC273BCT-ND•	18.58	74.32	111.48	PCC273BTR-ND	—	55.00/M	51.00/M	—	ECU-V1H273KBW
		50	33000	±10%	3.2	1.6	0.65	0.6	PCC333BCT-ND•	19.95	79.80	119.70	PCC333BTR-ND	—	59.00/M	55.00/M	—	ECU-V1H333KBW
		50	39000	±10%	3.2	1.6	0.65	0.6	PCC393BCT-ND•	20.36	81.44	122.16	PCC393BTR-ND	—	60.00/M	56.00/M	—	ECU-V1H393KBW
		50	47000	±10%	3.2	1.6	0.65	0.6	PCC473BCT-ND•	20.24	80.96	121.44	PCC473BTR-ND	—	60.00/M	55.00/M	—	ECU-V1H473KBW
		50	100000	±10%	3.2	1.6	1.0	0.6	PCC104BCT-ND•	35.50	142.00	213.00	PCC104BTR-ND	105.00/M	—	—	97.00/M	ECU-V1H104KBW

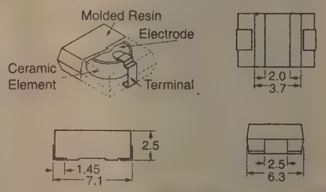
Notebook Style Kit Boxes Notebook style kit box with velcro closure can be stored as a normal kit box, or vertically as a book. Each compartment is identified with an easy-to-read kit index.

- **PCC5-KIT-ND** 10 each of values denoted 1206/NPO Series (300 total pieces)....................**$34.95**
- **PCC6-KIT-ND** 10 each of values denoted 1206/X7R Series (300 total pieces)....................**$49.95**
- **PCC7-KIT-ND** 10 each of values denoted 0805/NPO Series (300 total pieces)....................**$29.95**
- **PCC8-KIT-ND** 10 each of values denoted 0805/X7R Series (260 total pieces)....................**$29.95**
- **PCC9-KIT-ND** 10 each of values denoted 0603/NPO Series (300 total pieces)....................**$29.95**
- **PCC10-KIT-ND** 10 each of values denoted 0603/X7R Series (250 total pieces)....................**$29.95**
- **PCC11-KIT-ND** 10 each of values denoted 0402/NPO Series (300 total pieces)....................**$64.95**
- **PCC12-KIT-ND** 10 each of values denoted 0402/X7R & Y5V Series (230 total pieces)....................**$49.95**

Panasonic. *NEW!* High Voltage Ceramic Capacitors (SMD)

Features: • Resin molded type for reflow solderings. • High reliablity through disc capacitor element molded construction. • Excellent "Voltage vs. Temperature Rise" through low loss ceramic dielectric. • Temperature stable (SL/GP). **Recommended Applications:** • Output circuit of LCD backlighting inverter. • Snubber circuit of switching power supply. • High volt. circuit. **Specifications:** • Operating Temp. Range: -25 to 105°C. • Dielectric Withstanding Voltage: 200% of the rated voltage for 1-5 seconds. • Capacitance: 1MHz, 1-5 Vrms and 20°C. • Q or Dissipation Factor: C < 30pF: Q ≥ 400+20 C (C:cap.pF), C ≥ 30 pF: Q ≥ 1000 at 1 MHz, 1-5 Vrms and 20°C. • Insulation Resistance: 10000 MΩ min. at 500 VDC & 1 min. electrification. • Temperature Coefficient: +350 to -1000 ppm/°C.

Voltage	Capacitance	Capac. Tol. %	Temp. Char.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 2,000	6,000	10,000	Panasonic Part No.
3KVDC	10pf	±5	SL/GP	PCC100JCT-ND	2.46	19.31	140.45	PCC100JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F100JG
3KVDC	12pf	±5	SL/GP	PCC120JCT-ND	2.46	19.31	140.45	PCC120JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F120JG
3KVDC	15pf	±5	SL/GP	PCC150JCT-ND	2.46	19.31	140.45	PCC150JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F150JG
3KVDC	18pf	±5	SL/GP	PCC180JCT-ND	2.46	19.31	140.45	PCC180JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F180JG
3KVDC	22pf	±5	SL/GP	PCC220JCT-ND	2.46	19.31	140.45	PCC220JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F220JG
3KVDC	27pf	±5	SL/GP	PCC270JCT-ND	2.46	19.31	140.45	PCC270JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F270JG
3KVDC	33pf	±5	SL/GP	PCC330JCT-ND	2.46	19.31	140.45	PCC330JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F330JG
3KVDC	39pf	±5	SL/GP	PCC390JCT-ND	2.46	19.31	140.45	PCC390JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F390JG
3KVDC	47pf	±5	SL/GP	PCC470JCT-ND	2.46	19.31	140.45	PCC470JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F470JG
3KVDC	56pf	±5	SL/GP	PCC560JCT-ND	2.46	19.31	140.45	PCC560JTR-ND	1035.00/M	998.00/M	924.00/M	ECC-S3F560JG



Panasonic. Interference Suppressor Capacitors X-Y Series-Metallized Film

Electrical Specifications: • **Oper Temp Range:** -40°C to +85°C • **Capacitance tolerance:** ±20% (M) • **Dissipation Factor:** Less than 1.0% (at 25°C 1 kHz)

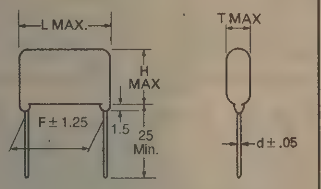
ECQ-UN: **Rated Voltage:** 250VAC **Standards: UL (UL 1414)**; Across-The-Line Capacitor. Antenna Coupling and Line-By-Pass Components. File NO. E62674. **CSA (CSA C22.2)**; No. 0-M1982, No. 1-M1981. Across-the line, antenna-isolation and line-by-pass capacitor. File No. LR35752. **VDE (VED0565-1)**; class X2 File No. 4811.6-4670-1041. **SEV (SEV1055)**; class X, Ref No. 89, 5 50251,05. **DEMKO (AFSNIT21)**; class X2, Ref No. 70726EC.**SEMKO (SS4430414)**; class X2 Reg No. 8602146. **NEMKO (NEMKO)**; class X2 Ref No. E 25082 02. **EI (E384-14)**; class X2, Reg No. 062521 01~14(0.001~0.012µF), Reg No. 062522 01~15(0.015~0.22µF).

ECQ-EW: **Rated Voltage:** 250VAC **Standards: UL (UL 1283)**; Electromagnetic Interference Filters Class X File No. E79502.**SEMKO (SS 443 04 14)**; class X2 Reg No. 8932009. **DEMKO (AFSNIT21)**; class X2 Ref No. 94911EC. **VDE (VDE0565-1)**; class X2 File No. 4811. 6-4670-1035.

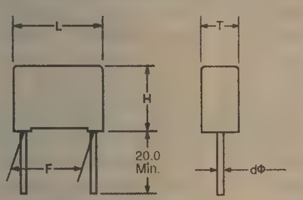
ECQ-UF: **Rated Voltage:** 250VAC **Standards: SEMKO (SEMKO 101)** Reg. No. 61-88271/1-4.**DEMKO (AFSNIT 21)**; class Y/X, Ref No. 61254EC. **VDE (VDE 0565-1)** class Y/X2, File No. 4811-6-1-4670-1032. **BSI (BS415)**; certified No. 6026. **UL (UL1414)** Across-the-Line Capacitor & Antenna-Coupling and Line-by-pass. File No. E62674. **CSA (CSA C22.2)** No. 0-M1982, No.1-M1981, Across-the Line, Antenna-Isolation & Line-by-Pass Capcitor, File No. LR35752.

ECQ-UV: **Rated Voltage:** 250VAC **Standards: UL (UL1414)**; Across-The-Line Capacitors. Antenna-Coupling and Line-by-Pass Components. File No. E62674. **(UL1283)**; Electromagnetic Interference Filters, File No. E79502. **CSA (CSA C22.2)**; Across-the Line, Antenna-Isolation and Line-by-Pass Capacitor, No. 0-M1982, No. 1-M1981. **SEMKO (SS 443 04 14)**; Class X2/Y Reg No. 8804123. **DEMKO (AFSNIT21)**; Class X2/Y Ref No. 89275EC. **NEMKO (NEMKO 132)**; Class X2 Ref No. 37892, Class Y Ref No. 37894. **EI (IEC 384/14)**; Class X2/Y Reg No. 110918-01-02. **VDE (VDE 0565-1)**; Class X2/Y File No. 4811.6-4670-1070. **SEV (SEV 1055)**; Class X ref No. 88,1 00318,01.

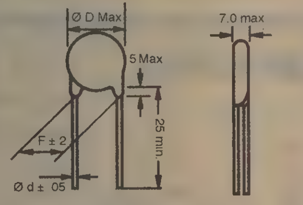
UN,EW,UF



UV



Ceramic Disc Capacitors



Capacitance (µF)	Dimensions (mm) L	T	H	F	dø	Digi-Key Part No.	Pricing 1	10	100	1,000	5000	Panasonic Part No.
0.0047	17.0	6.5	13.5	13.5	0.6	P4600-ND	.78	6.72	56.00	334 00	311.00/M	ECQ-U2A472MN
0.01	17.0	7.0	14.0	13.5	0.6	P4601-ND	.78	6.72	56.00	334.00	311.00/M	ECQ-U2A103MN
0.047	25.5	7.0	14.0	21.5	0.6	P4602-ND	.99	8.50	70.84	423.00	394.00/M	ECQ-U2A473MN
0.1	30.5	7.5	17.01	26.5	0.8	P4603-ND	1.22	10.42	86.80	518.00	482.00/M	ECQ-U2A104MN
0.047	17.0	7.5	13.0	13.5	0.6	P4604-ND	.71	6.06	50 50	301.00	281.00/M	ECQ-E2A473MW
0.1	24.0	8.0	13.5	20.5	0.8	P4605-ND	.84	7.20	60.00	358.00	333.00/M	ECQ-E2A104MW
0.22	24.0	10.5	17.5	20.5	0.8	P4606-ND	1.19	10.20	85.00	507.00	472.00/M	ECQ-E2A224MW
0.47	29.0	13.0	20.5	25.5	0.8	P4607-ND	1.59	13.62	113.50	678.00	631.00/M	ECQ-E2A474MW
0.0047	20.0	7.0	14.5	16.5	0.6	P4608-ND	.76	6.52	54.32	324.00	302.00/M	ECQ-U2A472MF
0.01	23.0	7.5	15.0	19.5	0.6	P4609-ND	.80	6.82	56.84	339.00	316.00/M	ECQ-U2A103MF
0.001	17.5	4.0	10.5	15.0	0.6	P4617-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A102MV
0.0012	17.5	4.0	10.5	15.0	0.6	P4618-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A122MV
0.0015	17.5	4.0	10.5	15.0	0.6	P4619-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A152MV
0.0018	17.5	4.0	10.5	15.0	0.6	P4620-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A182MV
0.0022	17.5	4.0	10.5	15.0	0.6	P4621-ND	.85	7 29	60.75	363.00	337.00/M	ECQ-U2A222MV
0.0027	17.5	4.0	10.5	15.0	0.6	P4622-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A272MV
0.0033	17.5	4.0	10.5	15.0	0.6	P4623-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A332MV
0.0039	17.5	4.0	10.5	15.0	0.6	P4624-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A392MV
0.0047	17.5	4.0	10.5	15.0	0.6	P4625-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A472MV
0.0056	17.5	4.0	10.5	15.0	0.6	P4626-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A562MV
0.0068	17.5	4.0	10.5	15.0	0.6	P4627-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A682MV
0.0082	17.5	4.0	10.5	15.0	0.6	P4628-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A822MV
0.01	17.5	4.0	10.5	15.0	0.6	P4629-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A103MV
0.012	17.5	4.0	10.5	15.0	0.6	P4630-ND	.85	7.29	60.75	363.00	337.00/M	ECQ-U2A123MV
0.015	17.5	4.0	10.5	15.0	0.6	P4631-ND	.85	7.32	61.00	364.00	339.00/M	ECQ-U2A153MV
0.018	17.5	4.5	10.5	15.0	0.6	P4632-ND	.87	7.44	62.00	370.00	344.00/M	ECQ-U2A183MV
0.022	17.5	4.5	10.5	15.0	0.6	P4633-ND	.89	7.62	63.50	379.00	353.00/M	ECQ-U2A223MV
0.027	17.5	4.5	13.0	15.0	0.6	P4634-ND	.91	7.77	64.75	387.00	360.00/M	ECQ-U2A273MV
0.033	17.5	4.5	13.0	15.0	0.6	P4635-ND	.94	8.04	67.00	400.00	372.00/M	ECQ-U2A333MV
0.039	17.5	5.5	12.5	15.0	0.6	P4636-ND	.95	8.16	68.00	406.00	378.00/M	ECQ-U2A393MV
0.047	17.5	5.5	12.5	15.0	0.6	P4637-ND	.97	8.28	69.00	412.00	383.00/M	ECQ-U2A473MV
0.056	17.5	7.0	14.0	15.0	0.6	P4638-ND	1.02	8.73	72.75	434.00	404.00/M	ECQ-U2A563MV
0.068	17.5	7.0	14.0	15.0	0.6	P4639-ND	1.06	9.12	76.00	454.00	422.00/M	ECQ-U2A683MV
0.082	17.5	8.0	15.0	15.0	0.6	P4640-ND	1.10	9.42	78.50	469.00	436.00/M	ECQ-U2A823MV
0.1	17.5	8.0	15.0	15.0	0.8	P4610-ND	.97	8.28	69.00	412.00	383.00/M	ECQ-U2A104MV
0.12	25.5	6.5	16.5	22.5	0.6	P4641-ND	1.23	10.53	87.75	524.00	487.00/M	ECQ-U2A124MV
0.15	25.5	6.5	16.5	22.5	0.8	P4611-ND	1.33	11.40	95.00	567.00	528.00/M	ECQ-U2A154MV
0.18	25.5	8.5	17.0	22.5	0.6	P4642-ND	1.40	12.00	100.00	597.00	556.00/M	ECQ-U2A184MV
0.22	25.5	8.5	17.0	22.5	0.8	P4612-ND	1.38	11.79	98.25	587.00	546.00/M	ECQ-U2A224MV
0.27	30.5	10.0	18.0	27.5	0.6	P4643-ND	1 93	16 56	138.00	824.00	767.00/M	ECQ-U2A274MV
0.33	30.5	10.0	18.0	27.5	0.8	P4613-ND	2.28	19.56	163.00	973.00	906.00/M	ECQ-U2A334MV
0.39	30.5	12.0	20.0	27.5	0.6	P4644-ND	2.53	21.72	181.00	1081.00	1006.00/M	ECQ-U2A394MV
0.47	30.5	12.0	20.0	27.5	0.8	P4614-ND	2.39	20.52	171.00	1021.00	950.00/M	ECQ-U2A474MV
0.56	30.5	13.5	23.5	27.5	0.6	P4645-ND	2.92	25.02	208.50	1245.00	1158.00/M	ECQ-U2A564MV
0.68	30.5	13.5	23.5	27.5	0.8	P4615-ND	3.17	27.18	226.50	1352.00	1258.00/M	ECQ-U2A684MV
0.82	30.5	16.5	26.5	27.5	0.6	P4646-ND	3.63	31.08	259.00	1546.00	1439.00/M	ECQ-U2A824MV
1.0	30.5	16.5	26.5	27.5	0.8	P4616-ND	4.09	35.04	292.00	1743.00	1622.00/M	ECQ-U2A105MV

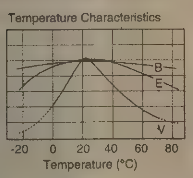
P4650-KIT-ND 10 Each of MN, MW and MF series capacitor. Notebook style box included.. $59.95

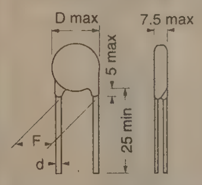
SAFETY SERIES ACROSS THE LINE/LINE BYPASS CERAMIC DISC CAPACITORS UL • CSA • BSI • SEMKO • SEV • VDE APPROVED

Voltage	Capacitance	Tolerance	Temp. Char.	Dimensions (mm) Dia.	Thickness	Lead Space	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
Class I Equipment														
125	100pf	±20%	B	11.0	7.0	7.5	P4462-ND	.38	2.96	21.50	158.00	153.00/M	141.00/M	ECK-DNS101MB
125	150pf	±20%	B	11.0	7.0	7.5	P4463-ND	.38	2.96	21.50	158.00	153.00/M	141.00/M	ECK-DNS151MB
125	220pf	±20%	B	11.0	7.0	7.5	P4464-ND	.38	2.96	21.50	158.00	153.00/M	141.00/M	ECK-DNS221MB
Class II Equipment														
125	100pf	±20%	B	11.0	7.0	10.0	P4475-ND	.42	3.33	24.20	178.00	172.00/M	159.00/M	ECK-DNS101MBX
125	150pf	±20%	B	11.0	7.0	10.0	P4476-ND	.42	3.33	24.19	178.00	172.00/M	159.00/M	ECK-DNS151MBX
125	220pf	±20%	B	11.0	7.0	10.0	P4477-ND	.43	3.41	24.80	183.00	176.00/M	163.00/M	ECK-DNS221MBX
125	470pf	±20%	B	11.0	7.0	10.0	P4478-ND	.44	3.49	25.40	187.00	180.00/M	167.00/M	ECK-DNS471MBX
125	1000pf	±20%	B	11.0	7.0	10.0	P4479-ND	.55	4.29	31.20	230.00	222.00/M	205.00/M	ECK-DNS102MBX
125	1500pf	±20%	E	11.0	7.0	10.0	P4480-ND	.57	4.46	32.40	239.00	230.00/M	213.00/M	ECK-DNS152MEX
125	2200pf	±20%	E	11.0	7.0	10.0	P4481-ND	.69	5.39	39.20	289.00	279.00/M	258.00/M	ECK-DNS222MEX
125	3300pf	±20%	E	13.0	7.0	10.0	P4482-ND	.77	6.08	44.20	326.00	314.00/M	291.00/M	ECK-DNS332MEX
125	4700pf	±20%	E	16.0	7.0	10.0	P4483-ND	.90	7.10	51.60	380.00	367.00/M	339.00/M	ECK-DNS472MEX

Panasonic. Ceramic Disc Capacitors Type GL UL 1414 • CSA C22.2 APPROVED

Features: Rated 250 VAC. CSA rating: 125 VAC. **Applications:** • Antenna coupling. • Line-bypass and Across-the-line. • Switching surge killer etc.





Voltage	Capacitance	Tolerance	Temp. Char.	Dimensions (mm) Dia.	Thickness	Lead Space	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	Panasonic Part No.
250	100pf	±20%	B	8.0	5.5	7.5	P4484-ND	.36	2.86	20.80	153.00	148.00/M	ECK-DGL101MB
250	150pf	±20%	B	8.0	5.5	7.5	P4485-ND	.36	2.86	20.80	153.00	148.00/M	ECK-DGL150MB
250	220pf	±20%	B	8.0	5.5	7.5	P4486-ND	.36	2.86	20.80	153.00	148.00/M	ECK-DGL221MB
250	330pf	±20%	B	8.0	5.5	7.5	P4487-ND	.36	2.86	20.80	153.00	148.00/M	ECK-DGL331MB
250	470pf	±20%	B	9.0	5.5	7.5	P4488-ND	.39	3.03	22.00	162.00	156.00/M	ECK-DGL471MB
250	680pf	±20%	B	9.0	5.5	7.5	P4489-ND	.39	3.03	22.00	162.00	156.00/M	ECK-DGL681MB
250	1000pf	±20%	E	9.0	5.5	7.5	P4490-ND	.39	3.03	22.00	162.00	156.00/M	ECK-DGL102ME
250	1500pf	±20%	E	11.0	5.5	7.5	P4491-ND	.46	3.58	26.80	192.00	185.00/M	ECK-DGL152ME
250	2200pf	±20%	E	12.0	5.5	7.5	P4492-ND	.55	4.35	31.60	233.00	225.00/M	ECK-DGL222ME
250	3300pf	±20%	E	15.0	5.5	10.0	P4493-ND	.61	4.81	35.00	258.00	249.00/M	ECK-DGL332ME
250	4700pf	±20%	E	17.0	5.5	10.0	P4494-ND	.85	6.71	48.80	360.00	347.00/M	ECK-DGL472ME
250	4700pf	+80%, -20%	V	12.0	5.5	7.5	P4495-ND	.73	5.72	41.60	307.00	296.00/M	ECK-DGL472ZV
250	10000pf	+80%, -20%	V	17.0	5.5	10.0	P4496-ND	1.09	8.53	62.00	457.00	441.00/M	ECK-DGL103ZV

SPRAGUE GOODMAN

8mm Top & Bottom/Side Adjust FILMTRIM® Capacitors

Plastic Dielectric Capacitors

FEATURES:

- Choice of dielectrics: Polypropylene (for low loss at low cost)
- Compact size
- Most stable TCC for single turn trimmers
- Low cost for commercial / industrial applications
- Linear capacitance change vs. rotation
- Typical applications: Mobile radios, transmitters, pagers, instruments, electronic games, wireless security and fire alarms, CATV

SPECIFICATIONS:

Dielectric Construction: Polypropylene

Voltage Rating: 100 WVDC

Dielectric Withstanding Voltage: 200 VDC

Contact Resistance: <0.010Ω

Operating Temperature: −40 to +70°C

Insulation Resistance: >10,000 MΩ

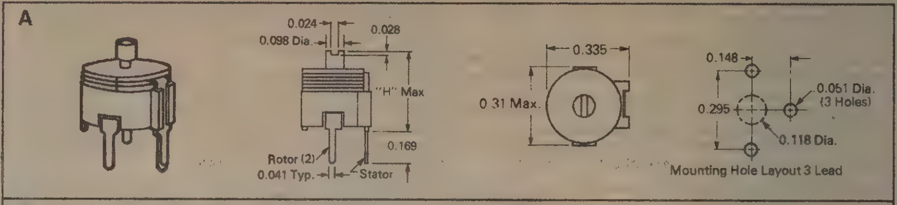
Torque: 0.2-3.0 in.-oz.

Capacitance change with axial load: <1.5% with 7 oz. max.

Tuning Tool

SG9004-ND $9.20

A



B

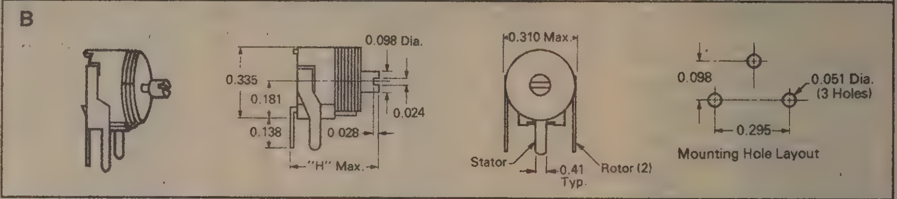


Figure	Capacitance (pF) Min.	Max.	Q (min.) @ 1MHz	TCC (ppm / °C)	'H' Max. in / mm	Color Code	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	Sprague-Goodman Part No.
A	1.6	5.0	1000	0±300	.402/10.2	Gray	SG3000-ND	1.19	10.20	93.50	564.00	510.00/M	GYA5R000
A	2.0	10.0	1000	0±300	.402/10.2	Yellow	SG3001-ND	1.19	10.20	93.50	564.00	510.00/M	GYA10000
A	2.0	15.0	1000	0±400	.402/10.2	Blue	SG3002-ND	1.30	11.10	101.75	614.00	555.00/M	GYA15000
A	2.2	22.0	1000	0±400	.402/10.2	Green	SG3003-ND	1.30	11.10	101.75	614.00	555.00/M	GYA22000
A	2.3	27.0	1000	0±350	.402/10.2	Red	SG3004-ND	1.37	11.70	107.25	647.00	585.00/M	GYA27000
A	3.0	36.0	1000	0±300	.402/10.2	Violet	SG3005-ND	2.00	17.10	156.75	946.00	855.00/M	GYA36000
B	1.6	5.0	1000	0±300	.402/10.2	Gray	SG3020-ND	2.14	18.30	167.75	1013.00	915.00/M	GYB5R000
B	2.0	10.0	1000	0±300	.402/10.2	Yellow	SG3021-ND	2.14	18.30	167.75	1013.00	915.00/M	GYB10000
B	2.0	15.0	1000	0±400	.402/10.2	Blue	SG3022-ND	2.28	19.50	178.75	1079.00	975.00/M	GYB15000
B	2.2	22.0	1000	0±400	.402/10.2	Green	SG3023-ND	2.31	19.80	181.50	1096.00	990.00/M	GYB22000
B	2.3	27.0	1000	0±350	.402/10.2	Red	SG3024-ND	2.38	20.40	187.00	1129.00	1020.00/M	GYB27000

SPRAGUE GOODMAN

10mm Top & Bottom/Side Adjust FILMTRIM® Capacitors

Plastic Dielectric Capacitors

FEATURES:

- Choice of dielectrics: Polypropylene (for low loss at low cost)
- Compact size
- Most stable TCC for single turn trimmers
- Low cost for commercial / industrial applications
- Linear capacitance change vs. rotation
- Typical applications: Mobile radios, transmitters, pagers, instruments, electronic games, wireless security and fire alarms, CATV

SPECIFICATIONS:

Dielectric Construction:
GYC, GYD Series: Polypropylene
GZC, GZD Series: Polycarbonate

Voltage Rating: 100 WVDC

Dielectric Withstanding Voltage: 200 VDC

Operating Temperature:
GYC, GYD Series: −40° to +85°C
GZC, GZD Series: −40° to +85°C

Contact Resistance: < 0.010Ω

Insulation Resistance: >10,000 MΩ

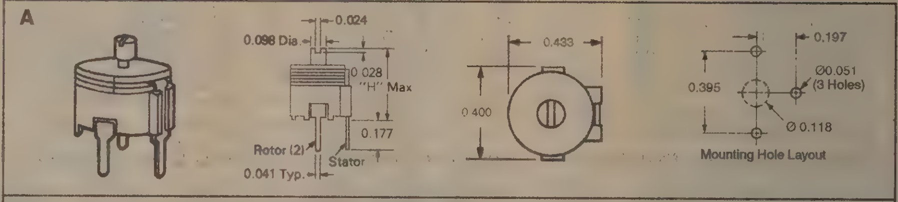
Torque: 0.2-5.5 in.-oz.

Capacitance change with axial load: <1.5% with 7 oz. max

Tuning Tool

SG9004-ND $9.20

A



B

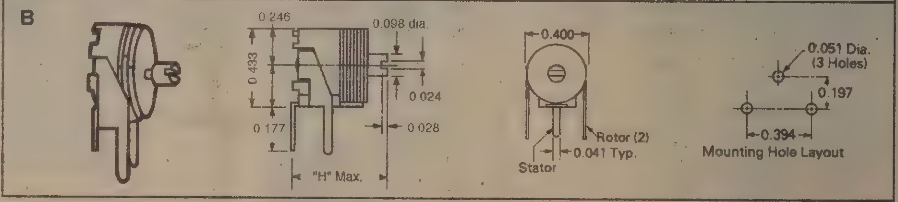
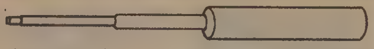


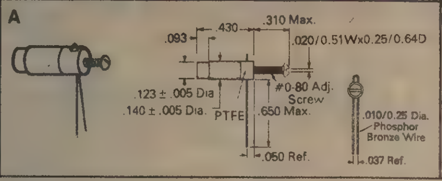
Figure	Capacitance (pF) Min.	Max.	Q (min.) @ 1MHz	TCC (ppm / C)	'H' Max. in / mm	Color Code	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	Sprague-Goodman Part No.
A	2.0	15.0	1000	0±400	.402/10.2	Blue	SG3006-ND	1.68	14.40	132.00	797.00	720.00/M	GYC15000
A	3.0	20.0	1000	0±400	.402/10.2	Green	SG3007-ND	1.68	14.40	132.00	797.00	720.00/M	GYC20000
A	3.0	40.0	1000	0±350	.402/10.2	Clear	SG3008-ND	1.65	14.10	129.25	780.00	705.00/M	GYC40000
A	4.5	65.0	1000	0±350	.402/10.2	Yellow	SG3009-ND	1.68	14.40	132.00	797.00	720.00/M	GYC65000
B	2.0	15.0	1000	0±400	.402/10.2	Blue	SG3025-ND	2.28	19.50	178.75	1079.00	975.00/M	GYD15000
B	3.0	20.0	1000	0±400	.402/10.2	Green	SG3026-ND	2.35	20.10	184.25	1112.00	1005.00/M	GYD20000
B	3.0	40.0	1000	0±350	.402/10.2	Clear	SG3027-ND	2.52	21.60	198.00	1195.00	1080.00/M	GYD40000
B	4.5	65.0	1000	0±350	.402/10.2	Yellow	SG3028-ND	2.77	23.70	217.25	1311.00	1185.00/M	GYD65000
A	8.0	80.0	200	0±200	.449/11.4	Red	SG3010-ND	2.28	19.50	178.75	1079.00	975.00/M	GZC80000
A	9.0	100.0	200	0±400	.449/11.4	Violet	SG3011-ND	3.61	30.90	283.25	1710.00	1545.00/M	GZC10100
A	9.0	120.0	200	0±350	.449/11.4	Orange	SG3012-ND	5.36	45.90	420.75	2540.00	2295.00/M	GZC12100
A	10.0	150.0	200	0±350	.472/12.0	Orange	SG3013-ND	6.23	53.40	489.50	2955.00	2670.00/M	GZC15100
A	10.0	180.0	200	0±350	.472/12.0	Orange	SG3014-ND	7.32	62.70	574.75	3469.00	3135.00/M	GZC18100
B	8.0	80.0	200	0±200	.449/11.4	Red	SG3015-ND	3.05	26.10	239.25	1444.00	1305.00/M	GZD80000
B	9.0	100.0	200	0±400	.449/11.4	Violet	SG3016-ND	4.55	39.00	357.50	2158.00	1950.00/M	GZD10100
B	9.0	120.0	200	0±350	.449/11.4	Orange	SG3017-ND	6.16	52.80	484.00	2922.00	2640.00/M	GZD12100
B	10.0	150.0	200	0±350	.472/12.0	Orange	SG3018-ND	6.97	59.70	547.25	3303.00	2985.00/M	GZD15100
B	10.0	180.0	200	0±350	.472/12.0	Orange	SG3019-ND	7.77	66.60	610.50	3685.00	3330.00/M	GZD18100

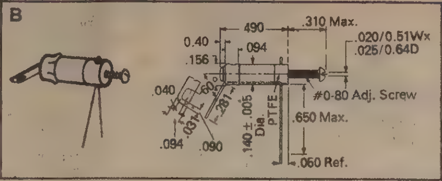
SPRAGUE GOODMAN

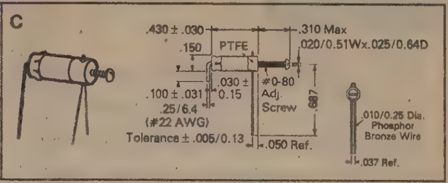
Multiturn PTFE Dielectric Trimmer Capacitors



SG9005-ND TUNING TOOL....................$9.20


A
.093
.430
.310 Max.
.020/0.51Wx0.25/0.64D
.123 ± .005 Dia
#0-80 Adj. Screw
.140 ± .005 Dia.
PTFE
.650 Max.
.010/0.25 Dia. Phosphor Bronze Wire
.050 Ref.
.037 Ref.


B
.490
.310 Max.
0.40
.094
.020/0.51Wx .025/0.64D
.156
.040
#0-80 Adj. Screw
.140 ± .005 Dia.
PTFE
.650 Max.
.094
.090
.060 Ref.


C
.430 ± .030
.310 Max
.150
PTFE
.020/0.51Wx.025/0.64D
.030 ±
#0-80 Adj. Screw
.100 ± .031
0.15
.25/6.4
(#22 AWG)
.687
Tolerance ± .005/0.13
.050 Ref.
.010/0.25 Dia. Phosphor Bronze Wire
.037 Ref.

FEATURES:

These trimmer capacitors combine the outstanding electrical properties of PTFE with nonferrous metal parts to provide: • High Q • High DWV • High IR • Excellent Conductivity • Corrosion Resistance • Low ΔC / Turns Ratio • Excellent Stability.

SPECIFICATIONS:

Capacitance Range: .25 to 1.5 pF. **WVDC:** 600 WVDC. **DWV:** 2000 VDC for 1-5 sec. **Operating Temperature Range:** −55°C to +125°C. **Initial Q @ 1 MHz:** 2000 min. **Insulation Resistance:** 1 teraohm @ 25°C. **Torque:** 0.2-3.0 in.-oz.

Fig.	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	Sprague-Goodman Part No.
A	SG3029-ND	2.31	19.80	181.50	1096.00	990.00/M	ER-530-000
B	SG3030-ND	5.08	43.50	398.75	2407.00	2175.00/M	ER-530-001
C	SG3031-ND	4.31	36.90	338.25	2042.00	1845.00/M	ER-530-006

SPRAGUE GOODMAN

NEW! AIRTRIM® Air Dielectric Multiturn Trimmer Capacitors

FEATURES:

- High Q.
- Excellent stability.
- Designed to meet MIL-C-14409D.
- Multiturn resolution
- Construction: 300°C solder.

APPLICATIONS:

Designed for VHF, UHF and microwave applications: amplifiers, oscillators, filters, radar, cable TV, mobile radios and RF appliances.

SPECIFICATIONS:

Operating Temperature Range: −65°C to +125°C
Working Voltage: 250 VDC
Test Voltage: 500 VDC
Insulation Resistance: >10^6 Megohms
Contact Resistance: <0.01 Ohms
Q: >5000 at 100 MHz
Vibration: 60g, 10-2000 Hz
Shock: 1500 g, 0.5 ms

DIMENSIONS:

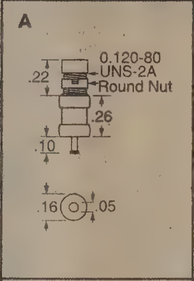
- Inches.
- Adjust screw slot:
  - 0.35 - 3.5pF Cap. Range: 0.060 x 0.016
  - 0.6 - 6.0pF Cap. Range: 0.13 x 0.020
  - 1.0 - 10.0 Cap. Range: 0.16 x 0.020

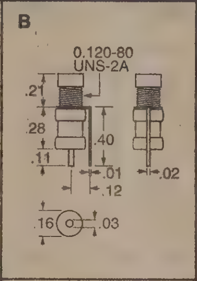
RECOMMENDED HANDLING PROCEDURE:

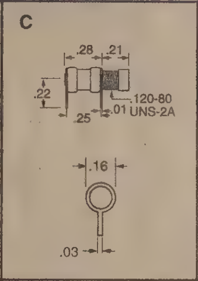
- Tuning: The rotor should not be torqued once maximum capacitance is reached..
- Soldering: 275°C maximum recommended solder temperature.
- Washing: Sealing caps should be secured when washing board assemblies to prevent infusion of cleaning solvents.

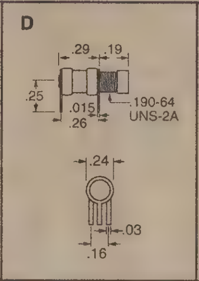
Tuning Tool

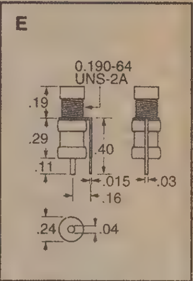
SG9007-ND 5mm Type (SG4009 & SG4010)..........**$9.20**
SG9005-ND 4 x 4.5mm Type (SG4001 - SG4005).....**$9.20**

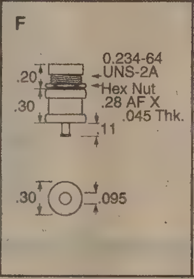

A
0.120-80 UNS-2A
.22
Round Nut
.26
.10
.16
.05

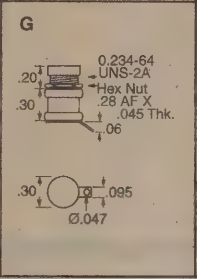

B
0.120-80 UNS-2A
.21
.28
.40
.11
.01
.02
.12
.16
.03

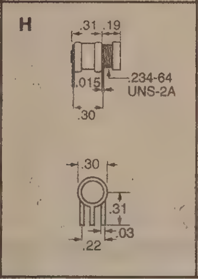

C
.28
.21
.22
.120-80
.25
.01 UNS-2A
.16
.03

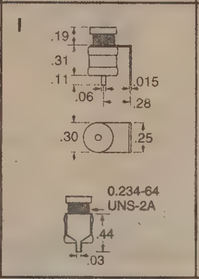

D
.29
.19
.25
.015
.190-64
.26
UNS-2A
.24
.03
.16


E
0.190-64 UNS-2A
.19
.29
.40
.11
.015
.03
.16
.24
.04


F
0.234-64 UNS-2A
.20
Hex Nut
.28 AF X
.30
.045 Thk.
.11
.30
.095


G
0.234-64 UNS-2A
.20
Hex Nut
.28 AF X
.30
.045 Thk.
.06
.30
.095
Ø.047


H
.31
.19
.015
.234-64 UNS-2A
.30
.30
.31
.03
.22


I
.19
.31
.11
.015
.06
.28
.30
.25
0.234-64 UNS-2A
.44
.03

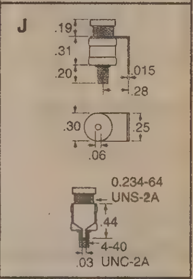
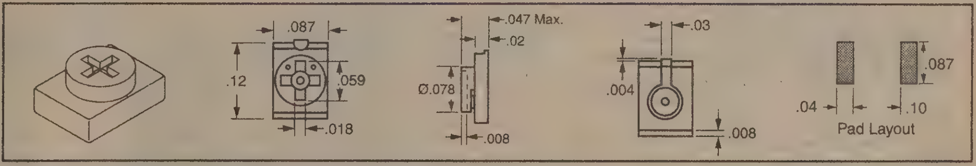

J
.19
.31
.20
.015
.28
.30
.25
.06
0.234-64 UNS-2A
.44
4-40
.03 UNC-2A

Figure	Capacitance Range pF	Torque oz.- In.	TCC (ppm/°C)	Self-Resonant Freq.	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	Sprague-Goodman Part No.
A	0.35 - 3.5	0.3 - 3.0	±30 ppm/°C	>6 GHz	SG4006-ND	15.09	129.30	1185.25	7154.60	6465.00/M	GAA3R501
B	0.35 - 3.5	0.3 - 3.0	±30 ppm/°C	>6 GHz	SG4007-ND	17.12	146.70	1344.75	8117.40	7335.00/M	GAA3R512
C	0.35 - 3.5	0.3 - 3.0	±30 ppm/°C	>6 GHz	SG4008-ND	15.09	129.30	1185.25	7154.60	6465.00/M	GAA3R513
D	0.6 - 6.0	0.4 - 4.0	±15 ppm/°C	>6 GHz	SG4009-ND	17.12	146.70	1344.75	8117.40	7335.00/M	GAA6R004
E	0.6 - 6.0	0.4 - 4.0	±15 ppm/°C	>6 GHz	SG4010-ND	18.13	155.40	1424.50	8598.80	7770.00/M	GAA6R012
F	1.0 - 10.0	0.5 - 5.0	±15 ppm/°C	>5 GHz	SG4001-ND	10.08	86.40	792.00	4780.80	4320.00/M	GAA10001
G	1.0 - 10.0	0.5 - 5.0	±15 ppm/°C	>5 GHz	SG4002-ND	10.08	86.40	792.00	4780.80	4320.00/M	GAA10002
H	1.0 - 10.0	0.5 - 5.0	±15 ppm/°C	>5 GHz	SG4003-ND	10.08	86.40	792.00	4780.80	4320.00/M	GAA10004
I	1.0 - 10.0	0.5 - 5.0	±15 ppm/°C	>5 GHz	SG4004-ND	12.08	103.50	948.75	5727.00	5175.00/M	GAA10006
J	1.0 - 10.0	0.5 - 5.0	±15 ppm/°C	>5 GHz	SG4005-ND	12.08	103.50	948.75	5727.00	5175.00/M	GAA10007

SPRAGUE GOODMAN

NEW! SURFTRIM® Surface Mount GKP Series Capacitors

2.2 x 3.1 x 1.2 mm


.087
.12
.059
.018
.047 Max.
.02
Ø.078
.008
.03
.004
.008
.087
.04
.10
Pad Layout

FEATURES:

- Thinnest and smallest chip type.
- Multilayer construction.
- Carrier and reel packaging standard.

SPECIFICATIONS:

Operating Temperature Range: −25°C to 85°C
Dielectric Withstanding Voltage: 55 VDC
Insulation Resistance: 10^4 Megohms min.
Voltage Rating: 25 VDC
Torque: 0.14 to 1.39 in.-oz.

Capacitance (pF) Min.	Max.	TCC (ppm / °C)	Q(min.) Code (1 MHZ)	Digi-Key Part No.	Pricing 5	25	100	Digi-Key Part No.	Tape & Reel Pricing 2000	5000	Sprague-Goodman Part No.
2.5	6.0	NPO±500	200	SG2016CT-ND	16.80	73.50	231.00	SG2016TR-ND	1260.00/M	1176.00/M	GKP6R066
3.0	10.0	NPO±500	200	SG2014CT-ND	16.80	73.50	231.00	SG2014TR-ND	1260.00/M	1176.00/M	GKP10066
4.5	20.0	N750±500	200	SG2015CT-ND	16.80	73.50	231.00	SG2015TR-ND	1260.00/M	1176.00/M	GKP20066

SPRAGUE GOODMAN

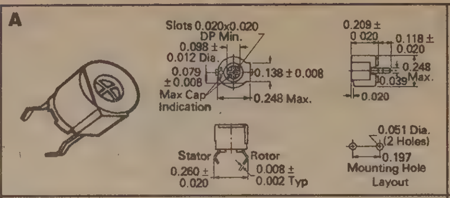
Plastic Encased Variable Capacitors — 5mm and 4 x 4.5mm

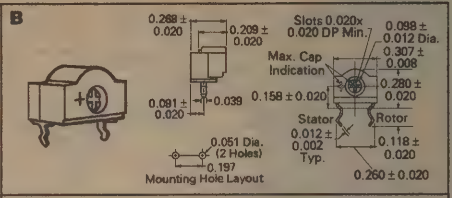
FEATURES:

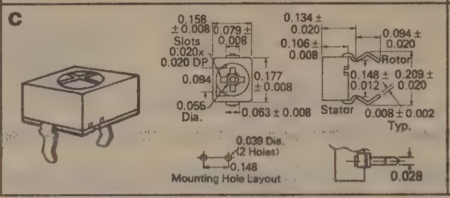
- Very low cost due to automated production and solderless touch contact construction.
- Wide selection of capacitance ranges, color coded housings.
- Improved protection against dust and contamination.
- Rugged construction (working parts supported by metal structure, not just plastic).
- Easy blind tuning (2 slots at 90° angle in adjust cavity — accepts cross-slotted tool).
- Visual indication of maximum capacitance setting.
- Leads snap fit in P.C. board.

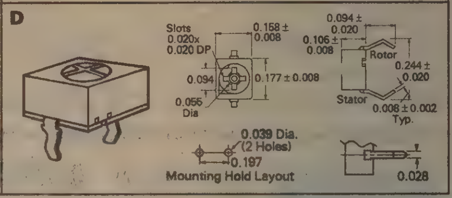
SPECIFICATIONS:

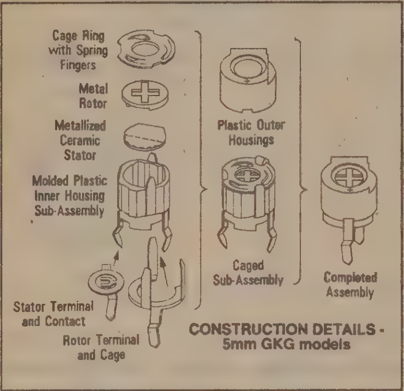
Operating Temperature Range: −25°C to +85°C.
Voltage Rating: 100 VDC.
Dielectric Withstanding Voltage: 220 VDC.
Insulation Resistance: 10^4 Megohms min.
Torque: 35-140 g-cm (0.5-2.0 in.-oz.) 5mm; 15-100 g-cm (0.2-1.5 in.-oz.) (4 × 4.5 mm).


A
Slots 0.020x0.020 DP Min.
0.098 ± 0.012 Dia.
0.079 ± 0.008
Max Cap Indication
0.138 ± 0.008
0.248 Max.
0.209 ± 0.020
0.118 ± 0.020
0.248 Max.
0.039
0.020
Stator
Rotor
0.260 ± 0.020
0.008 ± 0.002 Typ
0.051 Dia. (2 Holes)
0.197
Mounting Hole Layout


B
0.268 ± 0.020
0.209 ± 0.020
Slots 0.020x 0.020 DP Min.
0.098 ± 0.012 Dia.
0.307 ± 0.008
Max. Cap Indication
0.280 ± 0.020
0.091 ± 0.020
0.039
0.158 ± 0.020
Stator
Rotor
0.012 ± 0.002 Typ.
0.118 ± 0.020
0.051 Dia. (2 Holes)
0.197
Mounting Hole Layout
0.260 ± 0.020


C
0.158 ± 0.008
0.079 ± 0.008
Slots 0.020x 0.020 DP
0.134 ± 0.020
0.106 ± 0.008
0.094 ± 0.020
0.094
0.177 ± 0.008
Rotor
0.148 ± 0.012
0.209 ± 0.020
0.055 Dia.
0.063 ± 0.008
Stator
0.008 ± 0.002 Typ.
0.039 Dia. (2 Holes)
0.148
Mounting Hole Layout
0.028


D
Slots 0.020x 0.020 DP
0.158 ± 0.008
0.094 ± 0.020
0.106 ± 0.008
Rotor
0.244 ± 0.020
0.094
0.177 ± 0.008
0.055 Dia
Stator
0.008 ± 0.002 Typ.
0.039 Dia. (2 Holes)
0.197
Mounting Hold Layout
0.028


Cage Ring with Spring Fingers
Metal Rotor
Metallized Ceramic Stator
Molded Plastic Inner Housing Sub-Assembly
Stator Terminal and Contact
Rotor Terminal and Cage
Plastic Outer Housings
Caged Sub-Assembly
Completed Assembly

CONSTRUCTION DETAILS - 5mm GKG models

Figure	Capacitance (pF) Min.	Max.	TCC (ppm / °C)	Q (min.) 10MHz	100MHz	Color Code	Digi-Key Part No.	Pricing 1	10	100	1,000	Sprague-Goodman Part No.
A	2.8	10.0	0±250	300	200	White	SG1002-ND	1.02	8.70	79.75	481.00	GKG10011
A	4.0	20.0	N600±300	300	N.A.	Red	SG1003-ND	1.02	8.70	79.75	481.00	GKG20011
A	5.5	30.0	N750±300	200	N.A.	Green	SG1004-ND	1.02	8.70	79.75	481.00	GKG30011
A	6.5	40.0	N750±400	200	N.A.	Yellow	SG1005-ND	1.02	8.70	79.75	481.00	GKG40011
A	8.0	50.0	N1200±600	200	N.A.	Orange	SG1006-ND	1.09	9.30	85.25	515.00	GKG50011
A	10.5	60.0	N1200±600	200(1MHz)	N.A.	Brown	SG1007-ND	1.09	9.30	85.25	515.00	GKG60011
A	12.0	70.0	N1500±600	200(1MHz)	N.A.	Grey	SG1008-ND	1.09	9.30	85.25	515.00	GKG70011
A	20.0	90.0	N2200±600	200(1MHz)	N.A.	Black	SG1009-ND	1.09	9.30	85.25	515.00	GKG90011
B	1.8	3.0	0±200	300	200	Pink	SG1010-ND	1.19	10.20	93.50	564.00	GKG3R014
B	2.8	10.0	0±250	300	200	White	SG1012-ND	1.65	14.10	129.25	780.00	GKG10014
B	8.0	50.0	N1200±600	200	N.A.	Orange	SG1016-ND	1.72	14.70	134.75	813.00	GKG50014
B	10.5	60.0	N1200±600	200(1MHz)	N.A.	Brown	SG1017-ND	1.72	14.70	134.75	813.00	GKG60014
B	12.0	70.0	N1500±600	200(1MHz)	N.A.	Grey	SG1018-ND	1.72	14.70	134.75	813.00	GKG70014
C	1.7	3.0	0±200	300	300	Red Dot†	SG1020-ND	.84	7.20	66.00	398.00	GKG3R021
C	2.5	6.0	0±200	500	300	Blue	SG1021-ND	.77	6.60	60.50	365.00	GKG6R021
C	3.5	10.0	0±200	500	300	White	SG1022-ND	.77	6.60	60.50	365.00	GKG10021
C	5.5	20.0	N900±350	500	300	Red	SG1023-ND	.77	6.60	60.50	365.00	GKG20021
C	7.5	30.0	N1100±450	300	300	Green	SG1024-ND	.77	6.60	60.50	365.00	GKG30021
C	15.0	50.0	N1700±500	300	N.A.	Orange	SG1026-ND	.91	7.80	71.50	432.00	GKG50021
D	1.7	3.0	0±200	300	300	Red Dot†	SG1027-ND	.84	7.20	66.00	398.00	GKG3R024
D	2.5	6.0	0±200	500	300	Blue	SG1028-ND	.77	6.60	60.50	365.00	GKG6R024
D	3.5	10.0	0±200	500	300	White	SG1029-ND	.77	6.60	60.50	365.00	GKG10024
D	5.5	20.0	N900±350	500	300	Red	SG1030-ND	.77	6.60	60.50	365.00	GKG20024
D	7.5	30.0	N1100±450	300	300	Green	SG1031-ND	.77	6.60	60.50	365.00	GKG30024
D	15.0	50.0	N1700±500	300	N.A.	Orange	SG1033-ND	.91	7.80	71.50	432.00	GKG50024

† Marking on bottom of capacitor.

Tuning Tool

SG9007-ND 5mm Type (SG1002 through SG1019) **$9.20**
SG9005-ND 4 x 4.5mm Type (SG1020 through SG1033) **$9.20**

SPRAGUE GOODMAN

SURFTRIM® Surface Mount Variable Capacitors — Sealed Construction —

4 x 4.5 x 2.7mm

FEATURES:

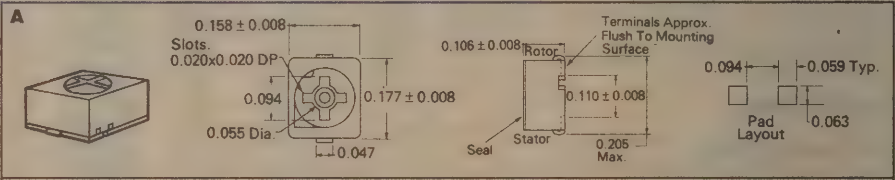
- Process seal provides protection against contaminants (flux, solvents, etc.) during production.
- Designed for vapor phase reflow soldering.

SPECIFICATIONS:

Operating Temperature Range: −25°C to 85°C
Dielectric Withstanding Voltage: 220 VDC
Insulation Resistance: 10^4 Megohms min.
Voltage Rating: 100 VDC
Torque: 15 to 100 g-cm (0.2 to 1.39 in.-oz.)

SPECIFICATION NOTES:

- Parts are 100% tested for capacitance range, dielectric withstanding voltage, insulation resistance, and torque.
- Capacitance range specified is measured at 1 MHz and 25°C. Tolerance on maximum rated capacitance is +50%.
- For soldering Surftrim® surface mounting models pre-heat at 140°C for 2 minutes maximum, and reflow solder at 240°C ±5°C for 20 seconds maximum.
- For soldering printed circuit board mounting models, solder at 260°C ±10°C for 5 seconds maximum.
- Q factor is measured at maximum rated capacitance and at room temperature Frequency of measurement is as listed for each model.
- Dielectric strength is measured at maximum rated capacitance and room temperature, with test voltage as listed for each model applied for 5 seconds.
- Insulation resistance is measured at maximum rated capacitance and room temperature and at rated voltage unless otherwise specified.
- Temperature coefficient of capacitance (TCC) is measured at 100 KHz or 1MHz, over a temperature range of −20°C to +70°C with capacitor set at maximum rated capacitance.
- Axial load during tuning should not exceed 250 grams.
- Capacitors should not be operated outside of rated capacitance range and working voltage.
- Angular orientation of adjusting slot is random.


A
0.158 ± 0.008
Slots. 0.020x0.020 DP
0.094
0.177 ± 0.008
0.055 Dia.
0.047
0.106 ± 0.008
Rotor
Terminals Approx. Flush To Mounting Surface
0.110 ± 0.008
Seal
Stator
0.205 Max.
0.094
0.059 Typ.
Pad Layout
0.063

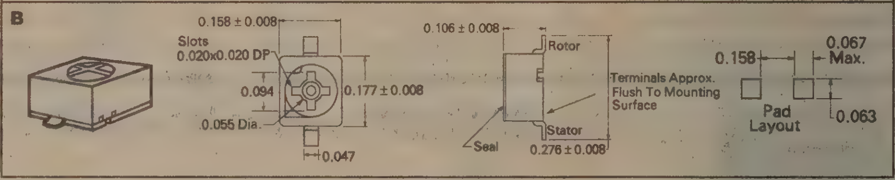

B
0.158 ± 0.008
Slots 0.020x0.020 DP
0.094
0.177 ± 0.008
0.055 Dia.
0.047
0.106 ± 0.008
Rotor
Terminals Approx. Flush To Mounting Surface
Stator
Seal
0.276 ± 0.008
0.158
0.067 Max.
Pad Layout
0.063

Figure	Capacitance (pF) Min.	Max.	TCC (ppm / °C)	Q (min.) 1MHz	Color Code	Digi-Key Part No.	Pricing 5	25	100	Digi-Key Part No.	Tape/Reel Pricing 700	Sprague-Goodman Part No.
A	1.4	3.0	0+200	300	Red Dot†	SG2000CT-ND	8.00	35.00	110.00	SG2000TR-ND	464.80	GKG3R066-07
A	2.0	6.0	0±200	500	Blue	SG2001CT-ND	7.60	33.25	104.50	SG2001TR-ND	441.70	GKG6R066-07
A	3.0	10.0	0±300	500	White	SG2002CT-ND	7.60	33.25	104.50	SG2002TR-ND	441.70	GKG10066-07
A	4.5	20.0	N750±300	500	Red	SG2003CT-ND	7.60	33.25	104.50	SG2003TR-ND	441.70	GKG20066-07
A	6.5	30.0	N900±450	300	Green	SG2004CT-ND	7.60	33.25	104.50	SG2004TR-ND	441.70	GKG30066-07
A	8.5	50.0	N1700±500	300	Orange	SG2006CT-ND	8.00	35.00	110.00	SG2006TR-ND	464.80	GKG50066-07
B	1.4	3.0	0±200	300	Red Dot†	SG2007CT-ND	9.20	40.25	126.50	SG2007TR-ND	534.80	GKG3R067-07
B	2.0	6.0	0±200	500	Blue	SG2008CT-ND	8.80	38.50	121.00	SG2008TR-ND	511.00	GKG6R067-07
B	3.0	10.0	0±300	500	White	SG2009CT-ND	8.80	38.50	121.00	SG2009TR-ND	511.00	GKG10067-07
B	4.5	20.0	N750±300	500	Red	SG2010CT-ND	8.80	38.50	121.00	SG2010TR-ND	511.00	GKG20067-07
B	6.5	30.0	N900±450	300	Green	SG2011CT-ND	8.80	38.50	121.00	SG2011TR-ND	511.00	GKG30067-07
B	8.5	50.0	N1700±500	300	Orange	SG2013CT-ND	9.20	40.25	126.50	SG2013TR-ND	534.80	GKG50067-07

† Marking on bottom of capacitor.

Tuning Tool

SG9005-ND.. **$9.20**

Panasonic®

Piezoelectric Ceramic Buzzer Units

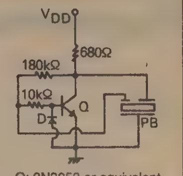
Applications: Smoke detectors, alarms, detectors, home appliances, radio beepers, electronic games, keyboard signalers, cameras, and telephone ringers.

P9948 and P9928 Features: • Drive oscillator circuitry — will run directly from commonly used voltage source such as dry batteries. • High sound level and low input voltage. • Low power consumption. Wide operating range of supply voltage: 3 to 20VDC.

Features For All Others: • Low power consumption. • Long life and no noise due to non-contact. • Thin thickness buzzer element. • External drive type. • Covering wide frequency range. • No magnetic field is generated. • High sound pressure level.

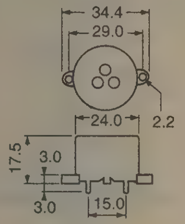
Example Driving Circuit (For Self Drive Type)

P9912
P9913
P9914
P9915
P9920
P9921
P9923

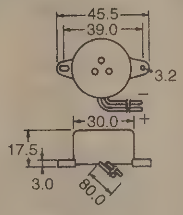

VDD
680Ω
180kΩ
10kΩ
Q
D
PB

Q: 2N3053 or equivalent
D: 1N4148 or equivalent

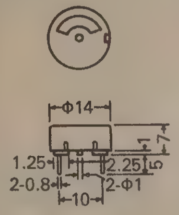
P9948


34.4
29.0
24.0
2.2
17.5
3.0
3.0
15.0

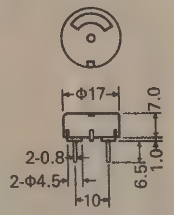
P9928


45.5
39.0
3.2
30.0
+
–
17.5
3.0
80.0

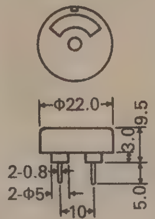
P9900


Φ14
1.25
2-0.8
10
2.25
2-Φ1
1
7
5

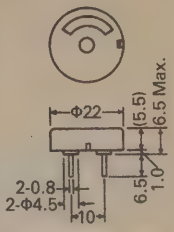
P9957


Φ17
7.0
2-0.8
2-Φ4.5
10
6.5
1.0

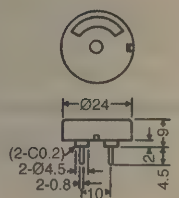
P9929


Φ22.0
9.5
3.0
2-0.8
2-Φ5
10
5.0

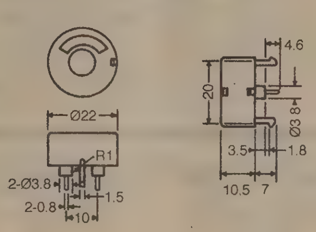
P9951


Φ22
(5.5)
6.5 Max.
2-0.8
2-Φ4.5
10
6.5
1.0

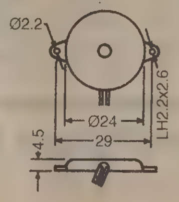
P9910


Ø24
9
2
4.5
(2-C0.2)
2-Ø4.5
2-0.8
10

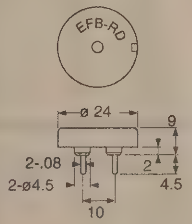
P9909


Ø22
R1
2-Ø3.8
2-0.8
10
1.5
4.6
20
Ø3.8
3.5
1.8
10.5
7

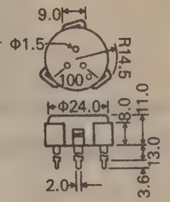
P9911


Ø2.2
Ø24
29
LH2.2x2.6
4.5

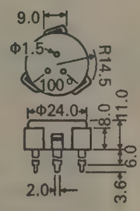
P9924


EFB-RD
ø 24
9
2-.08
2-ø4.5
2
4.5
10

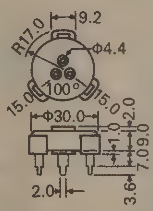
P9912


9.0
Φ1.5
R14.5
100
Φ24.0
8.0
11.0
13.0
2.0
3.6

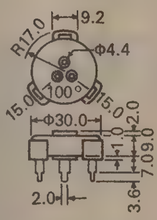
P9913


9.0
Φ1.5
R14.5
100
Φ24.0
8.0
11.0
6.0
2.0
3.6

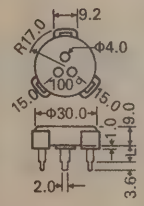
P9914


R17.0
9.2
Φ4.4
100
15.0
15.0
Φ30.0
2.0
1
7.0
9.0
2.0
3.6

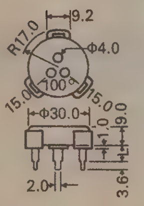
P9915


R17.0
9.2
Φ4.4
100
15.0
15.0
Φ30.0
2.0
1
7.0
9.0
2.0
3.6

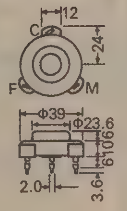
P9920 (L: 7.0)


R17.0
9.2
Φ4.0
100
15.0
15.0
Φ30.0
1.0
9.0
2.0
3.6

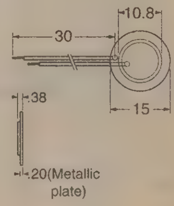
P9921 (L: 4.0)


R17.0
9.2
Φ4.0
100
15.0
15.0
Φ30.0
1.0
9.0
2.0
3.6

P9923


12
C
24
F
M
Φ39
Φ23.6
10
6
6
2.0
3.6

P9699


10.8
30
.38
15
.20(Metallic plate)

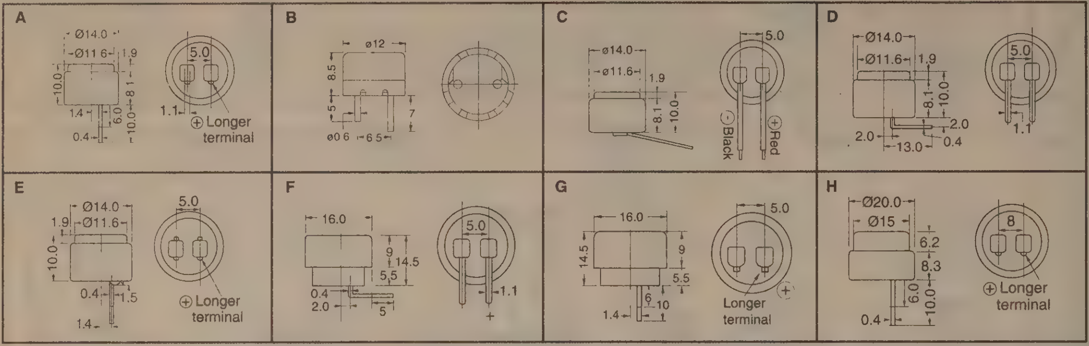
Sound Pressure Level	Oscillating Freq.	Cap. (@1 KHz)	Current (12 VDC)	Input Voltage	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000	Panasonic Part No.
80dB min. @ 12VDC	3.7KHz	—	15mA	3 ~ 20VDC	P9948-ND	8.34	70.53	551.43	1943.00	3664.00	3420.00/M	EFB-CB37C11
90dB min. @ 12VDC	2.8KHz	—	15mA	3 ~ 20VDC	P9928-ND	8.32	70.41	550.47	1939.50	3658.00	3414.00/M	EFB-CC28C15
74dB min. @ (15V p-p, 4KHz Sq. Wave)	—	8500pF	—	25V p-p	P9900-ND	3.19	27.01	211.18	744.00	1403.00	1310.00/M	EFB-AA14D001
86dB min. @ (15V p-p, 4KHz Sq. Wave)	—	7000pF	—	25V p-p	P9957-ND	2.10	17.74	138.69	488.50	922.00	860.00/M	EFB-AA40D102
85dB min. @ (15V p-p, 4KHz Sq. Wave)	—	15000pF	—	30V p-p	P9929-ND	2.18	18.48	144.48	509.00	960.00	896.00/M	EFB-RD22C41
80dB min. @ (15V p-p, 4KHz Sq. Wave)	—	15000pF	—	30V p-p	P9951-ND	2.14	18.14	141.83	500.00	942.00	880.00/M	EFB-RD22C413
98dB min. @ (15V p-p, 4KHz Sq. Wave)	—	15000pF	—	30V p-p	P9909-ND	2.26	19.10	149.30	526.00	992.00	926.00/M	EFB-RD22C415
85dB min. @ (15V p-p, 4KHz Sq. Wave)	—	10000pF	—	30V p-p	P9910-ND	2.80	23.72	185.42	653.50	1232.00	1150.00/M	EFB-RD24C41B
80dB min. @ (15V p-p, 4KHz Sq. Wave)	—	12000pF	—	30V p-p	P9911-ND	2.18	18.48	144.48	509.00	960.00	896.00/M	EFB-RC24C41
85dB min. @ (15V p-p, 4KHz Sq. Wave)	—	10000pF	—	30V p-p	P9924-ND	1.80	15.25	119.20	420.00	792.00	739.00/M	EFB-RD24C411
96dB min. @ 10VDC	3.5KHz	—	—	3 ~ 20VDC	P9912-ND*	3.41	28.86	225.63	795.00	1499.00	1399.00/M	EFB-RM38C13
93dB min. @ 10VDC	3.5KHz	—	—	3 ~ 20VDC	P9913-ND*	3.41	28.86	225.63	795.00	1499.00	1399.00/M	EFB-RM38C123
85dB min. @ 12VDC	2.0KHz	—	—	3 ~ 20VDC	P9914-ND*	2.98	25.19	196.97	694.00	1309.00	1222.00/M	EFB-RL20C102
104dB min. @ 12VDC	2.8KHz	—	—	3 ~ 20VDC	P9915-ND*	2.92	24.67	192.88	679.50	1282.00	1196.00/M	EFB-RL28C11
106dB min. @ 12VDC	3.7KHz	—	—	3 ~ 20VDC	P9920-ND*	3.17	26.83	209.74	739.00	1394.00	1301.00/M	EFB-RL37C20
106dB min. @ 12VDC	3.7KHz	—	—	3 ~ 20VDC	P9921-ND*	3.17	26.83	209.74	739.00	1394.00	1301.00/M	EFB-RL37C22
108dB min. @ 12VDC	3.2KHz	—	—	3 ~ 20VDC	P9923-ND*	6.08	51.41	401.90	1416.00	2670.00	2492.00/M	EFB-BD32B21

Description	Resonant Frequency (kHz)	Resonant Resistance (Ω)max.	Capacitance (pf)±30%	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000	Panasonic Part No.
NEW! 15mm Ceramic Element Buzzer	12.0±1.2	350	8000	P9699-ND	.72	6.05	47.30	166.50	314.00	1465.00	EFB-S10D42A16

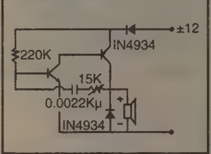
* Driving circuit required. **NOTE:** All buzzers and microphones are not washable.

Panasonic. Miniature Audio Transducer For General Application

For use in: burglar alarms, paging systems, smoke detectors, gas detectors, light and radiation detectors, data entry terminals, cash registers, alarm clocks, fish finders, metal detectors, medical equipment, test instruments, telephones, movie cameras, automotive warning systems, production machinery and various electronic equipment. NOT WASHABLE UNLESS NOTED!


A
Ø14.0
Ø11.6
1.9
10.0
8.1
1.4
6.0
10.0
0.4
5.0
1.1
⊕ Longer terminal
B
ø12
8.5
5
7
ø0.6
6.5
C
ø14.0
ø11.6
1.9
8.1
10.0
5.0
⊖ Black
⊕ Red
D
Ø14.0
Ø11.6
1.9
8.1
10.0
5.0
2.0
0.4
1.1
2.0
13.0
E
Ø14.0
Ø11.6
1.9
10.0
5.0
0.4
1.5
1.4
⊕ Longer terminal
F
16.0
9
14.5
5.5
0.4
2.0
5
5.0
1.1
+
G
16.0
14.5
9
5.5
6
10
1.4
5.0
Longer terminal
+
H
Ø20.0
Ø15
6.2
8.3
6.0
10.0
0.4
8
⊕ Longer terminal

Continuous Tone


±12
220K
IN4934
15K
0.0022Kµ
IN4934
+
-

Intermittent Tone

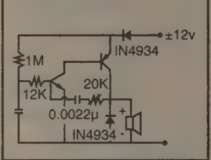
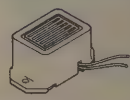

±12v
IN4934
1M
12K
20K
0.0022µ
IN4934
+
-

Fig.	Rated Input (mVA)	S.P.L. (dB) at 0.1m (4 inches) with Baffle (50mW, 2.5 ; 3KHz)	Impedence 6 3KHz (V)	Frequency (Hz)	Physical Size Dia.	Ht.	Terminal	Digi-Key Part No	Pricing 1	10	100	500	Panasonic Part No.
A	50	98dB	45Ω	2.4K~3.3K	14.0	10.0	Straight Pin	P9922-ND	3.25	28.78	232.63	819.70	EAF-14R06C
B	50	97dB	35Ω	3.8K~4.3K	12.0	8.5	Straight Pin	P9965-ND	4.44	39.37	318.20	1121.21	EAF-12RF04C
C	50	98dB	45Ω	2.4K~3.3K	14.0	10.0	Lead Wire	P9966-ND	3.48	30.83	249.19	878.03	EAF-14R06A
D	50	98dB	45Ω	2.4K~3.3K	14.0	10.0	Bent Pin	P9977-ND	4.50	39.90	322.50	1136.36	EAF-14R06B
E	50	98dB	45Ω	1.0K~6.0K	14.0	10.0	Straight Pin	P9978-ND*	3.61	31.97	258.43	910.61	EAF-14RM06CT
F	50	100dB	45Ω	2.5K~3.0K	16.0	14.5	Bent Pin	P9980-ND	5.86	50.80	420.11	1480.30	EAF-16R02B
G	50	100dB	45Ω	2.5K~3.0K	16.0	14.5	Straight Pin	P9981-ND	5.45	48.28	390.23	1375.00	EAF-16R02C
H	100	99dB	25Ω	1.8K~8.0K	20.0	14.5	Straight Pin	P9998-ND	5.99	53.09	429.14	1512.12	EAF-20R01C
E	50	88dB	45Ω	1.0K~7.0K	14.0	10.0	Straight Pin	P9999-ND*†	6.33	56 15	453.87	1599.24	EAF-14R06CW
A	50	98dB	45Ω	2.4K~3.3K	14.0	10.0	Straight Pin	P9969-ND†	4.42	39.18	316.70	1115.91	EAF-14RM06CN

* Washable. † Heat Resistance Type.

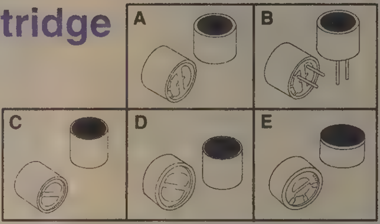
9-15VDC Buzzer



Operates from 9-15VDC. Case size: 23mm(L) x 15mm(W) x 13.5mm(H) with mounting hole centers at 27mm.

140C-ND.....$2.88/1; $26.40/10

Panasonic. Electret Condenser Microphone Cartridge



- Consists of a high voltage internal electret membrane, metal electrode and a Field Effect Transistor (FET). Doesn't need a high-voltage bias from the outside like ordinary condenser microphones.

• Features include:

Highly efficient electrical specification, pressure type operating principle, low impedance (2.2kΩ), omnidirectional back directivity, and a high degree of reliability under adverse shock, vibration and environmental tests.

• Applications:

Telephone and telephone answering devices, tape recorders, intercoms, computer modems, completed microphones for recording, testing and monitoring, hearing aids, sonic controlled toys and sensors, and others. All buzzers and microphones are non-washable.

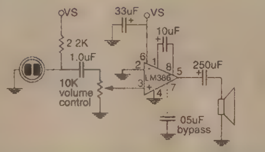
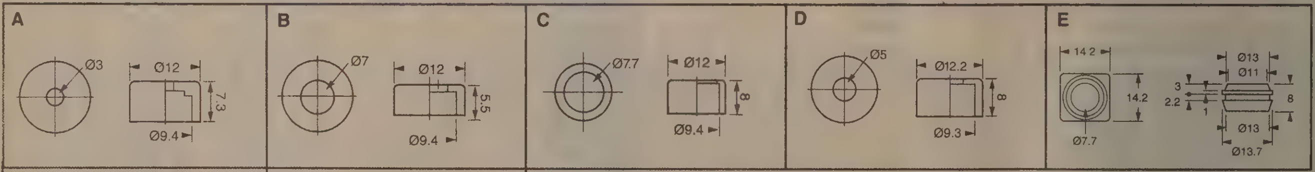

VS
33uF
VS
10uF
2.2K
1.0uF
10K volume control
LM386
250uF
05uF bypass

Fig.	Sensitivity (0dB=V/mbar,1KHz)	Sensitivity (0dB = 1V/Pa)	Frequency Range	Operating Voltage Max./Std.	Current Consumption Max.	Sensitivity Reduction	S/N Ratio	Physical Size (mm)	Digi-Key Part No	Pricing 1	10	100	Panasonic Part No.
A	-62dB±3dB	-42dB±3dB	20-16,000Hz	10V/4.5V	0.8mA	within-3dB @ 3V	>60dB	ø9.7 X 6.7	P9956-ND†	1.26	11.15	90.09	WM-034CY
B	-62dB±3dB	-42dB±3dB	20-16,000Hz	10V/4.5V	0.8mA	within-3dB @ 3V	>60dB	ø9.7 X 6.7	P9931-ND†	1.31	11.57	93.53	WM-034BY
	-62dB±3dB	-42dB±3dB	20-16,000Hz	10V/4.5V	0.8mA	within-3dB @ 3V	>60dB	ø9.7 X 6.7	P9962-ND†•	2.20	19.50	157.60	WM-034CY195
	-64dB±2dB	-44dB±2dB	20-16,000Hz	10V/1.5V	0.3mA	within-3dB @ 1.1V	>60dB	ø9.7 X 4.5	P9970-ND	.89	7.85	63.43	WM-52BM
	-64dB±3dB	-44dB±3dB	20-12,000Hz	10V/2.5V	0.6mA	within-3dB @ 2V	>60dB	ø9.7 X 4.5	P9949-ND†	.83	7.34	59.34	WM-54BT
C	-62dB±3dB	-42dB±3dB	20-20,000Hz	10V/2V	0.5mA	within-3dB @ 1.5V	>58dB	ø6.0 X 5.0	P9959-ND†	2.24	19.87	160.61	WM-60AY
	-64dB±3dB	-44dB±3dB	20-20,000Hz	10V/2V	0.5mA	within-3dB @ 1.5V	>58dB	ø6.0 X 5.0	P9967-ND	2.24	19.87	160.61	WM-60AT
	-70dB±4dB	-50dB±4dB	100-12,000Hz	10V/2V	0.5mA	within-3dB @ 1.5V	>55dB	ø6.0 X 5.0	P9964-ND*	4.00	35.46	286.60	WM-65A103
D	-65dB±4dB	-45dB±4dB	20-16,000Hz	10V/2V	0.5mA	within-3dB @ 1.5V	>58dB	ø6.0 X 2.5	P9933-ND†	3.80	33.70	272.41	WM-62A
	-71dB±4.5dB	-51dB±4.5dB	100-10,000Hz	10V/2V	0.5mA	within -3dB @ 1.5V	>50dB	ø6.0 X 2.7	P9896-ND‡	3.24	27.45	214.57	WM-66D103
E	-67dB±4dB	-47dB±4dB	100-16,000Hz	10V/1.5V	0.5mA	within-3dB @ 1V	>60dB	ø9.7 X 5.0	P9961-ND*	2.81	24.95	201.67	WM-55A103
	-70dB±4dB	-50dB±4dB	100-16,000Hz	10V/1.5V	0.5mA	within-3dB @ 1V	>58dB	ø9.7 X 5.0	P9963-ND*	2.28	20.22	163.40	WM-56A103
	-74dB±4db	-54dB±4dB	100-10,000Hz	10V/1.5V	0.5mA	within -3dB @ 1V	>58dB	ø9.7 X 5.0	P9897-ND‡	2.94	24.89	194.58	WM-55D103

† Omnidirectional. * Unidirectional. • Has 18mm long leads. ‡ Noise Canceling

Panasonic. Microphone Holders


A
Ø3
Ø12
7.3
Ø9.4
B
Ø7
Ø12
5.5
Ø9.4
C
Ø7.7
Ø12
8
Ø9.4
D
Ø5
Ø12.2
8
Ø9.3
E
14 2
14.2
Ø7.7
Ø13
Ø11
3
2.2
1
8
Ø13
Ø13.7

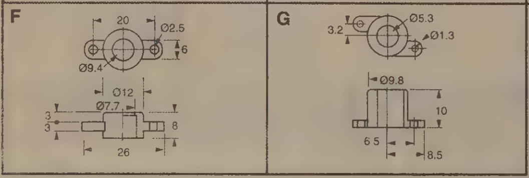
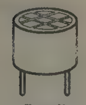
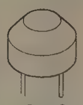

F
20
Ø2.5
6
Ø9.4
Ø12
Ø7.7
3
3
8
26
G
3.2
Ø5.3
Ø1.3
Ø9.8
10
6 5
8.5

Fig. No.	Digi-Key Part No.	Pricing 1	10	100	500	Panasonic Part No.	Use With Panasonic Part No.
A	P9950-ND	.50	4.21	32.90	115.91	M3CA0208A4	WM-52BM, WM-54BT, WM-55A103, WM-55D103, WM-56A103
B	P9952-ND	.50	4.21	32.90	115.91	M3CA0207A4	WM-52BM, WM-54BT, WM-55A103, WM-55D103, WM-56A103
C	P9974-ND	.50	4.21	32.90	115.91	YPM-CH022AA4	WM-034 Series
D	P9953-ND	.50	4.21	32.90	115.91	M3CA0082A4	WM-034 Series
E	P9698-ND	.51	4.32	33.76	118.94	YPMCH008	WM-034 Series
F	P9899-ND	50	4.21	32.90	115.91	YPM-CH009AA4	WM-034 Series
G	P9898-ND	.50	4.21	32.90	115.91	YPM-CH021AA4	WM-063T, WM60AT, WM60AY, WM65A103

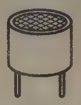
Panasonic. Ultrasonic Ceramic Sensor/Transducer



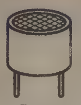
Type H
Compact Type*



Type Q
Enclosed Type**



Type S
Temperature
Stable Type**



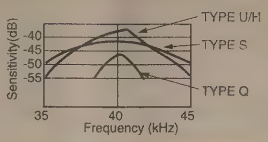
Type U
Standard
Type*

* Temperature Range: -20°C to 60°C
** Temperature Range: -40°C to 100°C

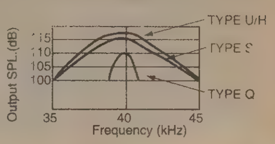
Ultrasonic Ceramic Sensor consisting of a disc/bimorph type piezoelectric ceramic vibrator that is used as a sensor for transmitting and receiving ultrasonics in the air. Since the ultrasonic ceramic sensor has a resonance type vibrator, it is high in sensitivity and has outstanding sound pressure level.

It has wide applications for burglar alarm systems, automatic door openers, flow rate detectors, and remote-control systems in TV, home appliance and toys etc. Sensors are not washable.

Sensitivity



Sound Pressure Level

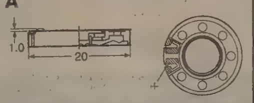


Type	Class	Ctr Freq. 51.0 (KHz)	Sensitivity (dB/V/mbar)	Sensitivity (0dB = 1V/Pa)	Min. Band-Width (KHz)	Sound Pressure Level (dB)	Max. Input Volt. (Vrms)	Dimensions (mm) Physical Size Dia.	Ht.	Leads Length	Space	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Panasonic Part No.
S	Transmitter	41.0	—	—	4.0	110	20	16.0	12.0	10.0	10.0	P9934-ND	6.41	54.21	423.79	1493.50	2816.00	EFR-OSB40K2
S	Receiver	40.0	-67	-47	4.0	—	—	16.0	12.0	10.0	10.0	P9935-ND	6.39	54.10	422.98	1490.50	2811.00	EFR-RSB40K2
Q	Transmitter	39.8	—	—	2.0	105	20	18.0	12.0	12.5	7.5	P9938-ND	25.74	217.80	1702.80	6000.00	11314.00	EFR-OQB40K4
Q	Receiver	39.5	-75	-55	2.0	—	—	18.0	12.0	12.5	7.5	P9939-ND	22.62	191.40	1496.40	5272.50	9943.00	EFR-RQB40K4
U	Transmitter	40.0	—	—	4.0	112	20	16.0	12.0	10.0	10.0	P9889-ND	6.03	51.04	399.01	1405.94	2651.20	EFR-TUB40K5
H	Receiver	40.0	-67	-47	4.0	—	—	12.6	9.5	6.0	8.0	P9890-ND	9.25	78.26	611.87	2156.00	4065.60	EFR-RHB40K5
H	Transmitter	40.0	—	—	4.0	110	20	12.6	9.5	6.0	8.0	P9891-ND	9.25	78.26	611.87	2156.00	4065.60	EFR-THB40K5
Q	Receiver	40.0	-75	-55	1.0	—	—	18.0	12.0	12.5	7.5	P9892-ND	32.12	271.75	2124.58	7486.17	14116.79	EFR-RQB40K5
Q	Transmitter	40.0	—	—	1.0	105	20	18.0	12.0	12.5	7.5	P9893-ND	32.12	271.75	2124.58	7486.17	14116.79	EFR-TQB40K5
S	Receiver	40.0	-70	-50	4.0	—	—	16.0	12.0	10.0	10.0	P9894-ND	7.59	64.22	502.07	1769.09	3336.00	EFR-RSB40K5
S	Transmitter	40.0	—	—	4.0	105	20	16.0	12.0	10.0	10.0	P9895-ND	7.59	64.22	502.07	1769.09	3336.00	EFR-TSB40K5

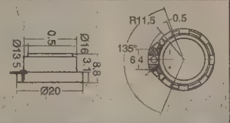
Panasonic. Micro Speakers

These compact, low-profile micro-speakers are best suited for pocketable audio equipment such as low-profile radios, microcassette recorders and liquid crystal TV sets, and compact speech synthesizing equipment such as electronic interpreters, audio-response clocks, audio-response cameras and various alarms.

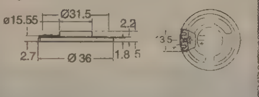
A



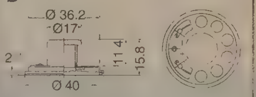
B



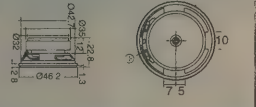
C



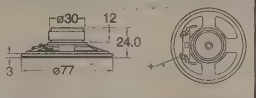
D



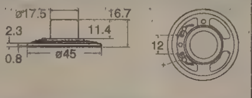
E



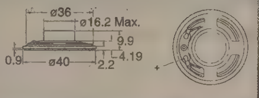
F



G



H



I

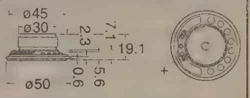
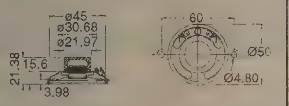


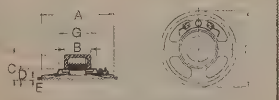
Fig. No.	Outer Dim. (mm)	Input (W) Rated	Max.	Impedance (Ω)	Frequency Range (Hz)	Sound Press. Level dB/1W 0.5m	Magnet Size (mm)	Weight (g)	Net Weight (g)	Digi-Key Part No.	Pricing 1	10	100	Panasonic Part No.
A	20	0.10	—	8	480~3500	71	10 X 5.7 X 0.8	0.4	1.5	P9601-ND	7.25	65.25	580.00	EAS-2P106C
B	20	0.15	0.20	8	1000~5000	72	16 X 7 X 5	4.0	7	P9602-ND	5.22	46.96	417.40	EAS-2P20A
C	36	0.20	0.30	8	480~4500	77	12 X 1.5	1.4	7.5	P9603-ND	6.20	55.82	496.20	EAS-3P123A
C	36	0.20	—	8	325~3500	74	12 X 2.5	1.5	8	P9604-ND	6.88	61.88	550.00	EAS-3P128A
D	40	0.10	—	8	530~3000	92	11.5 X 10	7.7	25	P9605-ND	5.61	50.49	448.80	EAS-4P15SA
E	45	2.0	3.50	4	430~10000	88	35 X 18 X 7	24.8	70	P9606-ND	5.64	50.76	451.20	EAS-45P36S
F	80	0.63	—	8	185~4000	93	30 X 16 X 7	18.0	68	P9607-ND	4.44	39.96	355.20	EAS-8P29SG
G	45	0.10	—	8	390~3000	93	11.5 X 10	7.7	24	P9608-ND	4.50	40.50	360.00	EAS-45P30S
H	40	0.10	—	32	565~3000	76	10 X 2	1.3	11	P9609-ND	8.14	73.22	650.80	EAS-4P108A
I	50	0.16	—	8	350~3000	93	30 X 16 X 7	18.0	57	P9610-ND	3.76	33.84	300.80	EAS-5P13S

CTS Speakers

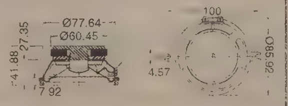
A



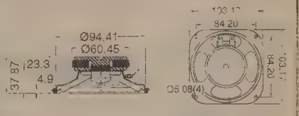
B



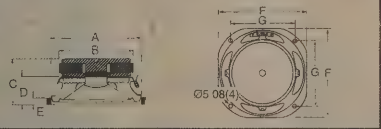
C



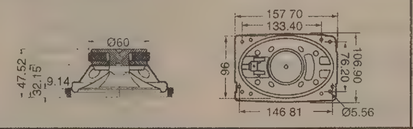
D



E



F



G

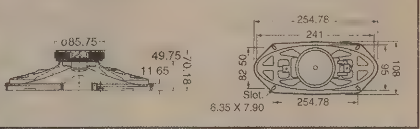


Fig.	Description	Nominal Impedance Ohm ± 15%	Power Rating Watt	Resonance Frequency Hz	Response Range Hz	Nominal Sensitivity* dB ± 2.0 avg	Voice Coil Diameter (mm)	Dimensions (mm) A	B	C	D	E	F	G	Magnet Size (mm)	Magnet Weight (Oz)	Digi-Key Part No	Pricing 1	25	50	CTS Part No.
A	2" Round	8	0.5	450 ± 20%	390 ~ 3,000	80.0	12.70	—	—	—	—	—	—	—	12.96 X 9.98	0.34	10338-ND	15.60	352.50	645.00	400-200-08
B	2.5" Round	8	0.5	390 ± 20%	390 ~ 3,000	82.0	12.70	59.48	21.97	20.32	9.01	2.20	66.04	30.86	12.96 X 9.98	0 34	10339-ND	16.51	373.06	682.63	400-212-08
C	3.5" Round	10	15	135 ± 15%	135 ~ 22,000	84.0	19.05	—	—	—	—	—	—	—	60.45 X 25.4 X 7.11	2.94	10340-ND	16.90	381.88	698.75	400-312-10
D	4" Round	4	15	245 ± 10%	245 ~ 6,000	93.5	19.05	—	—	—	—	—	—	—	60.45 X 25.4 X 7.11	2.94	10341-ND	20.80	470.00	860.00	400-400-04
E	4.5" Round	8	25	78 ± 15 Hz	78 ~ 20,000	90.0	25.40	104.54	85.75	52.62	32.18	8.17	114.30	84.18	87.75 X 32.51 X 10.8	9.4	10342-ND	21.45	484.69	886.88	400-412-08
E	5" Round	4	15	325 ± 10%	325 ~ 6,000	93.5	25.40	109.04	60.45	2.36	27.83	8.94	16.91	—	87.75 X 32.51 X 10.8	2.94	10343-ND	21.32	481.75	881.50	400-500-04
E	6" Round	4	25	55 ± 10 Hz	55 ~ 15,000	88.5	25.40	140.25	85.75	63.01	42.57	8.78	157.00	—	87.75 X 32.51 X 10.8	9.4	10344-ND	24.70	558.13	1021.25	400-600-04
B	8" Round	4	10	60 ± 15%	50 ~ 23,000	86.0	25.40	181.99	71.32	79.37	60.02	7.31	205.00	—	87.75 X 32.51 X 10.8	5.6	10345-ND	27.43	619.81	1134.13	400-800-04
F	4 X 6" Oval	4	15	110 ± 15 Hz	110 ~ 18,000	88.5	19.05	—	—	—	—	—	—	—	60.45 X 25.4 X 7.11	2.94	10346-ND	17.42	393.63	720.25	401-406-04
G	4 X 10" Oval	4	25	70 ± 15 Hz	70 ~ 15,000	92.5	25.40	—	—	—	—	—	—	—	87.75 X 32.51 X 10.8	9.40	10347-ND	27.95	631.56	1155.63	401-410-04

* @ 300, 400, 500, & 600 Hz.

PANASONIC® 1206/0805/0603/0402 5% THICK FILM CHIP RESISTORS

Surface Mount — Available In 1/8, 1/10 and 1/16 Watt

Standard Resistor Values — See below for complete part numbers when ordering.

10
11
12
13
15
16
18
20
22
24
27
30
33
36
39
43
47
51
56
62
68
75
82
91
100
110
120
130
150
160
180
200
220
240
270
300
330
360
390
430
470
510
560
620
680
750
820
910
1.0K
1.1K
1.2K
1.3K
1.5K
1.6K
1.8K
2.0K
2.2K
2.4K
2.7K
3.0K
3.3K
3.6K
3.9K
4.3K
4.7K
5.1K
5.6K
6.2K
6.8K
7.5K
8.2K
9.1K
10K
11K
12K
13K
15K
16K
18K
20K
22K
24K
27K
30K
33K
36K
39K
43K
47K
51K
56K
62K
68K
75K
82K
91K
100K
110K
120K
130K
150K
160K
180K
200K
220K
240K
270K
300K
330K
360K
390K
430K
470K
510K
560K
620K
680K
750K
820K
910K
1.0M
1.1M
1.2M
1.3M
1.5M
1.6M
1.8M
2.0M
2.2M

1/8 W 1206 5% Chip Resistor Assortments

CR1-KIT-ND 200 ea. of every other value from 10, 12, 15, 18, etc. 1.0M (12,200)........................**$329.00**

CR2-KIT-ND 200 ea. of every other value for 11, 13, 16, 20, etc. 910K (12,000)........................**$329.00**

1/10 W 0805 5% Chip Resistor Assortments

CR3-KIT-ND 200 ea. of every other value from 10, 12, 15, 18, etc. 1.0M (12,200)........................**$349.00**

CR4-KIT-ND 200 ea. of every other value for 11, 16, 20, etc. 910K (12,000)........................**$349.00**

1/16 W 0603 5% Chip Resistor Assortments

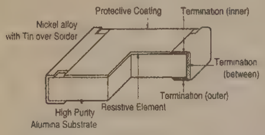
CR5-KIT-ND 200 ea. of every other value from 10, 12, 15, 18, etc. 1.0M (12,200)........................**$379.00**

CR6-KIT-ND 200 ea. of every other value for 11, 13, 16, 20, etc. 910K (12,000)........................**$379.00**

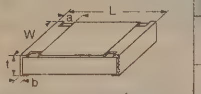
1/16 W 0402 5% Chip Resistor Assortments

CR7-KIT-ND 200 ea. of every other value for 10, 12, 15, 18, 22, , 1.0M (12,200) **$399.00**

CR8-KIT-ND 200 ea. of every other value for 11, 13, 16, 20, etc. 910K (12,000) **$399.00**



Type (Power Rating)	Type	Max. RCWV	Max. Overload Voltage.	Dimensions (mm) L	W	t	a	b	Temperature Coefficient	Panasonic Part No.
1/8 Watt	1206	200V	400V	3.20	1.60	0.6	0.5	0.5	10Ω ~ 1MΩ: ±200ppm / °C, 1MΩ, ~ -400 ; +150	ERJ-8GEY
1/8 Watt	1206	200V	400V	3.20	1.60	0.6	0.5	0.3		ERJ-8GCY
1/10 Watt	0805	150V	200V	2.00	1.25	0.6	0.4	0.4	10Ω ~ 1MΩ: ±200ppm / °C, 1MΩ, ~ -400 ; +150	ERJ-6GEY
1/16 Watt	0603	50V	100V	1.60	0.8	0.45	0.3	0.3	10Ω ~ 1MΩ: ±250ppm / °C, 1MΩ, ~ -300 ; +100	ERJ-3GSY
1/16 Watt	0402	50V	100V	1.00	0.5	0.35	0.2	0.25	10Ω ~ 1MΩ: ±200ppm / °C, 1MΩ, ~ -400 ; +150	ERJ-2GEJ



Resistance To Soldering Heat: ± (1.0% 1 0.1Ω) max. with no evidence of mechanical damage.
Test Temperature: 270° ± 5°C
Dip Time: 10 ± o Seconds.

Description	Value Range	Digi-Key Part No.	Pricing 200	1M	5M	10M	50M	100M	500M	1000M	Panasonic Part Number
1/8 W, 1206, 5% Chip Resistors; Tape & Reel (5000/pkg.)	(10-2.2MΩ) ...	P + Value + "ETR-ND"	—	—	12.00/M	10.80/M	9.00/M	5.40/M	4.90/M	4.80/M	ERJ-8GEYJxxxV
1/8 W, 1206, 5% Chip Resistors; Tape (200/pkg.)	(10-2.2MΩ) ...	P + Value + "ECT-ND"	6.80	28.80	—	—	—	—	—	—	ERJ-8GEYJxxx
1/8 W, 1206, 5% Chip Resistors; Magazine Pack (200/pkg.)	(10-2.2MΩ) ...	P + Value + "EMG-ND"*	5.80	24.55	—	—	—	—	—	—	ERJ-8GCYJxxxM
1/10 W, 0805, 5% Chip Resistors; Tape & Reel (5000/pkg.)	(10-2.0MΩ) ...	P + Value + "ATR-ND"	—	—	12.00/M	10.80/M	9.00/M	5.40/M	9.00/M	4.80/M	ERJ-6GEYJxxxV
1/10 W, 0805, 5% Chip Resistors; Bulk (200/pkg.)	(10-2.0MΩ) ...	P + Value + "ACT-ND"	6.80	28.80	—	—	—	—	—	—	ERJ-6GEYJxxx
1/16 W, 0603, 5% Chip Resistors; Tape & Reel (5000/ pkg.)	(10-2.0MΩ) ...	P + Value + "GTR-ND"	—	—	15.00/M	13.50/M	11.25/M	6.75/M	6.13/M	6.00/M	ERJ-3GSYJxxxV
1/16 W, 0603, 5% Chip Resistors; Bulk (200/pkg.)	(10-2.0MΩ) ...	P + Value + "GCT-ND"	7.65	32.40	—	—	—	—	—	—	ERJ-3GSYJxxx
1/16 W, 0402, 5% Chip Resistors; Tape & Reel (10000/pkg.)	(10-2.0MΩ) ...	P + Value + "JTR-ND"	—	—	—	29.70/M	24.75/M	14.85/M	13.48/M	13.20/M	ERJ-2GEJxxxx
1/16 W, 0402, 5% Chip Resistors; Tape (200/pkg.)	(10-2.0MΩ) ...	P + Value + "JCT-ND"	12.75	54.00	45.00/M	—	—	—	—	—	ERJ-2GEJxxx

0.0 (zerohm) value also available. ***Magazine pack for Type 1206 not for new design**

YAGEO 5% CARBON FILM RESISTORS

Available In 1/8, 1/4 and 1/2 Watt

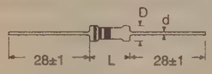
Standard Resistor Values — See below for complete part numbers when ordering.

1.0
1.1
1.2
1.3
1.5
1.6
1.8
2.0
2.2
2.4
2.7
3.0
3.3
3.6
3.9
4.3
4.7
5.1
5.6
6.2
6.8
7.5
8.2
9.1
10
11
12
13
15
16
18
20
22
24
27
30
33
36
39
43
47
51
56
62
68
75
82
91
100
110
120
130
150
160
180
200
220
240
270
300
330
360
390
430
470
510
560
620
680
750
820
910
1.0K
1.1K
1.2K
1.3K
1.5K
1.6K
1.8K
2.0K
2.2K
2.4K
2.7K
3.0K
3.3K
3.6K
3.9K
4.3K
4.7K
5.1K
5.6K
6.2K
6.8K
7.5K
8.2K
9.1K
10K
11K
12K
13K
15K
16K
18K
20K
22K
24K
27K
30K
33K
36K
39K
43K
47K
51K
56K
62K
68K
75K
82K
91K
100K
110K
120K
130K
150K
160K
180K
200K
220K
240K
270K
300K
330K
360K
390K
430K
470K
510K
560K
620K
680K
750K
820K
910K
1.0M
1.1M
1.2M
1.3M
1.5M
1.6M
1.8M
2.0M
2.2M
2.4M
2.7M
3.0M
3.3M
3.6M
3.9M
4.3M
4.7M
5.1M
5.6M
6.2M
6.8M
7.5M
8.2M
9.1M
10M

Characteristics

Terminal Strength	Soldering	Temperature Change	Vibration	Moisture Resistance	Load Life	Dielectric Strength	Insulation Resistance	Short-Time Overload	Voltage Coefficient	Solvents Resistance
0.6mm load 10N (1kg): 10s Δ Rmax. 0.25% + 0.05Ω	2s 230°C 0.5% activated flux Δ Rmax. 0.25% + 0.25Ω	½ hr. @ −55°C, ½ hr. @ +155°C 5 cycles; Δ Rmax. 0.25% + 0.25Ω	1.5mm displacement @ 10 to 500 Hz; Δ Rmax. 0.25% + 0.05Ω	Δ Rmax. ±3%	Δ Rmax. ±2.5%	1000 hrs.: 70°C: Pnom or Vmax. Δ Rmax. 1% + 0.05Ω	500Vrms appl. for 1 min.: No breakdown	Room temp., dissipation 6.25× Pnom. 10 cycles, 5 sec. on, 45 sec. off; Δ Rmax. 0.25% +0.05Ω	5 ppm	No damage

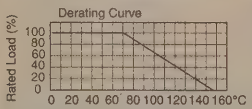
General Specifications



Type (Power Rating)	Dimensions (mm) L	D	d	Max. Working Voltage	Max. Overload Voltage	Rated Ambient Temperature	Temperature Cycling	Resistance Range	Resistance Tolerance
1/8 Watt	3.8 ± 0.2	1.8 ± 0.2	0.45	200V	400V	70°C	−55°C to +155°C	1.0Ω to 10 MΩ	±5%
1/4 Watt	6.5 ± 0.5	2.3 ± 0.3	0.60	250V	500V	70°C	−55°C to +155°C	1.0Ω to 10MΩ	±5%
1/2 Watt	9.5 ± 0.5	3.2 ± 0.5	0.60	350V	700V	70°C	−55°C to +155°C	1.0Ω to 10MΩ	±5%

Features

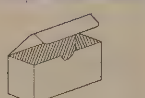
- Industry's lowest cost!
- Available in 1/8, 1/4, 1/2 watt; packaged in bulk or tape/reel (except 1/2 watt)
- Exceeds carbon comp MIL-R-11 performance
- Standard tolerance: ±5%
- Exceptional long-term stability



Description	Digi-Key Part No.	Pricing 5	200	1M	5M	10M	50M
1/8 Watt, 5% Carbon Film Resistors Bulk Package..................	Value + "E"+ "BK-ND" (i.e. 1.0EBK-ND)	.28	4.70	13.63	12.22/M	11.28/M	10.34/M
1/8 Watt, 5% Carbon Film Resistors — Tape and Reel (5,000 pcs./reel — Order in multiples of 5,000)	Value + "E" + "TR-ND" (i.e. 1.0ETR-ND)	—	—	—	14.95/M	13.80/M	11.04/M
1/4 Watt, 5% Carbon Film Resistors Bulk Package	Value + "Q"+ "BK-ND" (i.e. 1.0QBK-ND)	.28	3.89	8.70	8.27/M	7.69/M	6.24/M
1/4 Watt, 5% Carbon Film Resistors — Tape and Reel (5,000 pcs./reel — Order in multiples of 5,000)	Value + "Q" + "TR-ND" (i.e. 1.0QTR-ND)	—	—	—	8.94/M	8.25/M	6.60/M
1/2 Watt, 5% Carbon Film Resistors Bulk Package	Value + "H"+ "-ND" (i.e. 1.0H-ND)	.27	3.96	12.87	11.88/M	10.89/M	9.90/M

"E" = Eighth Watt; "Q" = Quarter Watt; "H" = Half Watt. Please be sure to specify. Half watt available in bulk package only.

1/8 Watt Resistor Assortment



Set of 5 each of the 72 standard 5% 1/8 watt carbon film resistors in the series 1.1, 1.3, 1.6, 2.0, 2.4, etc., through 910 kilohm (360 total pcs.).

RS212-ND..........$16.99

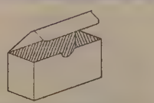
Set of 5 each of 73 standard 5% 1/8 watt carbon film resistors in the series 1.0, 1.2, 1.5, 1.8, 2.2, etc., through 1.0 megohm (365 total pcs.).

RS112-ND...........$16.96

200 each of all standard values 5% 1/8 watt carbon film resistors in the series 1.0 - 4.7 megohms (32,200 total pieces).

RSE200-ND........$399.00

1/4 Watt Resistor Assortment



200 each of all standard values 5% 1/4 watt carbon film resistors in the series 1.0 - 4.7 megohms (32,200 total pieces).

RSQ200-ND $219.00

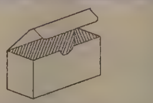
Set of 5 each of 73 standard 5% 1/4 watt carbon film resistors in the series 1.0, 1.2, 1.5, 1.8, 2.2, etc., through 1.0 megohm (365 total pcs.).

RS125-ND $14.95

Set of 5 each of the 72 standard 5% 1/4 watt carbon film resistors in the series 1.1, 1.3, 1.6, 2.0, 2.4, etc., through 910 kilohm (360 total pcs.).

RS225-ND $14.95

1/2 Watt Resistor Assortment



Set of 5 each of the 72 standard 5% 1/2 watt carbon film resistors in the series 1.1, 1.3, 1.6, 2.0, 2.4, etc., through 910 kilohm (360 total pcs.).

RS250-ND.........$16.95

Set of 5 each of 73 standard 5% 1/2 watt carbon film resistors in the series 1.0, 1.2, 1.5, 1.8, 2.2, etc., through 1.0 megohm (365 total pcs.).

RS150-ND $16.95

200 each of all standard values 5% 1/2 watt carbon film resistors in the series 1.0 - 4.7 megohms (32,200 total pieces).

RSH200-ND $297.00

1206/0805/0603/0402 1% PRECISION THICK FILM CHIP RESISTORS

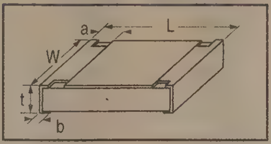
Surface Mount Available In 1/8, 1/10 & 1/16 Watt

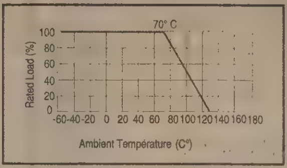
Panasonic

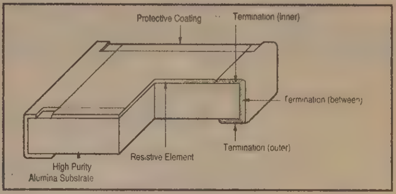
1206 0805 0603 0402
Available in 1/8 1/10 & 1/16

Size	Power Rating at 70°	Maximum RCWV*	Maximum Overload Voltage
0402	1/16 W	50 V	100 V
0603	1/16 W - (1/10 W)**	50 V	100 V
0805	1/10 W - (1/8 W)**	150V	200V
1206	1/8 W - (1/4 W)**	200 V	400V

Resistance to Soldering Heat: ± (1.0% ` 0.1Ω) max. w/ no evidence of mechanical damage. **Dip Time: 270°C ± 5°C**,10 $^{+1}_{-0}$ seconds. 100 PPM.







* Rated Continuous Working Voltage (RCWV) shall be determined from RCWV = $\sqrt{\text{Power Rating x Resistance Values}}$, or max. RCWV listed above, whichever is less.

** Available for reduction of load of pulse characteristics (RCWV x 2.5 RCWV x 2.0, R≥1.1kΩ).

Description	Dimensions(mm)					Digi-Key	Pricing						Panasonic
	L	W	a	b	t	Part No.	200	1,000	5M	10M	50M	100M	Part Number
1/8 Watt, 1206 1% Chip Metal Film Resistors (Tape & Reel) - (5000/ pkg.)	3.20	1.60	0.50	0.50	0.60	P + Value + "FTR-ND"	—	—	21.00/M	18.90/M	15.75/M	9.45/M	ERJ-8ENFxxxxV
1/8 Watt, 1206 1% Chip Metal Film Resistors (Bulk) - (200 /pkg.)	3.20	1.60	0.50	0.50	0.60	P + Value + "FCT-ND"	9.35	39.60	—	—	—	—	ERJ-8ENFxxxx
1/10 Watt, 0805 1% Chip Metal Film Resistors (Tape & Reel) - (5000/ pkg.)	2.00	1.25	0.40	0.40	0.60	P + Value + "CTR-ND"	—	—	21.00/M	18.90/M	15.75/M	9.45/M	ERJ-6ENFxxxxV
1/10 Watt, 0805 1% Chip Metal Film Resistors (Bulk) - (200/ pkg.)	2.00	1.25	0.40	0.40	0.60	P + Value + "CCT-ND"	10.45	46.75	—	—	—	—	ERJ-6ENFxxxx
1/16 Watt 0603 1% Chip Metal Film Resistors (Tape & Reel) - (5000/ pkg.)	1.60	.80	.30	.30	.45	P + Value + "HTR-ND"	—	—	24.75/M	22.00/M	16.50/M	14.85/M	ERJ-3EKFxxxxV
1/16 Watt 0603 1% Chip Metal Film Resistors (Bulk) - (200/ pkg.)	1.60	.80	.30	.30	.45	P + Value + "HCT-ND"	14.25	56.25	—	—	—	—	ERJ-3EKFxxxx
1/16 Watt 0402 1% Chip Metal Film Resistors (Tape & Reel) - (5000/Pkg.)	1.00	.50	.20	.25	.35	P + Value + "LTR-ND"	—	—	—	44.00/M	33.00/M	29.70/M	ERJ-2RKFxxxxX
1/16 Watt 0402 1% Chip Metal Film Resistors (Bulk) - (200/ pkg.)	1.00	.50	.20	.25	.35	P + Value + "LCT-ND"	24.70	97.50	71.50/M	—	—	—	ERJ-2RKFxxxx

Standard Resistor Values — See below for complete part numbers when ordering.

10.0	19.1	36.5	69.8	133	255	487	931	1.78K	3.40K	6.49K	12.4K	23.7K	45.3K	84.5K	158K	294K	549K
10.2	19.6	37.4	71.5	137	261	499	953	1.82K	3.48K	6.65K	12.7K	24.3K	46.4K	86.6K	162K	301K	562K
10.5	20.0	38.3	73.2	140	267	511	976	1.87K	3.57K	6.81K	13.0K	24.9K	47.5K	88.7K	165K	309K	576K
10.7	20.5	39.2	75.0	143	274	523	1.00K	1.91K	3.65K	6.98K	13.3K	25.5K	48.7K	90.9K	169K	316K	590K
11.0	21.0	40.2	76.8	147	280	536	1.02K	1.96K	3.74K	7.15K	13.7K	26.1K	49.9K	93.1K	174K	324K	604K
11.3	21.5	41.2	78.7	150	287	549	1.05K	2.00K	3.83K	7.32K	14.0K	26.7K	51.1K	95.3K	178K	332K	619K
11.5	22.1	42.2	80.6	154	294	562	1.07K	2.05K	3.92K	7.50K	14.3K	27.4K	52.3K	97.6K	182K	340K	634K
11.8	22.6	43.2	82.5	158	301	576	1.10K	2.10K	4.02K	7.68K	14.7K	28.0K	53.6K	100K	187K	348K	649K
12.1	23.2	44.2	84.5	162	309	590	1.13K	2.15K	4.12K	7.87K	15.0K	28.7K	54.9K	102K	191K	357K	665K
12.4	23.7	45.3	86.6	165	316	604	1.15K	2.21K	4.22K	8.06K	15.4K	29.4K	56.2K	105K	196K	365K	681K
12.7	24.3	46.4	88.7	169	324	619	1.18K	2.26K	4.32K	8.25K	15.8K	30.1K	57.6K	107K	200K	374K	698K
13.0	24.9	47.5	90.9	174	332	634	1.21K	2.32K	4.42K	8.45K	16.2K	30.9K	59.0K	110K	205K	383K	715K
13.3	25.5	48.7	93.1	178	340	649	1.24K	2.37K	4.53K	8.66K	16.5K	31.6K	60.4K	113K	210K	392K	732K
13.7	26.1	49.9	95.3	182	348	665	1.27K	2.43K	4.64K	8.87K	16.9K	32.4K	61.9K	115K	215K	402K	750K
14.0	26.7	51.1	97.6	187	357	681	1.30K	2.49K	4.75K	9.09K	17.4K	33.2K	63.4K	118K	221K	412K	768K
14.3	27.4	52.3	100	191	365	698	1.33K	2.55K	4.87K	9.31K	17.8K	34.0K	64.9K	121K	226K	422K	787K
14.7	28.0	53.6	102	196	374	715	1.37K	2.61K	4.99K	9.53K	18.2K	34.8K	66.5K	124K	232K	432K	806K
15.0	28.7	54.9	105	200	383	732	1.40K	2.67K	5.11K	9.76K	18.7K	35.7K	68.1K	127K	237K	442K	825K
15.4	29.4	56.2	107	205	392	750	1.43K	2.74K	5.23K	10.0K	19.1K	36.5K	69.8K	130K	243K	453K	845K
15.8	30.1	57.6	110	210	402	768	1.47K	2.80K	5.36K	10.2K	19.6K	37.4K	71.5K	133K	249K	464K	866K
16.2	30.9	59.0	113	215	412	787	1.50K	2.87K	5.49K	10.5K	20.0K	38.3K	73.2K	137K	255K	475K	887K
16.5	31.6	60.4	115	221	422	806	1.54K	2.94K	5.62K	10.7K	20.5K	39.2K	75.0K	140K	261K	487K	909K
16.9	32.4	61.9	118	226	432	825	1.58K	3.01K	5.76K	11.0K	21.0K	40.2K	76.8K	143K	267K	499K	931K
17.4	33.2	63.4	121	232	442	845	1.62K	3.09K	5.90K	11.3K	21.5K	41.2K	78.7K	147K	274K	511K	953K
17.8	34.0	64.9	124	237	453	866	1.65K	3.16K	6.04K	11.5K	22.1K	42.2K	80.6K	150K	280K	523K	976K
18.2	34.8	66.5	127	243	464	887	1.69K	3.24K	6.19K	11.8K	22.6K	43.2K	82.5K	154K	287K	536K	1.00M
18.7	35.7	68.1	130	249	475	909	1.74K	3.32K	6.34K	12.1K	23.2K	44.2K					

1% METAL FILM FIXED RESISTORS 1/4 Watt

YAGEO **MF Series**

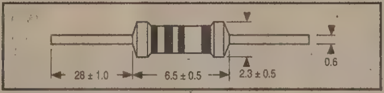
The MF series Metal Film Resistors are manufactured using vacuum sputtering system to deposit multiple layers of mixed metals and passivative materials onto a carefully treated high grade ceramic substrate, the resistors are coated with layers of light-blue lacquer.

General Specifications:

Power Rating: 1/4 Watt. ***Max. Working Voltage:*** 250V. ***Max. Overload Voltage:*** 500V. ***Rated Ambient Temperature:*** 70°C. ***Temperature Cycling:*** –65°C to +150°C. ***Resistance Range:*** 10.0Ω to 1.00MΩ. ***Resistance Tolerance:*** ±1%.

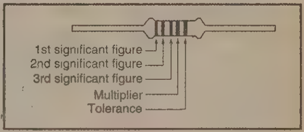
Electrical Specifications:

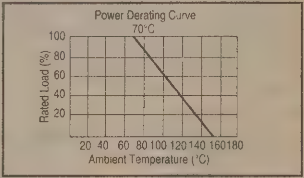
(See "General Specifications" below). All measurements are taken at +25°C at 1KHz and 65% relative humidity, unless stated otherwise. ***Type:*** MF-25 ***Style:*** RN-55 ***Power Rating:*** 1/4 Watt ***Resistance Tolerance:*** ±1% ***Temperature Coefficient:*** ±100PPM/°C



Characteristics

Temperature Cycling, −65° to +150°C	(%).......	±0.25
Low Temperature Operation, −65°C	(%).......	±0.25
Short Time Overload	(%).......	±0.20
Terminal Strength, 5 lb. pull	(%).......	±0.20
Resistance to Soldering Heat, +350°C	(%).......	±0.10
Moisture Resistance, Mil Std 202	(%).......	±0.50
Life 1000 hrs. (Rated Power)	(%).......	±0.50
Shock, 50G, 11ms	(%).......	±0.20
Vibration-High Frequency, 10-2000Hz	(%).......	±0.20
Insulation Resistance	(%)......	– $10^{10}\Omega$
Failure-Rate	(%).......	10^{-8}/h





Description	Digi-Key Part No.	Pricing 5	200	1M	5M	10M	50M	100M	500M	1,000M
1/4 Watt, 1% Metal Film Resistors Bulk Package	Value + "X" + "BK-ND" (i.e. 10.0XBK-ND)	.54	8.27	21.38	18.24/M	15.68/M	12.54/M	—	—	—
1/4 Watt, 1% Metal Film Resistors Order in multiples of 5,000 (5,000 pcs./reel)	Value + "X" + "TR-ND" (i.e. 10.0XTR-ND)	—	—	—	20.63/M	17.60/M	14.30/M	12.10/M	9.90/M	8.80/M

YAGEO

1% Metal Film Resistor Assortments

35% SAVINGS

Over Parts Purchased Separately

5 Each of Values 10Ω to 97.6Ω
RS1X-ND...............$29.95
5 Each of Values 100Ω to 976Ω
RS2X-ND...............$29.95
5 Each of Values 1.00KΩ to 9.76KΩ
RS3X-ND...............$29.95
5 Each of Values 10.0KΩ to 97.6KΩ
RS4X-ND...............$29.95
5 Each of Values 100KΩ to 1.00MΩ
RS5X-ND...............$29.95

Panasonic

1206 1% Chip Resistor Assortments

200 Each of Values 10Ω to 97.6Ω
RSM1F-ND $495.00
200 Each of Values 100Ω to 976Ω
RSM2F-ND $495.00
200 Each of Values 1.00KΩ to 9.76KΩ
RSM3F-ND $495.00
200 Each of Values 10.0KΩ to 97.6KΩ
RSM4F-ND $495.00
200 Each of Values 100KΩ to 1.00MΩ
RSM5F-ND $495.00

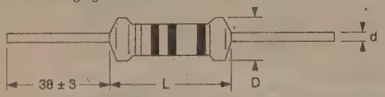
Panasonic

0805 1% Chip Resistor Assortments

200 Each of Values 10Ω to 97.6Ω
RSM1C-ND $495.00
200 Each of Values 100Ω to 976Ω
RSM2C-ND $495.00
200 Each of Values 1.00KΩ to 9.76KΩ
RSM3C-ND $495.00
200 Each of Values 10.0KΩ to 97.6KΩ
RSM4C-ND $495.00
200 Each of Values 100KΩ to 1.00MΩ
RSM5C-ND $495.00

YAGEO 5% METAL OXIDE FILM RESISTORS PANASONIC

These Metal Oxide Resistors offer lower cost alternatives to Carbon Composition Resistors and General Purpose Metal Films. They can replace many low power General Purpose wirewound applications. These Metal Oxides meet overload tests in accordance with UL specification #1412 without producing a fire hazard. They withstand solvents in accordance with article Mil-Std-202E without producing mechanical or electrical damage. **Features:** High surge/overload capability. Non-inductive design. Coating and marking resist Trichlorethelyne, Freon, and other cleaning agents.

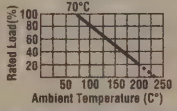


Type	Max. Working Volt.	Dimensions (mm) L	D	d
1W	350	13.0	4.5	0.8
2W	350	17.0	5.5	0.8

Characteristics:

Temperature Coefficient	±100 PPM Typ. ±200 Max
Insulation Resist.	10,000 MΩ Min
Load Life (1,000 hours)	◄1% Typ. ±3% Max
Short-time Overload	±0.5% Max
Temp. Cycling	±0.5% Max
Moisture Resistance	±1.0% Max
Shock & Vibration	±0.2% Max
Effect of Soldering	±0.5% Max
Voltage Coefficient	.001%/V
Current Noise	◄.1μV/V

Derating Curve



1 & 2 Watt Resistor Assortments

255 resistors per assortment. 5 each of the values in the ranges listed:

	0.47Ω - 56Ω	62Ω - 7.5KΩ	8.2KΩ - 1.0M	
1 Watt	RS101-ND	RS201-ND	RS301-ND	**$26.95**
2 Watt	RS102-ND	RS202-ND	RS302-ND	**$29.95**

Now Available In Tape and Reel

Matsushita fixed metal oxide film resistors feature small sized dimensions and have higher power rating at the same size as the conventional type. **Features:** Flame retardancy of the exclusively formulated inorganic insulative material exhibits an equivalent performance requirements of UL-94 (VE-O) and when operated at a potential less than 16 times RCWV, Matsushita metal (oxide) film resistors never flame nor arc. The coating and markings resist normal washing of solvents, such as Freon (TE, TMC, TF). trichloroethane.

Characteristics:

Temperature Coefficient	R. Wattage of 1, 2, 3 ±200ppm/°C
Voltage Coefficient	25ppm/V Max
Insulation Resist.	10,000 MΩ Min
Temp. Cycling	±(1% + 0.05Ω) Max
Short-time Overload	±(2% + 0.05Ω) Max
Humidity (Steady State)	±(2% + 0.05Ω) Max
Load Life in Humidity	±(5% + 0.05Ω) Max
Load Life	±(5% + 0.05Ω) Max
Resistance to Soldering Heat	±(1% + 0.05Ω) Max
Vibration Low Freq	±(1% + 0.05Ω) Max
Thermal Shock	±(2% + 0.05Ω) Max
Noise	1.0μV/V Max

Type	Max. Working Volt.	Dimensions (mm) L	D	d
1W	350	9.0	2.8	0.65
2W	350	12.0	4.0	0.80
3W	350	15.0	5.5	0.80

Standard Resistor Values — See below for complete part numbers when ordering.

0.47 0.51 0.56 0.62 0.68 0.75 0.82 0.91 1.0 1.1 1.2 1.3 1.5 1.6 1.8 2.0 2.2 2.4 2.7 3.0 3.3 3.6 3.9 4.3 4.7 5.1 5.6 6.2 6.8 7.5 8.2 9.1 10 11 12 13 15 16 18 20 22 24 27 30 33 36 39 43 47 51 56 62 68 75 82 91 100 110 120 130 150 160 180 200 220 240 270 300 330 360 390 430 470 510 560 620 680 750 820 910 1.0K 1.1K 1.2K 1.3K 1.5K 1.6K 1.8K 2.0K 2.2K 2.4K 2.7K 3.0K 3.3K 3.6K 3.9K 4.3K 4.7K 5.1K 5.6K 6.2K 6.8K 7.5K 8.2K 9.1K 10K 11K 12K 13K 15K 16K 18K 20K 22K 24K 27K 30K 33K 36K 39K 43K 47K 51K 56K 62K 68K 75K 82K 91K 100K 110K 120K 130K 150K 160K 180K 200K 220K 240K 270K 300K 330K 360K 390K 430K 470K 510K 560K 620K 680K 750K 820K 910K 1.0M

Description	Digi-Key Part Number	Pricing 1	10	100	1M	5M	10M
YAGEO							
1 Watt, **5% Metal Oxide Film Resistors** Bulk Package (0.47-0.91Ω)	Value + "W-1-ND" (i.e. 0.47W-1-ND)	.27	1.96	12.60	77.00	68.60/M	61.60/M
1 Watt, **5% Metal Oxide Film Resistors** Bulk Package (1.0-1.0MΩ)	Value + "W-1-ND" (i.e. 1.0W-1-ND)	.19	1.40	9.00	55.00	49.00/M	44.00/M
2 Watt, **5% Metal Oxide Film Resistors** Bulk Package (0.47-0.91Ω)	Value + "W-2-ND" (i.e. 0.47W-2-ND)	.29	2.10	13.50	82.50	73.50/M	66.00/M
2 Watt, **5% Metal Oxide Film Resistors** Bulk Package (1.0-1.0MΩ)	Value + "W-2-ND (i.e. 1.0W-2-ND)	.23	1.68	10.80	66.00	58.80/M	52.80/M

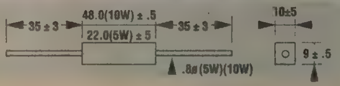
Description	Digi-Key Part Number	Pricing 1	5	100	1M	5M	10M
PANASONIC							
1 Watt, **5% Metal Oxide Film Resistors** Bulk Package (0.47-68KΩ)	"P" + Value + "W-1BK-ND" (i.e. P20W-1BK-ND)	.23	.84	9.49	65.47	58.30/M	52.38/M
1 Watt, **5% Metal Oxide Film Resistors** Tape and Reel (0.47-68KΩ)	"P" + Value + "W-1TR-ND" (i.e. P1.0KW-1TR-ND)	—	—	—	—	61.20/M	54.99/M
2 Watt, **5% Metal Oxide Film Resistors** Bulk Package (0.47-100KΩ)	"P" + Value + "W-2BK-ND" (i.e. P20W-2BK-ND)	.27	1.00	12.86	78.78	70.11/M	62.88/M
2 Watt, **5% Metal Oxide Film Resistors** Tape and Reel (0.47-100KΩ)	"P" + Value + "W-2TR-ND" (i.e. P1.0KW-2TR-ND)			266.94/3M	475.36/6M	854.20/12M	1661.05/27M
3 Watt, **5% Metal Oxide Film Resistors** Bulk Package (0.47-100KΩ)	"P" + Value + "W-3BK-ND" (i.e. P20W-3BK-ND)	.49	2.30	29.58	177.50	170.93/M	164.35/M
3 Watt, **5% Metal Oxide Film Resistors** Tape and Reel (0.47-100KΩ)	"P" + Value + "W-3TR-ND" (i.e. P1.0KW-3TR-ND)			297.27/1,500	1058.75/6M	1664.72/10,500	3494.06/25,500

YAGEO 5 & 10 WATT WIREWOUND RECTANGULAR RESISTORS 5%

Axial Lead Type

- **Operating Temperature Range: −55° to +250°C**

- Exceptionally small and sturdy; mechanically safe. Excellent electrical characteristics.
- The materials used and the construction techniques ensure excellent flame resistance, arc resistance and moisture resistance as well as self-extinguishing capabilities. They will withstand the most rigorous loading test.
- Applicable specifications: EIA RS-344 and EIA RC649.



5 Watt Standard Resistor Values — See below for complete part numbers when ordering.

0.30 0.33 0.39 0.43 0.47 0.51 0.56 0.62 0.68 0.75 0.82 0.91 1.0 1.1 1.2 1.3 1.5 1.6 1.8 2.0 2.2 2.4 2.7 3.0 3.3 3.6 3.9 4.3 4.7 5.1 5.6 6.2 6.8 7.5 8.2 9.1 10 11 12 13 15 16 18 20 22 24 27 30 33 36 39 43 47 51 56 62 68 75 82 91 100 110 120 130 150 160 180 200 220 240 270 300 330 360 390 430 470 510 560 620 680 750 820 910 1.0K 1.1K 1.2K 1.3K 1.5K 1.6K 1.8K 2.0K

10 Watt Standard Resistor Values — See below for complete part numbers when ordering.

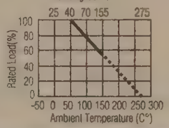
1.0 1.1 1.2 1.3 1.5 1.6 1.8 2.0 2.2 2.4 2.7 3.0 3.3 3.6 3.9 4.3 4.7 5.1 5.6 6.2 6.8 7.5 8.2 9.1 10 11 12 13 15 16 18 20 22 24 27 30 33 36 39 43 47 51 56 62 68 75 82 91 100 110 120 130 150 160 180 200 220 240 270 300 330 360 390 430 470 510 560 620 680 750 820 910 1.0K 1.1K 1.2K 1.3K 1.5K 1.6K 1.8K 2.0K 2.2K 2.4K 2.7K 3.0K

Description	Digi-Key Part Number	Pricing 1	10	100	1M	5M	10M
5 Watt, 5% Metal Wirewound Rectangular Resistors, Bulk Package	Value + "W-5-ND" (i.e. 0.30W-5-ND)	.41	3.41	27.28	163.68	146.63/M	129.58/M
10 Watt, 5% Wirewound Rectangular Resistors, Bulk Package	Value + "W-10-ND" (i.e. 1.0W-10-ND)	.60	5.01	40.08	240.48	215.43/M	190.38/M

Characteristics

Temperature Coefficient	±300 PPM/°C
Insulation Resistance	100 MΩ
Load Life (1,000 hours)	±5% + 0.05Ω
Short-Time Overload	±2% + 0.05Ω
Dielectric Withstanding Volt	±2% + 0.05Ω
Moisture Resistance	±5% + 0.05Ω
Shock and Vibration	±1% + 0.05Ω
Effect of Soldering	±2% + 0.05Ω

Derating Curve



5 Watt Resistor Assortment

RS105-ND 0.30Ω-0.91Ω — 5 each 60 Resistors . . . **$23.95**

RS205-ND 1.0Ω-9.1Ω — 4 each 96 Resistors **$32.95**

RS305-ND 10Ω-91Ω — 4 each 96 Resistors **$32.95**

RS405-ND 100Ω-2.0KΩ — 3 each 96 Resistors . . . **$32.95**

10 Watt Resistor Assortment

2 each of all 10 watt standard resistor values listed above. A total of 168 resistors.

R110-ND **$72.95**

YAGEO ZEROHM JUMPER WIRES

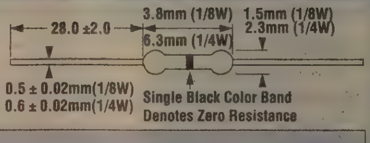
Applications

Generally they are used for the following reasons:

- Inability to connect two points on a P.C. Board due to other circuit paths which must be crossed over.
- An After-the-Fact design change that requires new point connections.
- Circuit tuning by changing point connections.

Specifications

Maximum Resistance: 0.004 ohm on 1/8 watt, 0.003 ohm on 1/4 watt; Typical Resistance: 0.002 ohm on both; Lead Material: tin-plated copper; Body Material: electrical grade, high performance molding compound; Min. Insulation Resistance — Dry: 10,000 megΩ, Wet: 100 megΩ; Min. Dielectric Withstanding Voltage — Atmospheric: 500V RMS, Reduced: 325V RMS; Insulation Flammability: resistor-insulation is self extinguishing within 10 seconds after externally applied flame is removed; Current Rating: 25 Amps at 25°C, derating to 0 amps at 150°C.

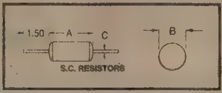


Description	Digi-Key Part No.	Pricing 5	200	1M	5M	10M	50M
1/8 Watt, Zerohm Jumper, Bulk Package	0.0EBK-ND	.26	8.11	16.28	14.93/M	13.52/M	12.48/M
1/8 Watt, Zerohm Jumper, Tape/Reel (5M Pcs./Reel)	0.0ETR-ND	—	—	—	18.37/M	17.29/M	14.14/M
1/4 Watt, Zerohm Jumper, Bulk Package	0.0QBK-ND	.27	4.93	10.03	9.23/M	8.37/M	7.73/M
1/4 Watt, Zerohm Jumper, Tape/Reel (5M Pcs./Reel)	0.0QTR-ND	—	—	—	11.53/M	10.85/M	8.90/M

MEMCOR-TRUOHM INC.

Silicone Coated Wirewound Resistors - 1, 3, 5 Watt, 1%

SERIES:
SC1A
SC3D
SC5E



DIMENSIONS CHART

Series	A	B	C
SC1A	.406	.094	.020
SC3D	.560	.187	.032
SC5E	.875	.312	.040

ELECTRICAL SPECIFICATIONS:

Military Style	RW70U	RW79U	RW74U
Clarostat Series	SC1A	SC3D	SC5E
Resistance Range	0 1 ohm to 3K ohms	0.1 ohm to 10K ohms	0.1 ohm to 25K ohms
Resistance Tolerance	±1%	±1%	±1%
Power Rating	1 watt at 25°C ambient temperature: derated linearly to zero power at 275°C (Max. Hot Spot Temperature, 275°C)	3 watts at 25°C ambient temperature: derated linearly to zero power at 275°C (Max. Hot Spot Temperature, 275°C)	5 watts at 25°C ambient temperature: derated linearly to zero power at 275°C (Max. Hot Spot Temperature, 275°C)
Temperature Coefficient of Resistance	0.1-0.9 ohms, 400-650 ppm/°C 1-9 ohms, 50 ppm/°C	10-499 ohms, 30 ppm/°C 500 ohms-25K ohms, 20 ppm/°C	
Insulation Resistance	5000 megohms dry at 100 VDC		
Dielectric Withstanding Voltage	500 V ms at atmos. pressure; 100 rms at 100,000 ft.	1000 V rms at atmos. pressure; 200 V rms at 100,000 ft.	1000 V rms at atmos. pressure; 300 V rms at 100,000 ft.
Short Time Overload	5 sec. at 5 times rated power; in no case shall applied voltage exceed 300V	5 sec. at 5 times rated power; In no case shall applied voltage exceed 300V	5 sec. at 10 times rated power; in no case shall applied voltage exceed 700V

Resistance Range (Ω)	Wattage	Digi-Key* Part No.	Pricing 1	10	50	Mfg. Part No.
0 1-0.75	1	SC1A(Value)-ND	1.93	17.10	72.01	SL1(Value)
1.0-1.0K	1	SC1A(Value)-ND	1.85	16.30	69.00	SL1(Value)
1.1K-3.0K	1	SC1A(Value)-ND	2 02	17.70	74.99	SL1(Value)
0.1-0.75	3	SC3D(Value)-ND	1.81	16 00	63.99	SL3(Value)
1.0-1.0K	3	SC3D(Value)-ND	1.06	8.40	38.00	SL3(Value)
1.1K-10.0K	3	SC3D(Value)-ND	1 17	9.30	42.01	SL3(Value)
0.1-0.75	5	SC5E(Value)-ND	1.81	16.00	67.50	SL5(Value)
1.0-1.0K	5	SC5E(Value)-ND	1.06	8.40	39.49	SL5(Value)
1 1K-10.0K	5	SC5E(Value)-ND	1.17	9.30	43.99	SL5(Value)
12.5K-25 0K	5	SC5E(Value)-ND	1.27	10.10	46.99	SL5(Value)

* For complete number, substitute value (from chart above) for "(Value)".

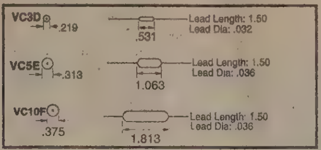
RESISTANCE VALUE CHART

0.1	7.5	50	300	1.0K	5.6K
0.13	10	56	330	1.1K	6.0K
0.15	12	68	350	1.2K	6.8K
0.2	15	75	390	1.5K	7.5K
0.25	18	82	400	1.8K	8.0K
0.3	20	100	470	2.0K	8.2K
0.33	22	120	500	2.2K	10.0K
0.5	25	125	560	2.5K	12.5K
0.75	27	150	600	2.7K	15K
1.0	30	180	680	3.0K	20.0K
1.5	33	200	700	3.5K	25.0K
2.0	35	220	750	3.9K	
3.0	39	225	800	4.0K	
4.0	40	250	820	4.7K	
5.0	47	270	900	5.0K	

MEMCOR-TRUOHM INC.

Axial Lead Wirewound Vitreous Enamel Resistors - 3, 5, 10 Watt

SPECIFICATIONS: Axial lead resistors are particularly adapted to printed circuit, terminal board, and point-to-point wiring applications. These resistors save considerable space because of the elimination of mounting brackets and terminal lugs. Standard resistance tolerance is ±5% for 1 ohm and higher and tolerance below 1 ohm is ±10%.



SERIES: VC3D - VC5E - VC10F

RESISTANCE VALUE CHART

0.1	2.0	25	75	270	680	1.75K	4.0K	8.5K	20K
0.13	3.0	27	82	300	700	1.8K	4.5K	9.0K	22K
0.15	4.0	30	100	330	750	2.0K	4.7K	10K	22.5K
0.2	5.0	33	120	350	800	2.2K	5.0K	11K	25K
0.25	7.5	35	125	390	820	2.25K	5.6K	12K	
0.3	10	39	150	400	900	2.5K	6.0K	12.5K	
0.33	12	40	180	450	1.0K	2.7K	6.8K	13.5K	
0.5	15	47	200	470	1.1K	3.0K	7.0K	15K	
0.75	18	50	220	500	1.2K	3.3K	7.5K	16K	
1 0	20	56	225	560	1.25K	3.5K	8.0K	17 5K	
1.5	22	68	250	600	1.5K	3.9K	8.2K	18K	

* Available only for 10F Series.

Resistance Range (Ohms)	Wattage	Digi-Key* Part No.	Pricing 1	25	100	250	Mfg. Part No.
0.1-0.75	3	VC3D(Value)-ND	1.06	24.75	89.01	194.99	VL3(Value)
1.0-7.5	3	VC3D(Value)-ND	.97	20.50	74.01	160.01	VL3(Value)
10-470	3	VC3D(Value)-ND	.80	17.25	66.00	140.00	VL3(Value)
500-900	3	VC3D(Value)-ND	.94	20.00	76.01	162.47	VL3(Value)
1.0K-2.7K	3	VC3D(Value)-ND	1.11	23.75	89.00	212.52	VL3(Value)
3.0K-4.7K	3	VC3D(Value)-ND	1.16	24.75	94.99	202.48	VL3(Value)
5.0K-10K	3	VC3D(Value)-ND	1.32	28.25	110.00	234.99	VL3(Value)
0.1-0.75	5	VC5E(Value)-ND	1.45	33.25	123.98	237.51	VL5(Value)
1.0-7.5	5	VC5E(Value)-ND	1.15	24.50	84.00	182.48	VL5(Value)
10-470	5	VC5E(Value)-ND	1.14	24.25	78.01	170.01	VL5(Value)
500-900	5	VC5E(Value)-ND	1.33	28.50	109.00	232.50	VL5(Value)
1.0K-2.7K	5	VC5E(Value)-ND	1.42	30.50	100.99	215.04	VL5(Value)
3.0K-4.7K	5	VC5E(Value)-ND	1.70	36.25	128.98	277.50	VL5(Value)
5.0K-15K	5	VC5E(Value)-ND	2.05	44,00	156.99	334.97	VL5(Value)
16K-25K	5	VC5E(Value)-ND	2.22	47.25	170.98	370.04	VL5(Value)
0.1-0.75	10	VC10F(Value)-ND	2.21	50.75	186.99	369.99	VL10(Value)
1.0-7.5	10	VC10F(Value)-ND	1.40	30.00	103.00	222.50	VL10(Value)
10-680	10	VC10F(Value)-ND	1.27	27.25	90.99	195.03	VL10(Value)
750-900	10	VC10F(Value)-ND	1.27	27.25	90.99	195.03	VL10(Value)
1.0K-2.25K	10	VC10F(Value)-ND	1.63	34.74	131.99	284.96	VL10(Value)
2.5K-4.7K	10	VC10F(Value)-ND	1.92	41.00	152.99	327.47	VL10(Value)
5.0K-10K	10	VC10F(Value)-ND	1.95	41.75	153.98	330.00	VL10(Value)
11K-20K	10	VC10F(Value)-ND	2.10	44.75	169.00	365.00	VL10(Value)
22K-25K	10	VC10F(Value)-ND	2.24	47.76	180.96	390.00	VL10(Value)

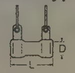
* For complete number, substitute resistance value (from chart above) for "(Value)".

MEMCOR-TRUOHM INC.

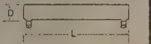
VITREOUS ENAMEL WIREWOUND POWER RESISTORS — 5, 10, 25, 50, 100, 200 WATT

SERIES: FRL5 - FRL10 - AR/FR25 - AR/FR50 - AR/FR100 - AR/FR200

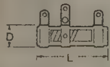
FRL - Type



FR - Type



AR - Type



Series	Length "L"	Dia. "D"
FRL5	1	5/16
FRL10	1 3/4	5/16
AR/FR25	2	9/16
AR/FR50	4	9/16
AR/FR100	6 1/2	3/4
AR/FR200	10 1/2	1 1/8

Cross Reference Chart

Memcor Truohm	Ohmite	Clarostat	Dale*
FRL5	B8J	VPR5F	HLW6
FRL10	B12J	VPR10F	HLW12
FR25	L25J	VP25K	HL25
FR50	L50J	VP50K	HL50
FR100	L100J	VK100N	HL100
FR200	L225J	VK200W	HL225
AR25	D25K	VP25KA	HLA25
AR50	D50K	VP50KA	HLA50
AR100	D100K	VK100NA	HLA100
AR200	D225K	VK200WA	HLA225

*Silicone

Fixed W/Tabs: FR Type

FEATURES: • Tubular construction provides excellent heat dissipation • Welded terminals and termination guarantees positive electrical connections • Balanced thermal expansion between core, wire and high temperature vitreous enamel • Long term stability results from firing at temperatures exceeding 1000°F • Tinned terminals provide reliable solder or mechanical connections • Uniform winding and coating provides uniform heat dissipation and excellent appearance.

SPECIFICATIONS: • Resistance tolerance ±5% • Temperature coefficient ±100 PPM • Meets or exceeds applicable specifications of MIL-R-26

Adjustable: AR Type

FEATURES: • Balanced thermal expansion between core, wire and high temperature vitreous enamel assures reliable performance. • Long term stability results from firing at temperatures exceeding 1000°F • Tinned terminals provide reliable solder or mechanical connections • Uniform winding and coating provide uniform heat dissipation and excellent appearance. Wattage rating applied only when the entire resistance is in circuit.

SPECIFICATIONS: • Resistance tolerance ±10% • Temperature coefficient ±100 PPM • Meets or exceeds applicable specifications of MIL-R-19365

RESISTANCE VALUE CHART

1.0	10	50	200	500	1.2K	3.0K	6.0K	10K	40K
2.0	15	75	250	600	1.25K	3.5K	7.0K	12K	50K
3.0	20	100	300	750	1.5K	4.0K	7.5K	15K	
5.0	25	125	400	900	2.0K	4.5K	8.0K	20K	
7.5	35	150	450	1.0K	2.5K	5.0K	9.0K	25K	

*Not all values are stocked at all wattages. Please see chart.

Resistance Range (Ohms)	Wattage	Digi-Key* Part No.	Pricing 1	25	100	Memcor-Truohm Part No.
5.0-7.5	5	VPR5F(Value)-ND	2 00	43 00	127.02	FRL5(Value)
10-1.0K	5	VPR5F(Value)-ND	1.51	34.75	118.02	FRL5(Value)
1.2K-5.0K	5	VPR5F(Value)-ND	1.73	36.99	107.98	FRL5(Value)
6.0K-10K	5	VPR5F(Value)-ND	1.90	40.75	126.00	FRL5(Value)
2.0-7.5	10	VPR10F(Value)-ND	2.29	48.49	159.04	FRL10(Value)
10-1.0K	10	VPR10F(Value)-ND	1.93	41.26	134.01	FRL10(Value)
1.2K-5.0K	10	VPR10F(Value)-ND	2.27	48.49	156.00	FRL10(Value)
7.5K-15K	10	VPR10F(Value)-ND	2.52	54.01	165.03	FRL10(Value)
20K-25K	10	VPR10F(Value)-ND	2.61	55.74	176.04	FRL10(Value)
40K-50K	10	VPR10F(Value)-ND	3.21	68.51	216.96	FRL10(Value)
2.0-3.0	25	VP25K(Value)-ND	3.22	57.75	184.04	FR25(Value)
10, 25, 100, 500, 750, 1.0K	25	VP25K(Value)-ND	2.93	52.75	169.98	FR25(Value)
2.5K, 4.0K, 5.0K	25	VP25K(Value)-ND	3.07	55.49	174 05	FR25(Value)
10K	25	VP25K(Value)-ND	3.46	62.25	193.99	FR25(Value)
12K	25	VP25K(Value)-ND	3.83	69.00	209.00	FR25(Value)
25K	25	VP25K(Value)-ND	4.11	73.98	223.99	FR25(Value)
50K	25	VP25K(Value)-ND	4.46	80.76	244.06	FR25(Value)
Mtg. Bracket 25/50W‡	25	VP25K-MB-ND	.42	8.22	23.49	1441-005-001
1.0, 3.0, 5.0, 10, 25, 50, 100, 250, 500	25	AR25(Value)-ND	4.79	97.23	303.05	AR25(Value)
1.0-3.0	50	FR50(Value)-ND	4.87	86.73	261.08	FR50(Value)
5.0, 10, 25, 50, 100, 500, 1.0K, 5.0K	50	FR50(Value)-ND	4.42	79.01	247.04	FR50(Value)
1.0-3.0	50	AR50(Value)-ND	6.61	123.03	403.91	AR50(Value)
5.0, 10, 25, 50, 100, 500, 1.0K	50	AR50(Value)-ND	5.87	108.73	358.94	AR50(Value)
1.0, 2.0	100	FR100(Value)-ND	9.09	163.50	556.88	FR100(Value)
5.0, 10	100	FR100(Value)-ND	8.62	154.98	481.88	FR100(Value)
50, 100, 250, 1.0K	100	FR100(Value)-ND	7.98	143.73	443.07	FR100(Value)
1.0, 2.0	100	AR100(Value)-ND	12.03	211.53	719.11	AR100(Value)
10, 50, 100, 250,1.0K	100	AR100(Value)-ND	9.00	161.71	523.07	AR100(Value)
1.0	200	FR200(Value)-ND	19.05	353.05	1227.25	FR200(Value)
3.0, 5.0, 10	200	FR200(Value)-ND	14.59	275.21	1006.23	FR200(Value)
50, 100, 250, 500, 1.0K	200	FR200(Value)-ND	12.47	218 70	764.96	FR200(Value)
1.0-5.0	200	AR200(Value)-ND	20.63	356.53	1253.39	AR200(Value)
10, 25, 50, 100, 150, 200, 250, 500, 1.0K	200	AR200(Value)-ND	15.17	264.49	885.79	AR200(Value)
Mtg. Bracket 100W‡	100	MB100W-ND	.44	8.51	24.30	1441-006-001
Mtg. Bracket 200W‡	200	MB200W-ND	45	8.69	24 84	1441-007-001

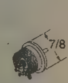
‡ Requires 2 brackets per resistor. * For complete number, substitute resistance value (from chart) for "(Value)".

MEMCOR-TRUOHM INC.

Wirewound Rheostats

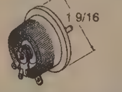
General Features: • Vitreous enamel bonds core and base together for uniform heat dissipation and structural integrity. • Wiper tracks are buffed and polished to assure smooth rotation and uniform wiper contact. • High strength ceramic hub is used to insulate the shaft and bushing from live parts. • Wiper design assures minimum backlash. • The cores on larger rheostats are enameled prior to winding to increase core strength and improve bond between wire and core. • Rheostats are provided with three terminals to allow use as potentiometers • Welded terminals and termination guarantees positive electrical connections.
Specifications: • Resistance Tolerance ±10% • Rotation 300° ±5%

12 1/2 Watt



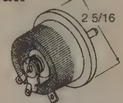
• Running Torque: 1 to 6 inch ounce • Mounting for Panels up to 1/8" shaft • Weight: 0.6 oz

25 Watt



• UL Approved • Running Torque: .25 to .5 inch pound • Mounting for panels up to 1/4" shaft • Weight: 0.19 lbs

50 Watt



• UL Approved • Running Torque: .25 to 2 inch pound • Mounting for panels up to 1/4" shaft • Weight: 0.32 lbs

Resistance Value Chart

12.5/25 Watt								50 Watt				
1.0	6.0	15	75	175	500	1.5K	5.0K	0.5	35	150	1.0K	10K
2.0	8.0	25	100	250	750	2.5K	10K	1.0	50	225	2 5K	
3.0	10	50	125	350	1.0K	3.5K		6.0	125	500	5.0K	

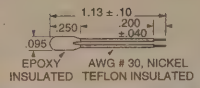
Resistance Range (Ohms)	Wattage	Digi-Key* Part No.	Pricing 1	10	25	100	Mfg. Part No.
1.0-10	12.5	MRH12(Value)-ND†	17.17	145.24	310.17	887.88	RH12(Value)
15-750	12.5	MRH12(Value)-ND†	15.42	130.54	267.12	771.12	RH12(Value)
1.0K-2.5K	12.5	MRH12(Value)-ND†	16.01	137.03	280.88	803.25	RH12(Value)
3.5K-5.0K	12.5	MRH12(Value)-ND†	17.03	145.56	296.46	854.24	RH12(Value)
10K	12.5	MRH12(Value)-ND†	18.27	155.14	318.97	916.47	RH12(Value)
1.0-10	25	MRH25(Value)-ND††	16.90	143.25	303.69	870.96	RH25(Value)
15-750	25	MRH25(Value)-ND††	15.02	123.99	261.82	745.94	RH25(Value)
1.0K-5.0K	25	MRH25(Value)-ND††	15.72	133.62	275.10	786.00	RH25(Value)
10K	25	MRH25(Value)-ND††	16.86	143.31	295.05	843.00	RH25(Value)
0.5-6.0	50	MRH50(Value)-ND††	23.40	200.75	434.02	1212.53	RH50(Value)
35-2.5K	50	MRH50(Value)-ND††	18.35	157.59	340.67	927.00	RH50(Value)
5.0K-10K	50	MRH50(Value)-ND††	21.21	182.07	393.59	1071.00	RH50(Value)
3/4" Dia. Skirted Knob		MRH2400-ND	1.40	11.86	25.32	72.48	2491-010-005
1 1/2" Dia. Skirted Knob		MRH2514-ND	1.55	12.80	27.03	77.01	2491-010-017

* For complete number, substitute resistance value (from chart) for "(Value)".
† 12 1/2 watt use knob "MRH2400" †† 25 & 50 watt use knob "MRH2514"

KEYSTONE
THERMOMETRICS
A COMMITMENT TO EXCELLENCE

Miniature Sensors 1°C Accuracy

9190B-ND Keystone Thermistor Catalog **$4.98**



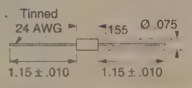
SPECIFICATIONS:
- Temp. Accuracy: ±1°C @ 25°C
- Time Constant: 15 sec.
- Dissipation Constant: 1.4 mW/°C
- Oper. Range: -50°C to +150°C.

Ro @ 25°C	Temp. Coef. %/°C @ 25°C	Material	Digi-Key Part No.	Pricing 1	10	100	250
2K	-3.83	MS73	KC001T-ND	2.46	22.10	174.04	345.31
5K	-4.43	MS95	KC002T-ND	2.46	22.10	174.04	345.31
10K	-4.40	MS97	KC003T-ND	2.46	22.10	174.04	345.31
30K	-4.32	MS96	KC004T-ND	2.46	22.10	174.04	345.31
50K	-4.84	MS120	KC005T-ND	2.46	22.10	174.04	345.31
100K	-4.78	MS122	KC006T-ND	2.46	22.10	174.04	345.31

Glass Encapsulated Thermistors

SPECIFICATIONS: • Temp. Range: -50°C to 204°C • Dissipation Constant: 2.0mW/°C • Time Constant: 3 sec.

Keystone glass encapsulated NTC thermistors are tiny pellets of thermistor material hermetically sealed in glass bodies with a controlled amount of selected atmosphere. The hermetic seal makes these parts extremely stable in applications up to 204°C (400°F).



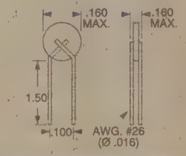
Ro @ 25°C	Temp. Coef. %/°C . @ 25°C	Material	Digi-Key Part No.	Pricing 1	10	100	250
250	-3.34	GE55*	KC001G-ND	2.42	21.72	171.05	339.38
500	-3.34	GE55*	KC002G-ND	2.42	21.72	171.05	339.38
1K	-3.83	GE73	KC003G-ND	2.42	21.72	171.05	339.38
2K	-3.83	GE73	KC004G-ND	2.42	21.72	171.05	339.38
2786	-4.68	GE101	KC005G-ND	2.42	21.72	171.05	339.38
3K	-3.85	GE76	KC006G-ND	2.42	21.72	171.05	339.38
4K	-3.85	GE76	KC007G-ND	2.42	21.72	171.05	339.38
5K	-3.85	GE76	KC008G-ND	2.42	21.72	171.05	339.38
10K	-4.41	GE97A	KC009G-ND	2.42	21.72	171.05	339.38
20K	-4.34	GE98	KC010G-ND	2.42	21.72	171.05	339.38
30K	-4.34	GE98	KC011G-ND	2.42	21.72	171.05	339.38
50K	-4.32	GE97B	KC012G-ND	2.42	21.72	171.05	339.38
100K	-4.32	GE97B	KC013G-ND	2.42	21.72	171.05	339.38
200K	-4.71	GE123	KC014G-ND	2.42	21.72	171.05	339.38
500K	-4.99	GE138	KC015G-ND	2.42	21.72	171.05	339.38
1M	-5.07	GE145	KC016G-ND	2.42	21.72	171.05	339.38

* Maximum Operating Temperature: 150°C.

Precision Thermistors ± 0.2°C from 0°C to 75°C

SPECIFICATIONS: • Temp. Coef.: @ 25°C = -4.40%/°C • Dissipation Constant: 1.0 mW/°C • Time Constant: 10sec. • Max. Operating Temp.: 100°C.

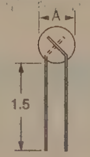
Keystone precision units are the designer's choice for low cost, close tolerance temperature measurement. These ultra stable thermistors are accurate to ± 0.2°C from 0°C to 75°C. They are widely used in OEM applications because they offer close-tolerance temperature measurement without requiring individual calibration. A protective coating is standard.



Ro @ 25°C	Digi-Key Part No.	Pricing 1	10	100	250
3K	KC001A-ND	10.46	94.00	740.25	1468.75
5K	KC002A-ND	10.46	94.00	740.25	1468.75
10K	KC003A-ND	10.46	94.00	740.25	1468.75

Standard Thermistors For Temperature Measurement

Accuracy ±1°C (0°C - 120°C)

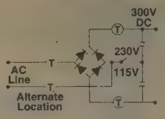


Operating Range: -50°C to +150°C **D.C.:** Dissipation Constant (mW/°C) **T.C.:** Time Constant (Seconds)

R25°	A Max. (In.)	D.C. mW/°C	T.C. Sec.	Digi-Key Part No.	Pricing 1	10	100
1000	.32	3.5	30	KC001E-ND	2.17	19.48	153.41
2000	.22	2.5	20	KC002E-ND	2.09	18.80	148.05
2786	.22	2.5	20	KC003E-ND	2.09	18.80	148.05
3000	.22	2.5	20	KC004E-ND	2.09	18.80	148.05
5000	.11	1.0	10	KC005E-ND	2.62	23.56	185.54
10000	.11	1.0	10	KC006E-ND	2.62	23.56	185.54

Inrush Current Limiters

Inrush Current Limiters protect against high peak inrush current, especially in AC/DC switching power supplies. All resistances ±25% @ 25°C. All parts insulated with a protective coating. Resistance under load is for reference only. Actual values may vary due to ambient temperature, air flow, or mounting conditions.

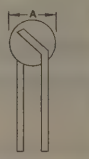


No Load Res. @ 25°C (Ω)	Max.• Steady State Current (Amps)	Approx Res. @ I Max. (Ω)	Dia.	Digi-Key Part No.	Pricing 1	10	100	250
0.7	12.0	.02	0.770	KC001L-ND⋆	2.35	21.10	166.16	329.69
1.3	8.0	.04	0.550	KC002L-ND⋆	2.17	19.50	153.56	304.69
2.5	8.0	.06	0.770	KC003L-ND⋆	2.35	21.10	166.16	329.69
5.0	6.0	.11	0.770	KC004L-ND⋆	2.35	21.10	166.16	329.69
7.0	5.0	.16	0.770	KC005L-ND⋆	2.35	21.10	166.16	329.69
10.0	5.0	.18	0.770	KC006L-ND⋆	2.35	21.10	166.16	329.69
16.0	4.0	.27	0.770	KC007L-ND⋆	2.35	21.10	166.16	329.69
47.0	3.0	.49	0.770	KC008L-ND⋆	2.35	21.10	166.16	329.69
120.0	2.0	1.18	0.930	KC009L-ND⋆	2.64	23.76	187.11	371.25
0.5	16.0	.02	0.930	KC010L-ND⋆	2.64	23.76	187.11	371.25
10.0	3.2	.18	0.400	KC011L-ND⋆	2.13	19.18	151.04	299.69
10.0	1.7	.34	0.400	KC012L-ND	2.13	19.18	151.04	299.69
50.0	1.6	.75	0.450	KC013L-ND⋆	2.13	19.18	151.04	299.69
50.0	1.1	.89	0.450	KC014L-ND⋆	2.13	19.18	151.04	299.69
5.0	4.7	.11	0.550	KC015L-ND	2.17	19.50	153.56	304.69
5.0	2.8	.20	0.550	KC016L-ND	2.17	19.50	153.56	304.69
16.0	2.7	.33	0.550	KC017L-ND⋆	2.17	19.50	153.56	304.69
16.0	1.7	.49	0.550	KC018L-ND	2.17	19.50	153.56	304.69
25.0	2.4	.41	0.550	KC019L-ND⋆	2.17	19.50	153.56	304.69
25.0	1.7	.49	0.550	KC020L-ND	2.17	19.50	153.56	304.69
30.0	1.5	.60	0.600	KC021L-ND	2.13	19.18	151.04	299.69

⋆ **KCINR-KIT-ND** 2 each of 15 values denoted (30 total pieces). Notebook style storage case and bin storage guide included. **$49.95**

• These values are suggested maximums based upon 25°C ambient, no air flow environment with the thermistor mounted 1/2" from circuit board.

PTC Resettable Fuses

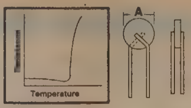


• Telephone line fault protection. • Over-current protection for transformers. • Locked rotor protection for FHP motors. **Minimum Limit Current:** The minimum amount of current required by the PTC to guarantee switching at the minimum ambient temperatures. **Maximum Limit Current:** The maximum amount of current the PTC must be able to pass without switching at the maximum ambient temperature.

Oper. Volt.	No Ld. Res. @25°C	Dim. A	Digi-Key Part No.	Pricing 1	10	100	250
12	1	.60	KC001R-ND⋆	2.82	25.38	199.87	396.56
	2.5	.60	KC014R-ND	2.82	25.38	199.87	396.56
	5	.45	KC002R-ND⋆	2.61	23.42	184.43	365.94
	10	.35	KC003R-ND⋆	2.42	21.76	171.36	340.00
	25	.35	KC013R-ND⋆	2.42	21.76	171.36	340.00
25	1.5	.75	KC015R-ND	3.52	31.62	249.01	494.06
	3.0	.55	KC016R-ND	2.93	26.34	207.43	411.56
50	5.0	.60	KC005R-ND⋆	2.82	25.38	199.87	396.56
	10	.45	KC006R-ND⋆	2.61	23.42	184.43	365.94
	25	.50	KC017R-ND	2.93	26.34	207.43	411.56
	50	.45	KC012R-ND⋆	2.61	23.42	184.43	365.94
	100	.42	KC008R-ND⋆	2.74	24.64	194.04	385.00
120	10	.80	KC009R-ND⋆	3.52	31.62	249.01	494.06
	20	.65	KC018R-ND	2.82	25.38	199.87	396.56
	50	.50	KC010R-ND⋆	2.93	26.34	207.43	411.56
	100	.40	KC011R-ND⋆	2.74	24.64	194.04	385.00
240	50	.65	KC019R-ND	3.52	31.62	249.01	494.06
	100	.65	KC020R-ND	3.52	31.62	249.01	494.06
	250	.65	KC021R-ND	3.52	31.62	249.01	494.06

Digi-Key Part No.	Min. Switch Current 0°C	20°C	Max. No-Switch Current 30°C	55°C	Type Number
KC001R-ND	1.45	1.32	0.84	0.64	RL5305-1-110-12-PTF
KC014R-ND	0.92	0.84	0.53	0.40	RL5305-2.5-110-12-PTF
KC002R-ND	0.55	0.50	0.32	0.24	RL4005-5-110-12-PTF
KC003R-ND	0.32	0.30	0.19	0.14	RL3005-10-110-12-PTF
KC013R-ND	0.20	0.19	0.12	0.09	RL3005-25-110-12-PTF
KC015R-ND	1.34	1.22	0.77	0.59	RL7008-1.5-110-25-PTF
KC016R-ND	0.84	0.76	0.48	0.37	RL5008-3.0-110-25-PTF
KC005R-ND	0.65	0.59	0.37	0.29	RL5506-5-110-50-PTF
KC006R-ND	0.39	0.35	0.22	0.17	RL4006-10-110-50-PTF
KC017R-ND	0.27	0.24	0.15	0.12	RL4508-25-110-50-PTF
KC007R-ND	0.23	0.20	0.11	0.10	RL5310-50-110-50-PTF
KC012R-ND	0.19	0.17	0.11	0.08	RL4010-50-110-50-PTF
KC008R-ND	0.13	0.12	0.08	0.06	RL3810-100-110-50-PTF
KC009R-ND	0.55	0.50	0.32	0.24	RL7510-10-110-120-PTF
KC018R-ND	0.37	0.34	0.21	0.16	RL6010-20-110-120-PTF
KC010R-ND	0.19	0.17	0.11	0.08	RL4510-50-110-120-PTF
KC011R-ND	0.13	0.12	0.07	0.06	RL3510-100-110-120-PTF
KC019R-ND	0.23	0.21	0.13	0.10	RL6315-50-110-240-PTF
KC020R-ND	0.16	0.15	0.09	0.04	RL6315-100-110-240-PTF
KC021R-ND	0.10	0.06	0.06	0.05	RL6315-250-110-240-PTF

KEYSTONE THERMOMETRICS
A COMMITMENT TO EXCELLENCE



PTC Thermistors

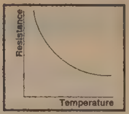
PTC (Positive Temperature Coefficient) Thermistors are thermally sensitive resistors made of polycrystalline ceramic materials. They are characterized by an extremely large resistance change in a small temperature span. All PTC resistances ±30% at 25°C. Tolerance on transition temperature is ±7°C.

Oper. Volt.	R @ 25°C (Ω)	Transition Temp.	D.C.†	Dim. A	Digi-Key* Part No.	Pricing		
						1	10	100
12	1	120°C	14.0	0.60	KC012P-ND	2.71	24.32	191.52
12	2	120°C	14.0	0.60	KC013P-ND	2.71	24.32	191.52
12	10	110°C	7.0	0.35	KC014P-ND	2.31	20.74	163.33
12	25	110°C	7.0	0.35	KC015P-ND	2.31	20.74	163.33
25	50	30°C	7.0	0.30	KC001P-ND*	2.31	20.74	163.33
25	50	40°C	7.0	0.30	KC002P-ND*	2.31	20.74	163.33
25	50	50°C	7.0	0.30	KC003P-ND*	2.31	20.74	163.33
25	50	60°C	7.0	0.30	KC004P-ND*	2.31	20.74	163.33
25	50	70°C	7.0	0.30	KC006P-ND*	2.31	20.74	163.33
25	50	80°C	7.0	0.30	KC007P-ND*	2.31	20.74	163.33
25	50	90°C	7.0	0.30	KC008P-ND*	2.31	20.74	163.33
25	50	100°C	7.0	0.30	KC009P-ND*	2.31	20.74	163.33
25	50	110°C	7.0	0.30	KC010P-ND*	2.31	20.74	163.33
25	50	120°C	7.0	0.30	KC011P-ND*	2.31	20.74	163.33
50	5	65°C	14.0	0.60	KC016P-ND	2.71	24.32	191.52
50	10	110°C	10.0	0.45	KC017P-ND	2.96	26.60	209.48
50	50	110°C	12.0	0.45	KC018P-ND	2.71	24.32	191.52
50	200	110°C	9.0	0.40	KC019P-ND	2.96	26.60	209.48
120	10	120°C	20.0	0.80	KC020P-ND	3.46	31.12	245.07
120	20	120°C	18.0	0.65	KC021P-ND	2.77	24.90	196.09
120	25	60°C	15.0	0.60	KC022P-ND	2.77	24.90	196.09
120	50	120°C	12.0	0.50	KC023P-ND	2.71	24.32	191.52
240	40	110°C	18.0	0.65	KC024P-ND	2.96	26.60	209.48
240	50	65°C	17.0	0.60	KC025P-ND	2.96	26.60	209.48
240	50	110°C	18.0	0.65	KC026P-ND	2.96	26.60	209.48
240	100	120°C	18.0	0.65	KC027P-ND	2.96	26.60	209.48
240	1500	100°C	12.0	0.35	KC028P-ND	2.96	26.60	209.48
480	1000	100°C	18.0	0.75	KC029P-ND	3.46	31.12	245.07
480	2000	100°C	15.0	0.55	KC030P-ND	2.71	24.32	191.52
480	5000	100°C	12.0	0.35	KC031P-ND	2.96	26.60	209.48

* **KCPTC1-KIT-ND** 2 each of all values denoted (20 total pieces). Notebook style storage case and bin storage guide included **$37.95**

† D.C. – Dissipation Constant (MW/°C)

KEYSTONE THERMOMETRICS
A COMMITMENT TO EXCELLENCE



NTC Thermistors

NTC (Negative Temperature Coefficient) Thermistors decrease in resistance as temperature increases. Temperature coefficients range from –20%/°C to –5%/°C @ 25°C. Maximum operating temperature: 150°C. Tolerance: ±20% 100-5Ω; ±10% 1K-100KΩ.

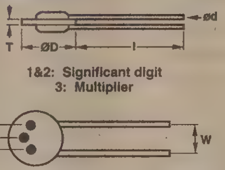
R @ 25°C (Ω)	Res. Ratio ††	D.C.†	Dim. A	Digi-Key Part No.	Pricing			
					1	10	100	250
100	5.53	2.5	0.11	KC001N-ND*	2.51	22.54	177.50	352.19
50	5.53	6.5	0.22	KC012N-ND*	1.99	17.88	140.81	279.38
25	5.53	6.5	0.22	KC011N-ND*	1.99	17.88	140.81	279.38
10	5.53	7.0	0.32	KC021N-ND*	2.03	18.28	143.96	285.63
5	5.53	10.0	0.48	KC024N-ND*	2.18	19.64	154.67	306.88
1K	6.85	2.8	0.11	KC003N-ND*	2.47	22.20	174.83	346.88
500	6.85	2.5	0.11	KC002N-ND	2.47	22.20	174.83	346.88
300	6.85	6.5	0.22	KC015N-ND*	1.95	17.54	138.13	274.06
200	6.85	6.5	0.22	KC014N-ND*	1.95	17.54	138.13	274.06
100	6.85	6.5	0.22	KC013N-ND	1.95	17.54	138.13	274.06
50	6.85	7.5	0.37	KC022N-ND	2.00	17.94	141.28	280.31
10K	9.60	2.5	0.11	KC025N-ND*	2.47	22.20	174.83	346.88
5K	9.10	2.5	0.11	KC005N-ND*	2.47	22.20	174.83	346.88
3K	9.10	2.5	0.11	KC004N-ND*	2.47	22.20	174.83	346.88
2K	9.10	6.5	0.22	KC017N-ND*	1.95	17.54	138.13	274.06
1K	9.10	6.5	0.22	KC016N-ND	1.95	17.54	138.13	274.06
300	9.10	9.0	0.43	KC023N-ND	2.15	19.30	151.99	301.56
25K	11.41	2.8	0.11	KC007N-ND*	2.62	23.56	185.54	368.13
10K	11.41	7.2	0.22	KC018N-ND	2.22	19.98	157.34	312.19
100K	12.90	2.7	0.11	KC009N-ND*	2.62	23.56	185.54	368.13
50K	12.90	2.5	0.11	KC008N-ND	2.62	23.56	185.54	368.13
25K	12.90	6.5	0.22	KC019N-ND	2.14	19.24	151.52	300.63
200K	13.82	2.5	0.11	KC010N-ND*	2.62	23.56	185.54	368.13
100K	13.82	6.5	0.22	KC020N-ND	2.14	19.24	151.52	300.63

* **KCNTC-KIT-ND** 2 each of 15 values denoted (30 total pieces). Notebook style storage case and bin storage guide included.................... **$39.95**

† D.C: — Dissipation Constant (MW/°C); †† Resistance Ratio — ratio of zero power resistance @ 0°C to zero power resistance @ 50°C; AWG.

Panasonic. NTC Thermistors

FEATURES: • Resistance temperature coefficient is negative and extremely large. • Wide selection of temperature coefficient (constant B). • Excellent electrical and thermal stability. • Color coded to indicate resistance value @ 25°C. **SPECIFICATIONS:** Max. Watt Rtg. (W): PNT100-123 – 0.4; PNT124-138 – 0.6. Nom. Time Constant (sec.): PNT100-123 – 20; PNT124-138 – 27. APPLICATION: • For measuring equipment: thermometer, wind gauge, liquid level gauge, temperature controller. • For temperature compensation: transistor circuit, measuring equipment. • For driving: delay setting in relay operation, inrush current surge protection, communication equipment, AGC, time lag.



1&2: Significant digit
3: Multiplier

Uses standard resistance color codes.

F Type Dimensions	øD	T	l	W	ød
PNT100 ~ PNT123 (D2)	5.0 ± 0.5	1.3 ± 0.5	30 min.	2.5 ± 1	0.4
PNT124 ~ PNT138 (D3)	7.5 ± 0.5	1.4 5 0.5	30 min.	5 ± 1	0.5

Pricing:	1	10	100	1,000
PNT100-123	.90	7.73	51.52	322.00
PNT124-138	1.90	16.26	108.42	678.00

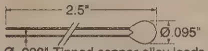
Digi-Key Part No.	Res. at 25°C (Ω)	Temp. Coef. (25°C) %/°C	Res. Ratio R_{25}/R_{50}	Panasonic Part No.
PNT100-ND	20	–3.4	2.18	ERT-D2FEL200S
PNT101-ND	40	–3.9	2.48	ERT-D2FFL400S
PNT102-ND	75	–4.2	2.62	ERT-D2FGL750S
PNT104-ND	100	–3.9	2.48	ERT-D2FFL101S
PNT105-ND	100	–4.2	2.62	ERT-D2FGL101S
PNT106-ND	170	–4.2	2.62	ERT-D2FGL171S
PNT107-ND	250	–3.9	2.48	ERT-D2FFL251S
PNT108-ND	250	–4.2	2.62	ERT-D2FGL251S
PNT109-ND	300	–4.2	2.62	ERT-D2FGL301S
PNT110-ND	350	–3.9	2.48	ERT-D2FFL351S
PNT111-ND	600	–4.5	2.83	ERT-D2FGL601S
PNT112-ND	800	–4.4	2.76	ERT-D2FGL801S
PNT113-ND	1,000	–4.1	2.55	ERT-D2FGL102S
PNT114-ND	1,400	–4.4	2.76	ERT-D2FGL142S
PNT115-ND	2,000	–4.5	2.83	ERT-D2FGL202S
PNT116-ND	3,300	–4.5	2.83	ERT-D2FGL332S
PNT117-ND	4,600	–4.6	2.90	ERT-D2FHL462S
PNT118-ND	8,000	–4.6	2.90	ERT-D2FHL802S
PNT119-ND	10,000	–4.6	2.90	ERT-D2FHL103S
PNT120-ND	15,000	–4.7	2.98	ERT-D2FHL153S
PNT121-ND	33,000	–5.1	3.22	ERT-D2FHL333S
PNT122-ND	50,000	–5.1	3.48	ERT-D2FHL503S
PNT123-ND	150,000	–5.4	3.48	ERT-D2FIL154S
PNT124-ND	8	–3.4	2.18	ERT-D3FEL8R0S
PNT125-ND	13	–3.6	2.30	ERT-D3FFL130S
PNT126-ND	16	–3.6	2.30	ERT-D3FFL160S
PNT127-ND	20	–3.6	2.30	ERT-D3FFL200S
PNT128-ND	30	–3.7	2.30	ERT-D3FFL300S
PNT130-ND	40	–3.2	2.30	ERT-D3FFL400S
PNT131-ND	75	–4.2	2.62	ERT-D3FGL750S
PNT132-ND	80	–4.2	2.62	ERT-D3FGL800S
PNT134-ND	130	–4.5	2.62	ERT-D3FGL131S
PNT135-ND	500	–4.6	2.83	ERT-D3FGL501S
PNT136-ND	4,000	–4.6	2.90	ERT-D3FHL402S
PNT137-ND	20,000	–5.1	3.22	ERT-D3FHL203S
PNT138-ND	80,000	–5.6	3.70	ERT-D3FIL803S

NEW! THERMOMETRICS
A COMMITMENT TO EXCELLENCE

NTC Thermistors

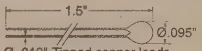
THERMAL AND ELECTRICAL PROPERTIES: Dissipation Contant: (Still Air) 1 m w/Deg C., (Stirred Oil) 8 m w/Deg C. **Thermal Time Constant:** (Still Air) 10 Seconds, (Stirred Oil) 1 Second. **Maximum Power Rating:** .075 Watts (Derated from 100% at 25°C to 0% at 100°C.

Type EC95 Thermistors are designed to be interchangeable over -20°C to 50°C and 0°C to 70°C.



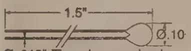
Ø .008"-Tinned copper alloy leads
Epoxy coated thermochip

Type DC95 Thermistors are designed to be interchangeable over 0°C to 70°C and 0°C to 100°C.



Ø .012"-Tinned copper leads
Epoxy coated thermochip

Type EC95 and Type DC95 Thermistors may be used at temperatures as low as -80°C and as high as 150°C, however, best over-all stability is achieved with exposure or storage temperatures lower than 105°C.



Ø .012"-Tinned copper leads
Epoxy coated thermochip

Thermometrics Type C100 Thermochips are low cost, epoxy coated chip thermistors which represent the highest level of thermistor technology. Thermometrics exclusive "state of the art" materials processing techniques have been proven through extensive field use and long term testing to provide stable, rugged, easy handling thermistors suitable for applications in the temperature range of -80°C to +150°C. Best stability is achieved at temperatures not exceeding 105°C.

R @ 25°C (Ω)	Res. Ratio†	Digi Key Part Number	Pricing				Thermometrics Part Number
			1	10	100	250	
10K	9.06	10400-ND	7.04	55.44	440.00	814.00	C100F103G
10K	9.06	10401-ND	5.00	39.38	312.50	578.13	C100F103J
10K	7.60	10402-ND	5.00	39.38	312.50	578.13	C100Y103J
10K	9.06	10403-ND	7.80	61.43	487.50	901.88	DC95F103W
2K	9.06	10404-ND	7.80	61.43	487.50	901.88	DC95F202W
2252	9.06	10405-ND	7.80	61.43	487.50	901.88	DC95F232W
5K	9.06	10406-ND	7.80	61.43	487.50	901.88	DC95F502W
100K	10.45	10407-ND	7.80	61.43	487.50	901.88	DC95G104W
50K	10.45	10408-ND	7.80	61.43	487.50	901.88	DC95G503W
10K	9.06	10409-ND	7.80	61.43	487.50	901.88	EC95F103W
2K	9.06	10410-ND	7.80	61.43	487.50	901.88	EC95F202W
3K	9.06	10411-ND	7.80	61.43	487.50	901.88	EC95F302W
100K	10.45	10412-ND	7.80	61.43	487.50	901.88	EC95G104W
50K	10.45	10413-ND	7.80	61.43	487.50	901.88	EC95G503W
30K	8.69	10414-ND	7.80	61.43	487.50	901.88	EC95H303W

† 0°C/50°C Ratio

Panasonic 2% Thick Film Resistor Networks

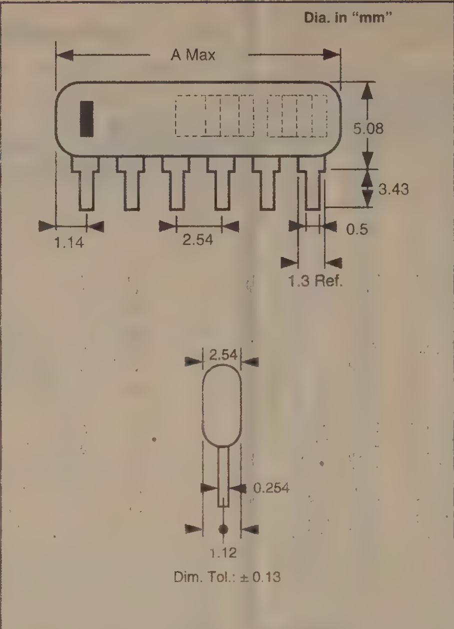
Low Profile
Single-In-Line Package
Highly Stable
Equivalent to MIL-R-83401

General Specifications:

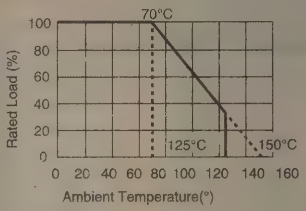
Rated Power: Common: 125mW (70°C); Isolated: 200mW (60°C); Line Terminator: 75mW (70°C). **Rated Continuous Working Voltage** (RCWV): √Rated Power x Resistance Value or 100V, whichever is less. **Resistance Range:** 22Ω ~ 1MΩ: Standard (10Ω ~ 5.6MΩ: Special). **Standard Resistance Value and Tolerance:** Standard Resistance Value ±2%. **Resistance Temperature Coefficient:** ±200ppm/°C (Standard). **Operating Temperature Range:** −55°C ~ +125°C. **Storage Temperature Range:** −55°C ~ +150°C.

Environmental Characteristics:

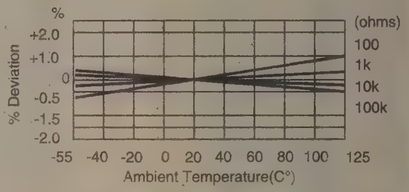
Thermal Shock: ±0.5% max. ΔR. **Power Conditioning** (When required): ±0.5% max. ΔR. **Low Temperature Operation:** ±0.25% max. ΔR. **Terminal Strength:** +0.25% max. ΔR. **Resistance to Soldering Heat:** ±0.25% max. ΔR. **Moisture Resistance:** ±0.5% max. ΔR. **Shock:** ±0.25% max. ΔR **Vibration:** ±0.25% max. ΔR. **Insulation Resistance:** 10,000 Megohms (minimum). **Dielectric Withstanding Voltage:** No evidence of arcing or damage.



Power Derating Curve:
For resistors operating in ambient temperatures above 70°C, power rating must be derated in accordance with the curve right.



Temperature Characterisitcs (– 55°C ~ + 125°C)



Panasonic/Matsushita Electric has announced a change in the Corporate Trademark. Present trademark: ▲. New trademark: Ⓜ.

Common Terminal:
Isolated Terminal:
Resistance Codes

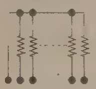
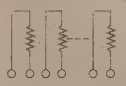
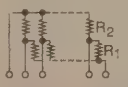
Code (Value)	Code (Value)
101 (100)	471 (470)
102 (1K)	472 (4.7K)
103 (10K)	473 (47K)
104 (100K)	474 (470K)
151 (150)	561 (560)
152 (1.5K)	562 (5.6K)
153 (15K)	563 (56K)
154 (150K)	564 (560K)
221 (220)	681 (680)
222 (2.2K)	682 (6.8K)
223 (22K)	683 (68K)
224 (220K)	684 (680K)
331 (330)	821 (820)
332 (3.3K)	822 (8.2K)
333 (33K)	323 (82K)
334 (330K)	

Line Terminator:
Resistance Codes

Code (R1/R2)
TO1 (160/240)
TO2 (180/390)
TO3 (220/270)
TO4 (220/330)
TO5 (330/390)
TO6 (330/470)
TO7 (330/680)
TO8 (1.5K/3.3K)
TO9 (3K/6.2K)

Resistor Network Cross Reference Chart: (ie: Q5103 = CTS #770-61-R10K)

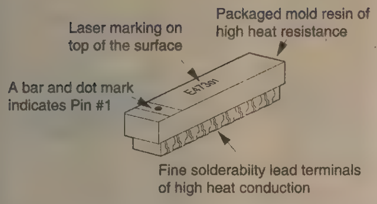
DIGI-KEY	CTS	A – B	Bourns	Dale	Beckman	Sprague	MEPCO
Q5☐☐☐-ND	770-61-R...	706A...	4606X-101	CSC06A01...	L06-1-R	256CF...X2PD	9S06...GL002
	750-61-R...	106A...	4306R-101...	MSP06A01	763-1-R...	420CF...X2PD	
Q7☐☐☐-ND	770-81-R...	708A...	4608X-101...	CSC08A01...	L08-1-R...	356CH...X2PD	9S08...GL002
	750-81-R...	108A...	4308R-101...	MSP08A01	764-1-R...	420CH...X2PD	
Q9☐☐☐-ND	770-101-R...	710A...	4610X-101...	CSC10A01...	L10-1-R...	256CK...X2PD	9S10...GL002
	750-101-R...	110A...	4310R-101...	MSP10A01	765-1-R...	420CK...X2PD	
Q2☐☐☐-ND	770-63-R...	706B...	4606X-102...	CSC06A03...	L06-3-R...	256CF...X2SR	9S06...GL001
	750-63-R..	106B	4306R-102	MSP06A03	763-3-R..	420CF...X2SR	
Q4☐☐☐-ND	770-83-R...	708B...	4608X-102...	CSC08A03...	L08-3-R...	256CH...X2SR	9S08...GL001
	750-83-R..	108B..	4308R-102...	MSP08A03	764-3-R...	420CH...X2SR	
Q6☐☐☐-ND	770-103-R...	710B...	4610X-102...	CSC10A03...	L10-3-R...	256CK...X2SR	9S10...GL001
	750-103-R...	110B...	4310R-102...	MSP10A03	765-3-R...	420CK...X2SR	
Q0☐☐☐-ND	770-65-R_1/R_2	706E-R_1/R_2	4606X-104-R_1/R_2		M06-5-R_1/R_2	256CF...X2TR	9S06R_1/R_2GL
		106E-R_1/R_2	4306R-104-R_1/R_2	MSP06A05-R_1/R_2	763-5-R_1/R_2	420CF...X2TR	
Q1☐☐☐-ND	770-85-R_1/R_2	708E-R_1/R_2	4608X-104-R_1/R_2		M08-5-R_1/R_2	256CH...X2TR	9S08R_1/R_2GL
		108E-R_1/R_2	4308R-104-R_1/R_2	MSP08A05-R_1/R_2	764-5-R_1/R_2	420CH...X2TR	
Q3☐☐☐-ND	770-105-R_1/R_2	710E-R_1/R_2	4610X-104 R_1/R_2		M10-5-R_1/R_2	256CK...X2TR	9S10R_1/R_2GL
		110E-R_1/R_2	4310R-104-R_1/R_2	MSP10A05-R_1/R_2	765-5-R_1/R_2	420CK...X2TR	

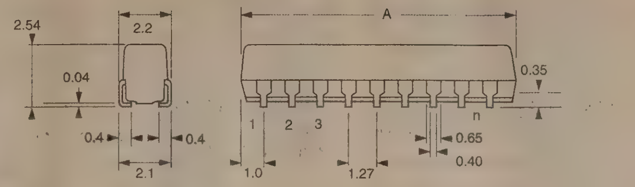
Description (Type)	Res. Elements	No. of Pins	Dim. A (mm)	Digi-Key* Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
Common Terminal 	5	6	14.88	Q5☐☐☐-ND	.25	2.02	15.18	101.00	92.00/M	78.00/M	EXB-F6E☐☐☐G
	7	8	19.96	Q7☐☐☐-ND	.33	2.67	20.01	133.00	121.00/M	103.00/M	EXB-F8E☐☐☐G
	9	10	25.04	Q9☐☐☐-ND	.42	3.36	25.17	168.00	153.00/M	129.00/M	EXB-F10E☐☐☐G
Isolated Terminator 	3	6	14.88	Q2☐☐☐-ND	.25	2.02	15.18	101.00	92.00/M	78.00/M	EXB-F6V☐☐☐G
	4	8	19.96	Q4☐☐☐-ND	.33	2.67	20.01	133.00	121.00/M	103.00/M	EXB-F8V☐☐☐G
	5	10	25.04	Q6☐☐☐-ND	.42	3.36	25.17	168.00	153.00/M	129.00/M	EXB-F10V☐☐☐G
Line Terminator 	8	6	14.88	Q0☐☐☐-ND	.40	3.22	24.15	161.00	146.00/M	124.00/M	EXB-F6WT☐☐G
	12	8	19.96	Q1☐☐☐-ND	.54	4.32	32.43	216.00	197.00/M	166.00/M	EXB-F8WT☐☐G
	16	10	25.04	Q3☐☐☐-ND	.67	5.38	40.38	269.00	245.00/M	207.00/M	EXB-F10WT☐☐G

* For complete part number, substitute the corresponding resistance code (listed above) for ☐☐☐. To convert MM to Inches, divide by 25.4.

Panasonic® Surface Mount SIP Resistor Networks

Low Profile
SMT SIP Package


Laser marking on top of the surface
Packaged mold resin of high heat resistance
A bar and dot mark indicates Pin #1
Fine solderabilty lead terminals of high heat conduction


2.54
2.2
0.04
0.4
0.4
2.1
A
0.35
n
1
2
3
1.0
1.27
0.65
0.40

For Dimension "A", refer to chart at bottom of page

General Specifications:

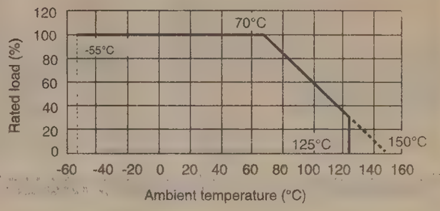
Rated Power: Bussed: 1/16W (70°C); Isolated: 1/10W (70°C). **Rated Continuous Working Voltage** (RCWV): √ Rated Power x Resistance Value or 25V, whichever is less. **Resistance Range:** 22Ω ~ 1MΩ: Standard. **Standard Resistance Value and Tolerance:** Standard Resistance Value ±5%. **Resistance Temperature Coefficient:** ±200ppm/°C (Standard). **Operating Temperature Range:** −55°C ~ +125°C. **Storage Temperature Range:** −55°C ~ +150°C.

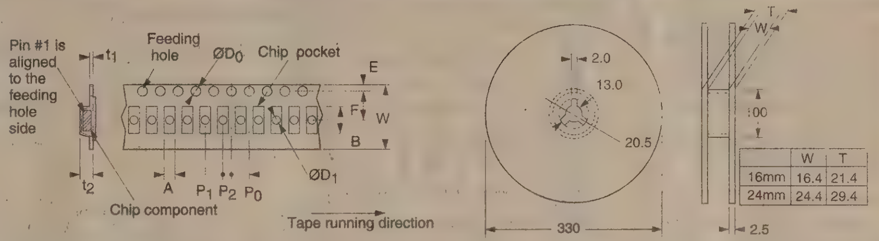
Features:

Jumper Function: Two pass lines feasible to place beneath the body. **High Heat Resistance:** Resistance to 270°C 1 minute or 350°C 3 seconds (typical performance). **High Power:** Power rating is 1/16W and 1/10W per resistor. **Flexible Lead Terminals:** High reliability against bending, vibration and thermal shock to PC board. **Space Saving:** 70% vs. conventional SO package, 50% vs. discrete chip resistors. **Automatic Mounting:** Useable existing chip mounters at a high mounting speed.

Power Derating Curve

For resistors operating in ambient temperatures above 70°C, power rating must be derated in accordance with the curve.




Pin #1 is aligned to the feeding hole side
t1
Feeding hole
ØD0
Chip pocket
E
F
W
B
t2
A
P1
P2
P0
ØD1
Chip component
Tape running direction
2.0
13.0
20.5
330
T
W
100
2.5

	W	T
16mm	16.4	21.4
24mm	24.4	29.4

Unit (mm)

Type	Digi-Key Part No.	Dimensions B ±0.20	A ±0.2	W ±0.3	F ±0.1	E ±0.1	P_1 ±0.1	P_2 ±0.1	P_0 ±0.1	øD_0 ±0.1	t_1 ±0.1	t_2 max.	øD_1 min.
16mm tape	R1☐☐☐	7.48	2.4	16.0	7.5	1.75	4.0	2.0	4.0	1.5	0.3	3.2	1.5
	R2☐☐☐	8.75											
	R5☐☐☐	8.75											
24mm tape	R4☐☐☐	11.29	2.4	24.0	11.5	1.75	4.0	2.0	4.0	1.5	0.3	3.2	1.5
	R7☐☐☐	11.29											
	R8☐☐☐	12.56											
	R9☐☐☐	13.83											

Panasonic/Matsushita Electric has announced a change in the Corporate Trademark. Present trademark: ▲. New trademark: Ⓜ.

Bussed Terminal:
Isolated Terminal:
Resistance Codes

Code (Value)	Code (Value)
220 (22)	682 (6.8K)
330 (33)	103 (10K)
470 (47)	153 (15K)
680 (68)	223 (22K)
101 (100)	333 (33K)
151 (150)	473 (47K)
221 (220)	683 (68K)
331 (330)	104 (100K)
471 (470)	154 (150K)
681 (680)	224 (220K)
102 (1K)	334 (330K)
152 (1.5K)	474 (470K)
222 (2.2K)	684 (680K)
332 (3.3K)	105 (1000K)
472 (4.7K)	

Fig. A
Bussed Terminal

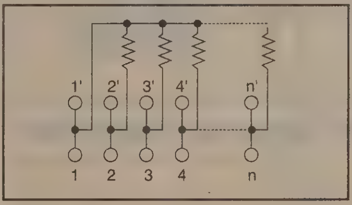
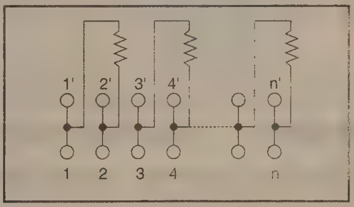

1'
2'
3'
4'
n'
1
2
3
4
n

Fig. B
Isolated Terminal


1'
2'
3'
4'
n'
1
2
3
4
n

Description (Type)	Res. Elements	No. of Pins	Dim. "A"	Digi-Key* Part No.	Pricing 1	10	100	500	1,000	Digi-Key* Part No.	Tape & Reel Pricing 3,000	6,000	12,000	24,000	Panasonic Part No.
Bussed Terminal Fig. A	4	5	7.08	R1☐☐☐CT-ND	.64	5.73	48.39	211.50	382.00	R1☐☐☐TR-ND	357.00/M	339.00/M	323.00/M	306.00/M	EXB-H5E☐☐☐J
	5	6	8.35	R5☐☐☐CT-ND	.70	6.31	53.30	233.00	421.00	R5☐☐☐TR-ND	393.00/M	373.00/M	356.00/M	337.00/M	EXB-H6E☐☐☐J
	7	8	10.89	R7☐☐☐CT-ND	.82	7.35	62.05	271.00	490.00	R7☐☐☐TR-ND	457.00/M	434.00/M	415.00/M	392.00/M	EXB-H8E☐☐☐J
	8	9	12.16	R8☐☐☐CT-ND	.80	7.23	61.09	267.00	482.00	R8☐☐☐TR-ND	450.00/M	428.00/M	408.00/M	386.00/M	EXB-H9E☐☐☐J
	9	10	13.43	R9☐☐☐CT-ND	.91	8.23	69.48	303.50	549.00	R9☐☐☐TR-ND	512.00/M	486.00/M	464.00/M	439.00/M	EXB-H10E☐☐☐J
Isolated Terminator Fig. B	3	6	8.35	R2☐☐☐CT-ND	.70	6.31	53.30	233.00	421.00	R2☐☐☐TR-ND	393.00/M	373.00/M	356.00/M	337.00/M	EXB-H6V☐☐☐J
	4	8	10.89	R4☐☐☐CT-ND	.82	7.35	62.05	271.00	490.00	R4☐☐☐TR-ND	457.00/M	434.00/M	415.00/M	392.00/M	EXB-H8V☐☐☐J

* For complete part number, substitute the corresponding resistance code (listed above) for ☐☐☐. To convert MM to Inches, divide by 25.4.

Panasonic. Surface Mount Chip Resistor Networks

Chip Resistor Networks - Series EXB-A and *NEW!* EXB-E:

FEATURES:

- **High Density:** Bussed 8 resistors for pull up/down circuit in EXB-A Type 2512 (6.4mm x 3.1mm x 0.55mm), EXB-E Type 1608 (4.0mm x 2.1mm x 0.55mm) size.
- Available direct placing without through-hole on the bus line (EXB-A: 0.65mm pitch) (EXB-E: 0.4mm pitch).
- **Automatic Placement:** Taped and reeled packaging (12mm width, plastic embossed taping) is suitable for high speed automatic placement machine.
- 2 common terminals without directional problem.

Superior Solderability

- Self-alignment by unique concave terminal design with reflow soldering.

SPECIFICATIONS:

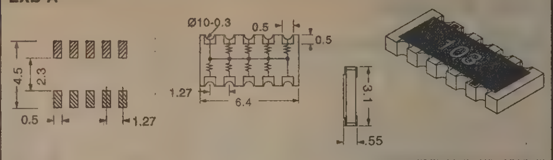
- Resistance Range: EXB-A: 100Ω to 470 KΩ: E6 series; EXB-E: 1KΩ to 220kΩ
- Resistance Tolerance: ±5%
- Number of Terminals: 10 terminals
- Number of Resistors: 8 resistors
- Power Rating at 70°C: 62.5 mW/element
- Max. Rated Continuous Working Voltage*: EXB-A: 50V; EXB-E: 25V
- Max. Overload Voltage: EXB-A: 100V; EXB-E: 50V
- Temperature Characteristic Range: ±200 ppm/°C
- Operating Temperature Range: -55°C to 125°C
- Solderability: 95% coverage (Test temperature at solder: 230±5°C; Dwell time in solder: 5±1 seconds).

Resistance Codes

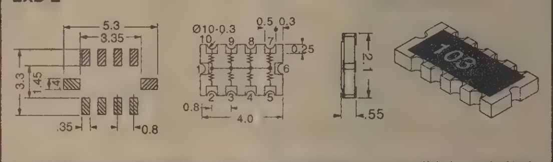
Value Ω (Code) EXB-A	Value Ω (Code) EXB-E
100 (101)	1K (102)
470 (471)	1.5K (152)
1K (102)	2.2K (222)
4.7K (472)	3.3K (332)
10K (103)	4.7K (472)
47K (473)	6.8K (682)
100K (104)	10K (103)
470K (474)	15K (153)
	22K (223)
	33K (333)
	47K (473)
	68K (683)
	100K (104)
	150K (154)
	220K (224)

* Rated continuous working voltage (RCWV) shall be determined from
RCWV = $\sqrt{\text{Power Rating x Resistance Value}}$, or max. RCWV listed above, whichever is less.

EXB-A



EXB-E



Digi-Key* Part No.	Pricing 1	10	100	500	1,000	Digi-Key* Part No.	Tape and Reel Pricing 4,000	8,000	12,000	24,000	Panasonic* Part No.
U7☐☐☐CT-ND	.52	4.81	39.00	162.50	260.00	U7☐☐☐TR-ND	236.00/M	200.00/M	186.00/M	177.00/M	EXB-A10P☐☐☐J
U8☐☐☐CT-ND ***NEW!***	.52	4.81	39.00	162.50	260.00	U8☐☐☐TR-ND ***NEW!***	236.00/M	200.00/M	186.00/M	177.00/M	EXB-E10C☐☐☐J

* For complete part number, substitute the corresponding resistance code (listed above) for ☐☐☐.

Panasonic. Surface Mount Chip Resistor Arrays

Chip Resistor Array - Series EXB-V:

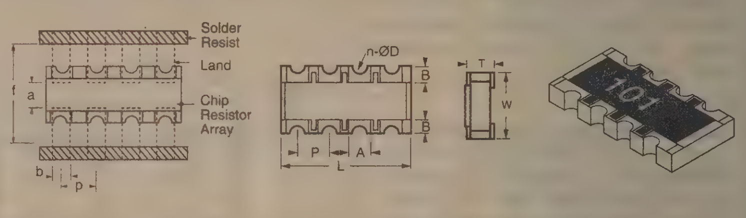
FEATURES:

- High Density: 2 resistors in 1.6 mm x 1.6 mm size (EXB-V4V), 4 resistors in 3.2 mm x1.6 mm size (EXB-V8V)
- Improvement of placement efficiency: Placement efficiency of Chip Resistor Array is two or four times that of discrete chip resistors.
- Automatic placement: Taped and reeled packaging (EIA RS-481) is suitable for automatic placement machine

SPECIFICATIONS:

- Resistance Range: 10Ω to 1MΩ: E24 series
- Resistance Tolerance: J: ±5%
- Number of Terminals: 4 terminal, 8 terminal
- Number of Resistors: 2 resistors, 4 resistors
- Power Rating at 70°C: 1/16 W/element
- Max. Rated Continuous Working Voltage*: 50V
- Max. Over-load Voltage: 100V
- Temperature Characteristic Range: ±200 ppm/°C
- Operating Temperature Range: -55°C to 125°C
- Storage Temperature Range: -55°C to 125°C

* Rated continuous working voltage (RCWV) shall be determined from
RCWV = $\sqrt{\text{PowerRating x Resistance Value}}$, or max. RCWV listed above, whichever is less.



No of Res.	Dimensions n	L	W	T	A	B	øD	P
2	4	1.60	1.60	0.60	0.50	0.3	0.3	0.80
4	8	3.20	1.60	0.60	0.60	0.3	0.3	0.80

Dimensions a	b	p	f
0.7 to 0.9	0.4 to 0.45	0.80	2.0 to 2.2

Isolated Terminals Resistance Codes

Value Ω (Code)	Value Ω (Code)	Value Ω (Code)	Value Ω (Code)	Value Ω (Code)	Value Ω (Code)
10 (100)	82 (820)	680 (681)	5.6K (562)	47K (473)	390K (394)
12 (120)	100 (101)	820 (821)	6.8K (682)	56K (563)	470K (474)
15 (150)	120 (121)	1K (102)	8.2K (822)	68K (683)	560K (564)
18 (180)	150 (151)	1.2K (122)	10K (103)	82K (823)	680K (684)
22 (220)	180 (181)	1.5K (152)	12K (123)	100K (104)	820K (824)
27 (270)	220 (221)	1.8K (182)	15K (153)	120K (124)	1M (105)
33 (330)	270 (271)	2.2K (222)	18K (183)	150K (154)	
39 (390)	330 (331)	2.7K (272)	22K (223)	180K (184)	
47 (470)	390 (391)	3.3K (332)	27K (273)	220K (224)	
56 (560)	470 (471)	3.9K (392)	33K (333)	270K (274)	
68 (680)	560 (561)	4.7K (472)	39K (393)	330K (334)	

Isolated Terminals

Fig. A – 2 Resistors

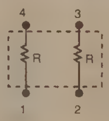


Fig. B – 4 Resistors

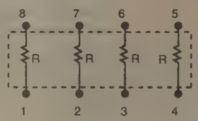


Fig. No.	No. of Res.	Digi-Key* Part No.	Pricing 10	100	500	1,000	Digi-Key* Part No.	Tape and Reel Pricing 5,000	10,000	25,000	Panasonic* Part No.
A	2	Y2☐☐☐CT-ND	.84	7.35	26.50	45.00	Y2☐☐☐TR-ND	30.00/M	27.00/M	26.00/M	EXB-V4V☐☐☐JV
B	4	Y4☐☐☐CT-ND	1.44	12.60	45.00	77.00	Y4☐☐☐TR-ND	51.00/M	47.00/M	44.00/M	EXB-V8V☐☐☐JV

* For complete part number, substitute the corresponding resistance code (listed above) for ☐☐☐.

Panasonic. Surface Mount Chip Capacitor Networks

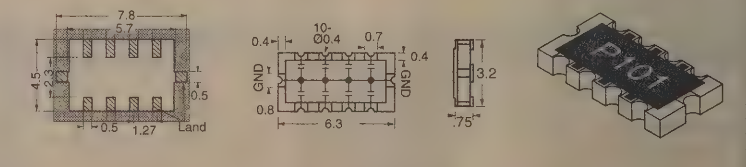
Chip Capacitor Networks - Series EZA-NP:

FEATURES:

- Chip Capacitor Networks, exclusively developed by Panasonic thick film technology. Bussed 8 capacitors in one package (6.3 mm x 3.2 mm x 0.75 mm), half-pitch (0.65 mm) spacing for high density automatic placing
- Superior noise reduction by using two ground terminals
- Superior solderability by using Ni + Solder plating with unique concave terminals

SPECIFICATIONS:

- Capacitance Range: 47 pF, 100 pF, 220 pF
- Capacitance Tolerance: ±20%
- Temperature Characteristic: E Characteristic: +20% / -55% (-25°C to +85°C)
- Dissipation Factor: Less than 3.0% (25°C, 1 kHz, 1 Vrms)
- Rated Voltage: 25V
- Operating Temperature Range: -25°C to +85°C



Volts (DC)	Cap. (PF)	Digi-Key Part No.	Pricing 1	10	100	500	1,000	Digi-Key Part No.	Tape and Reel Pricing 4,000	12,000	24,000	Panasonic Part No.
25	47	PCN1001CT-ND	2.00	17.50	150.00	625.00	1075.00	PCN1001TR-ND	704.00/M	654.00/M	613.00/M	EZA-NPE470M
25	100	PCN1002CT-ND	2.00	17.50	150.00	625.00	1075.00	PCN1002TR-ND	704.00/M	654.00/M	613.00/M	EZA-NPE101M
25	220	PCN1003CT-ND	2.00	17.50	150.00	625.00	1075.00	PCN1003TR-ND	704.00/M	654.00/M	613.00/M	EZA-NPE221M

CTS® Thick Film Chip Resistor Arrays

Thick Film Chip Resistor Arrays High Density Packaging
30% less space per resistor than 0603 chip resistors
75% less space per resistor than 0805 chip resistors

Placement Efficiency: Require fewer placements than discrete components larger overall size eases handling compared to discrete componenets

Low Profile: Suitable for PCMCIA Applications

Solder Coated Nickel Barrier Pads

Resistance Tolerance Standard: ±5% or .5 ohms whichever is greater

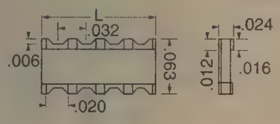
Operating Temperature Range: -55°C to +125°C

Temperature Coefficient (TCR) Standard: ±300ppm/°C

Environmental Performance Specifications

Test	Max Deltar	Test Description
Thermal Cycle	1.0%	5 Cycles -55°C to 125°C
Short Time Overload	1.0%	2 1/2 x Rated voltage. 5 sec. (or max voltage)
Moisture Resistance	2.0%	240 hours .1 rated load, -10°C +65°C, 90%RH
High Temperature Exposure	1.0%	1000 hours. no load @ 125°C
Load Life	5.0%	1000 hours @ 70°C, rated load
Resistance to solder Heat	1.0%	10 seconds @ 260°C solder
Resistance to Leach	—	120 seconds @ 260°C solder
Resistance to Solvents	—	Isopropyl alcohol, Freon TMC
Solderability	—	RMA flux, 230°C, 5 seconds dip, 95% coverage

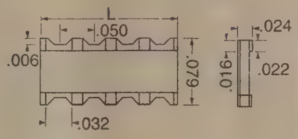
742 SERIES



Electrical Specifications:

- **PCB Area (in²) per Resistor:** .0037
- **Circuit Type:** Isolated
- **Resistance Range Ω:** 10-1M
- **Power per Resistor:** .063W
- **Maximum Operating Voltage:** 50V

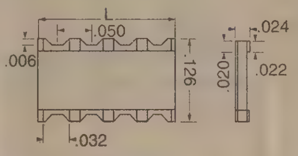
743 SERIES



Electrical Specifications:

- **PCB Area (in²) per Resistor:** .0071
- **Circuit Type:** Isolated
- **Resistance Range Ω:** 10-1M
- **Power per Resistor:** .100W
- **Maximum Operating Voltage:** 100V

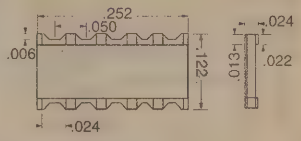
744 SERIES



Electrical Specifications:

- **PCB Area (in²) per Resistor:** .0094
- **Circuit Type:** Isolated
- **Resistance Range Ω:** 10-1M
- **Power per Resistor:** .125W
- **Maximum Operating Voltage:** 200V

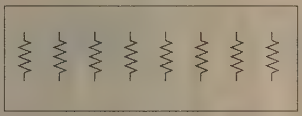
745 SERIES



Electrical Specifications:

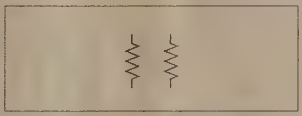
- **PCB Area (in²) per Resistor:** .0058
- **Circuit Type:** Bussed
- **Resistance Range Ω:** 100-100K
- **Power per Resistor:** .063W
- **Maximum Operating Voltage:** 50V

Series 742 Only

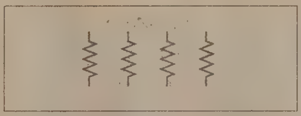


16 Terminations/8 Resistors

Series 742, 743, 744

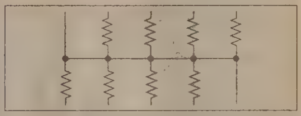


4 Terminations/2 Resistors



8 Terminations/4 Resistors

Series 745 only



10 Terminations/8 Resistors

Resistance Code (Resistance Value)

742043, 742163, 743043, 744043 Series Chip Arrays

220 (22)	221 (220)	222 (2.2K)	223 (22K)	224 (220K)
330 (33)	331 (330)	332 (3.3K)	333 (33K)	334 (330K)
470 (47)	471 (470)	472 (4.7K)	473 (47K)	474 (470K)
101 (100)	102 (1K)	103 (10K)	104 (100K)	105 (1MEG)

All values listed in ohms

Resistance Code (Resistance Value)

745 Series Chip Arrays

101 (100)	471 (470)	222 (2.2K)	103 (10K)	473 (47K)
151 (150)	681 (680)	332 (3.3K)	153 (15K)	683 (68K)
221 (220)	102 (1K)	472 (4.7K)	223 (22K)	104 (100K)
331 (330)	152 (1.5K)	682 (6.8K)	333 (33K)	

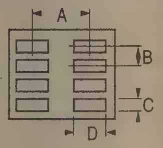
All values listed in ohms

Resistance Code (Resistance Value)

742083, 743083, 744083 Series Chip Arrays

100 (10)	820 (82)	561 (560)	512 (5.1K)	473 (47K)	394 (390K)
120 (12)	101 (100)	681 (680)	562 (5.6K)	513 (51K)	474 (470K)
150 (15)	111 (110)	821 (820)	682 (6.8K)	563 (56K)	514 (510K)
180 (18)	121 (120)	102 (1K)	822 (8.2K)	683 (68K)	564 (560K)
220 (22)	151 (150)	122 (1.2K)	103 (10K)	823 (82K)	684 (680K)
270 (27)	181 (180)	152 (1.5K)	123 (12K)	104 (100K)	824 (820K)
330 (33)	221 (220)	182 (1.8K)	153 (15K)	124 (120K)	105 (1MEG)
390 (39)	271 (270)	222 (2.2K)	183 (18K)	154 (150K)	
470 (47)	331 (330)	272 (2.7K)	223 (22K)	184 (180K)	
510 (51)	391 (390)	332 (3.3K)	273 (27K)	224 (220K)	
560 (56)	471 (470)	392 (3.9K)	333 (33K)	274 (270K)	
680 (68)	511 (510)	472 (4.7K)	393 (39K)	334 (330K)	

All values listed in ohms



	Dimensions (in.)			
Series	A	B	C	D
742	.075	.032	.020	.043
743	.091	.050	.032	.043
744	.138	.050	.032	.043
745	.134	.050	.032	.043

CTS	Panasonic	Kamaya	KOA
742043XXXJ	EXBV4VXXXJ	RAC16-2D-XXXJA	CN1J2J
742083XXXJ	EXBV8VXXXJ	RAC16-4D-XXXJB	CN1J4J
742163XXXJ	N/A	N/A	CN1J8J
743043XXXJ	N/A	N/A	CN2A2J
743083XXXJ	EXBS8VXXXJ	N/A	CN2A4J
744043XXXJ	N/A	N/A	CN2B2J
744083XXXJ	N/A	RAC32-4D-XXXJA	CN2B4J
745101XXXJ	EXBA10PXXXJ	N/A	CND2B10

Series	No. of Term.	No. of Res.	Dim. "L"	Resistor Power Rating (mW@70°C)	Digi-Key Part No.*	Pricing 1	10	100	1,000	Digi-Key Part No.*	Tape & Reel Pricing 2,000	4,000	5,000	8,000	10,000
742	4	2	.063	63	742-043-R☐☐☐CT-ND	.07	.60	4.68	39.95	742-043-R☐☐☐TR-ND	—	—	34.00/M	—	30.00/M
	8	4	.126		742-083-R☐☐☐CT-ND	.12	1.09	8.56	72.85	742-083-R☐☐☐TR-ND	—	—	62.00/M	—	55.00/M
	16	8	.252		742-163-R☐☐☐CT-ND	.32	2.84	22.28	190.35	742-163-R☐☐☐TR-ND	—	162.00/M	—	143.00/M	—
743	4	2	.100	100	743-043-R☐☐☐CT-ND	.13	1.16	9.08	77.55	743-043-R☐☐☐TR-ND	—	66.00/M	—	58.00/M	—
	8	4	.200		743-083-R☐☐☐CT-ND	.17	1.51	11.87	101.05	743-083-R☐☐☐TR-ND	—	86.00/M	—	76.00/M	—
744	4	2	.100	125	744-043-R☐☐☐CT-ND	.13	1.16	9.08	77.55	744-043-R☐☐☐TR-ND	—	66.00/M	—	58.00/M	—
	8	4	.200		744-083-R☐☐☐CT-ND	.19	1.65	12.97	110.45	744-083-R☐☐☐TR-ND	94.00/M	83.00/M	—	—	—
745	10	8	—	63	745-101-R☐☐☐CT-ND	.40	3.54	27.78	237.35	745-101-R☐☐☐TR-ND	—	202.00/M	—	178.00/M	—

* For complete part number, substitute the corresponding resistance code (listed above) for ☐☐☐.

CTS® Resistor Networks

OVER 1,500 VALUES AVAILABLE

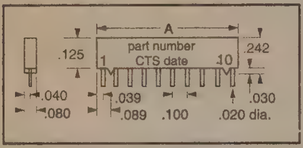
750 SERIES

Single-In-Line

Solid ceramic networks are more efficient because they operate at lower temperatures. This translates into long term reliability in a resistor network

SPECIFICATIONS: Resistance Values: 22Ω through 1 MegΩ **Resistance Tolerance** ±2% **Temperature Coefficient**: ±100PPM/°C typical

FEATURES: • Low-profile construction • Excellent power dissipation • High reliability • Alumina substrate



AVAILABLE VALUES

Isolated & Bussed Circuits						Dual Terminator Circuits
22	150	820	5.1K	33K	270K	81/130
27	180	1K	5.6K	39K	330K	121/195
33	200	1.2K	6.8K	47K	390K	162/260
39	220	1.5K	8.2K	56K	470K	180/390
47	270	1.8K	10K	68K	560K	220/330
51	330	2K	12K	82K	680K	330/390
56	390	2.2K	15K	100K	820K	
68	470	2.7K	18K	120K	1 Meg	
82	510	3.3K	20K	150K		
100	560	3.9K	22K	180K		
120	680	4.7K	27K	220K		

All values listed in ohms

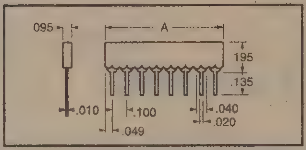
770 SERIES

Single-In-Line Conformal

Standard Products 770 series is available in 6, 8 and 10 pin sizes, and in many available resistance values.

SPECIFICATIONS: Resistance Values: 22Ω through 1 MegΩ **Resistance Tolerance**: ±2% **Temperature Coefficient**: ±100PPM/°C typical

FEATURES: • High reliability resistors • Low-profile construction • .100" lead spacing • High reliability • Alumina substrate



AVAILABLE VALUES

Isolated & Bussed Circuits						Dual Terminator Circuits
22	150	820	5.1K	33K	270K	81/130
27	180	1K	5.6K	39K	330K	121/195
33	200	1.2K	6.8K	47K	390K	162/260
39	220	1.5K	8.2K	56K	470K	180/390
47	270	1.8K	10K	68K	560K	220/330
51	330	2K	12K	82K	680K	330/390
56	390	2.2K	15K	100K	820K	
68	470	2.7K	18K	120K	1 Meg	
82	510	3.3K	20K	150K		
100	560	3.9K	22K	180K		
120	680	4.7K	27K	220K		

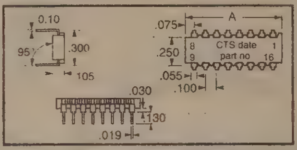
All values listed in ohms

760/761 SERIES

Dual-In-Line

Thin cover coating generates higher power ratings. Thin proprietary cover protection keeps resistors near the surface, allowing the alumina substrate to act as a heat sink. That means higher power ratings than molded networks

SPECIFICATIONS: Resistance Values: 22Ω through 1 MegΩ **Resistance Tolerance:** ±2% **Temperature Coefficient:** ±100PPM/°C typical



AVAILABLE VALUES

Isolated & Bussed Circuits						Dual Terminator Circuits
22	150	820	5.1K	33K	270K	180/390
27	180	1K	5.6K	39K	330K	220/270
33	200	1.2K	6.8K	47K	390K	220/330
39	220	1.5K	8.2K	56K	470K	330/390
47	270	1.8K	10K	68K	560K	680/1.5K
51	330	2K	12K	82K	680K	1.5K/3.3K
56	390	2.2K	15K	100K	820K	
68	470	2.7K	18K	120K	1 Meg	
82	510	3.3K	20K	150K		
100	560	3.9K	22K	180K		
120	680	4.7K	27K	220K		

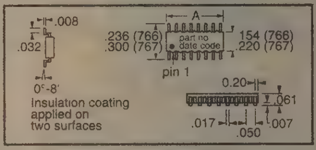
All values listed in ohms

766/767 SERIES

Dual-In-Line Surface Mount

Requires 30% less board space than molded networks of the same power rating.

SPECIFICATIONS: Resistance Range: 22Ω — 1 MegΩ **Resistance Tolerance**: Standard: ±2% **Max. Operating Voltage**. 50V not to exceed rated power **Temperature Coefficient**: 100Ω - 1 MegΩ ±100PPM/°C typical, Below 100Ω ±200PPM/°C typical **Operating Temperature Range**: -55°C to 125°C **Storage Temperature Range:** –55°C to 125°C **Dielectric Strength**: 100V



AVAILABLE VALUES

Isolated & Bussed Circuits						Dual Terminator Circuits
22	150	820	5.1K	33K	270K	180/390
27	180	1K	5.6K	39K	330K	220/330
33	200	1.2K	6.8K	47K	390K	330/390
39	220	1.5K	8.2K	56K	470K	330/470
47	270	1.8K	10K	68K	560K	
51	330	2K	12K	82K	680K	
56	390	2.2K	15K	100K	820K	
68	470	2.7K	18K	120K	1 Meg	
82	510	3.3K	20K	150K		
100	560	3.9K	22K	180K		
120	680	4.7K	27K	220K		

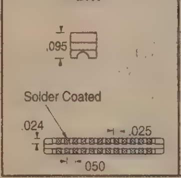
All values listed in ohms

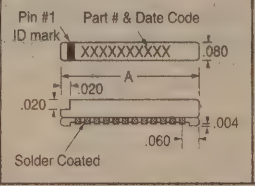
752 SERIES

Surface Mount Single Row and Dual Row Termination

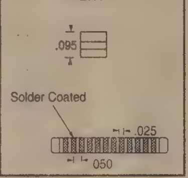
SPECIFICATIONS: Resistance Range: Standard: 22Ω to 1 MegΩ **Resistance Tolerance:** The Bussed and Isolated circuits are 2% tolerance, the Dual Terminator circuit is 5% tolerance **Max. Operating Voltage:** 25V not to exceed rated power **Temperature Coefficient:** Standard: ±200 PPM/°C **Dielectric Strength:** 100 VAC **Operating Temperature Range:** -55 °C to +125 °C **In-line Surface Mount Resistor Networks:** • High density packaging • Low profile • Input/outputs available: Dual Row Terminations 16, 18, 20, 24, Single Row Terminations 8, 9, 10, 12 • Solder coated pads • Designed for visual inspection of solder joints • Designed for board cleaning • 24mm tape & reel packaging • Meets UL-94VO requirements

DRT





SRT



Input/Outputs "A" Dim			
SRT		DRT	
8	.465 ± .005	16	.465 ± .005
9	.515 ± .005	18	.515 ± .005
10	.565 ± .005	20	.565 ± .005
12	.665 ± .005	24	.665 ± .005

Max. Resistor Power (Not to exceed total network power)

	Bussed & Dual Terminator Schematic	Isolated Schematic
@25°C	.12w	.24w
@70°C	.08w	.16w

AVAILABLE VALUES

DRT Bussed	SRT Isolated		SRT Dual Terminator
1K	22	2.2K	220/330
10K	33	3.3K	
47K	47	4.7K	
100K	100	10K	
	1K		

All values listed in ohms

Fig. G - DRT Bussed

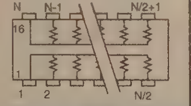


Fig. H - SRT Isolated

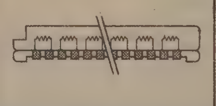


Fig. I - SRT Dual Term.

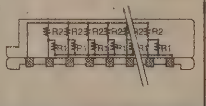


Diagram	No. of Pins	No. of Res.	Dim. "A"	Resistor Power Rating (mW@70°C)	Digi-Key Part No.	Pricing 1	10	100	Tape & Reel Pricing* 2500
G	16	14	.465	80	752-161- (Value)BK-ND	2.81	22.50	172.50	1125.00/M
G	18	16	.515	80	752-181- (Value)BK-ND	2.81	22.50	172.50	1125.00/M
G	20	18	.565	80	752-201- (Value)BK-ND	2.81	22.50	172.50	1125.00/M
G	24	22	.665	80	752-241- (Value)BK-ND	2.81	22.50	172.50	1125.00/M
H	8	4	.465	160	752-083- (Value)BK-ND	2.63	21.00	161.00	1050.00/M
H	10	5	.565	160	752-103- (Value)BK-ND	2.63	21.00	161.00	1050.00/M
H	12	6	.665	160	752-123- (Value)BK-ND	2.63	21.00	161.00	1050.00/M
I	10	16	.565	80	752-105- (Value)BK-ND	3.00	24.00	184.00	1200.00/M

* For Tape & Reel Part No. change BK to TR

• For complete part number, substitute the corresponding value (listed above) in (value).

Fig. A - Bussed

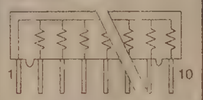


Fig. B - Isolated

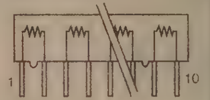


Fig. C - Dual Term

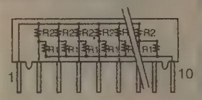


Fig. D - Bussed

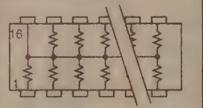


Fig. E - Isolated

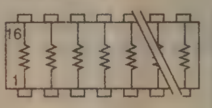
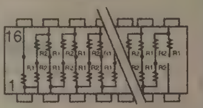


Fig. F - Dual Term



Series	Diagram	No. of Pins	No. of Res.	Dim. "A"	Resistor Power Rating (mW@70°C)	Digi-Key Part No.	Pricing 1	10	100	1,000
750	A	6	5	.578	250	750-61-R (Value)-ND	.65	5.67	44.55	324.00
	A	8	7	.778	250	750-81-R (Value)-ND	75	6.55	51.43	374.00
	A	10	9	.978	250	750-101-R (Value)-ND	.89	7.81	61.33	446.00
	B	6	3	.578	400	750-63-R (Value)-ND	65	5.67	44.55	324.00
	B	8	4	.778	400	750-83-R (Value)-ND	75	6.55	51.43	374.00
	B	10	5	.978	400	750-103-R (Value)-ND	89	7.81	61.33	446.00
	C	8	12	.778	250	750-85-R (Value)-ND	1.01	8.82	69 30	504.00
	C	10	16	.978	250	750-105-R (Value) ND	1 22	10.64	83 60	608.00
770	A	6	5	.598	100	770 61-R (Value)-ND	21	1.80	13.50	90.00
	A	8	7	.798	100	770-81-R (Value)-ND	29	2.40	18 00	120.00
	A	10	9	.998	100	770-101-R (Value)-ND	.30	2.63	20.63	150.00
	B	6	3	.598	200	770-63-R (Value)-ND	21	1.80	13.50	90.00
	B	8	4	.798	200	770-83-R (Value)-ND	.29	2.40	18.00	120.00
	B	10	5	998	200	770-103-R (Value)-ND	.30	2.63	20.63	150.00
	C	8	12	798	100	770-85-R (Value)-ND	.55	4.60	34.50	230.00
	C	10	16	.998	100	770-105-R (Value)-ND	52	4.55	35.75	260.00
760 761	D	14	13	.750	150	760-1-R (Value)-ND	.70	6.38	58.00	348.00
	D	16	15	850	150	761-1-R (Value)-ND	.71	6.55	59.50	357.00
	E	14	7	.750	300	760-3-R (Value)-ND	.70	6.38	58.00	348.00
	E	16	8	.850	300	761-3-R (Value)-ND	.71	6.55	59.50	357.00
	F	14	24	.750	150	760-5-R (Value)-ND	.97	8.86	80.50	483.00
	F	16	28	.850	150	761-5-R (Value)-ND	.98	9.02	82.00	492.00
766	D	14	13	.340	80	766-141-R (Value)-ND	1.22	9.72	74.52	537.84
	D	16	15	.390	80	766-161-R (Value)-ND	1.22	9.72	74.52	537.84
	E	14	7	.340	160	766-143-R (Value)-ND	1.22	9.72	74.52	537.84
	E	16	8	.390	160	766-163-R (Value)-ND	1.22	9.72	74.52	537.84
	F	14	24	.340	80	766-145-R (Value)-ND	1.43	11.40	87.40	630.80
	F	16	28	.390	80	766-165-R (Value)-ND	1.43	11.40	87.40	630.80
767	D	14	13	.390	100	767-141-R (Value)-ND	.75	6.00	46.00	332.00
	D	16	15	.440	100	767-161-R (Value)-ND	.75	6.00	46.00	332.00
	E	14	7	.390	200	767-143-R (Value)-ND	75	6.00	46.00	332.00
	E	16	8	.440	200	767-163-R (Value)-ND	.75	6.00	46.00	332.00
	F	14	24	.390	100	767 145-R (Value)-ND	.90	7.20	55.20	398.40
	F	16	28	.440	100	767-165-R (Value)-ND	.90	7.20	55.20	398.40

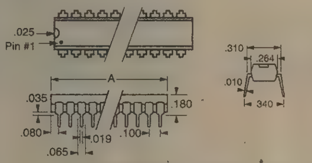
Resistor Networks

4100R Series
4116R

Thick Film Molded DIPs

• Compatible with automatic insertion equipment • Copper leads for excellent heat dissipation • High temperature lead attachment to withstand reflow solder temperatures up to 260°C • Trifurcated Krimp-Joint™ lead attachment for product reliability and strength

Electrical Characteristics: **Max. Operating Voltage:** 100V; **Temp. Coefficient of Resistance:** 50Ω to 2.2MΩ: ±100ppm/°C, below 50Ω: ±250ppm°C; **Operating Temperature:** -55°C to +125°C ***Environmental Characteristics:*** **Insulation Resistance:** 10,000 megohms minimum; **Dielectric Withstanding Voltage:** 200 VRMS; **Lead Solderability/Solvent Resistance:** Meet requirements of MIL-R-83401 ***Physical Characteristics:*** **Flammability:** Conforms to UL94V-0; **Lead Frame Material:** Copper (OLIN 194) 90/10 electroplate; **Body Material:** Novolac Epoxy ***Resistance Tolerance:*** **Isolated/Bussed:** Below 50 ohms ±1 ohms; Above 50 ohms ±2%; **Dual Terminated:** Below 100 ohms ±2 ohms; Above 100 ohms ±2%

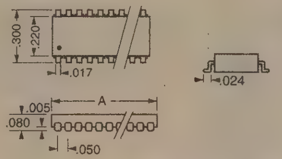


4800P Series
4816P

Thick Film Surface Mount Medium Body (5.59MM)

• Standard E.I.A. (SOGN-0002) package compatible with automatic placement equipment. • High temperature lead attachment to withstand reflow temperatures up to 260°C.

Electrical Characteristics: **Max. Operating Voltage:** 50V; **Temp. Coefficient of Resistance:** 50Ω and above: ±100ppm/°C, below 50Ω: ±250ppm°C; **Operating Temperature:** -55°C to +125°C ***Environmental Characteristics:*** **Insulation Resistance:** 10,000 megohms min.; **Dielectric Withstanding Voltage:** 200 VRMS; **Lead Solderability/Solvent Resistance:** Meet requirements of MIL-R-83401 ***Physical Characteristics:*** **Flammability:** Conforms to UL94V-0; **Lead Frame Material:** Copper (OLIN 194) 60/40 solder dip; **Body Material:** Novolac Epoxy ***Resistance Tolerance:*** **Isolated/Bussed:** Below 50 ohms ±1 ohms; Above 50 ohms ±2%; **Dual Terminated:** Below 100 ohms ±2 ohms; Above 100 ohms ±2%

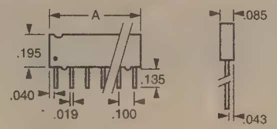


4300R Series
4306R, 4308R and 4310R

Thick Film Molded SIPs, Low Profile

• Low profile provides compatibility with DIPs • Compatible with automatic insertion equipment • High temperature lead attachment to withstand reflow temperatures up to 260°C • Copper leads for excellent heat dissipation

Electrical Characteristics: **Max. Operating Voltage:** 100V; **Temp. Coefficient of Resistance:** 50Ω to 2.2MΩ: ±100ppm/°C, below 50Ω: ±250ppm°C; **Operating Temperature:** -55°C to +125°C **Power Rating:** Derate to zero power from +70°C to +125°C ***Environmental Characteristics:*** **Insulation Resistance:** 10,000 megohms minimum; **Dielectric Withstanding Voltage:** 200 VRMS; **Lead Solderability/Solvent Resistance:** Meet requirements of MIL-R-83401 ***Physical Characteristics:*** **Flammability:** Conforms to UL94V-0; **Lead Frame Material:** Copper (OLIN 194) 90/10 plated; **Body Material:** Novolac Epoxy ***Resistance Tolerance:*** **Isolated/Bussed:** Below 50 ohms ±1 ohms; Above 50 ohms ±2%; **Dual Terminated:** Below 100 ohms ±2 ohms; Above 100 ohms ±2%

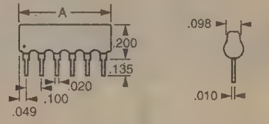


4600X Series
4606X, 4608X and 4610X

Thick Film Conformal SIP's, Low Profile

• Low Profile is compatible with DIPs • High temperature lead attachment to withstand reflow temperatures up to 260°C

Electrical Characteristics: **Max. Operating Voltage:** 100V; **Temp. Coefficient of Resistance:** 50Ω to 2.2MΩ: ±100ppm/°C, below 50Ω: ±250ppm°C; **Operating Temperature:** -55°C to +125°C ***Environmental Characteristics:*** **Insulation Resistance:** 10,000 megohms minimum; **Dielectric Withstanding Voltage:** 200 VRMS; **Lead Solderability/Solvent Resistance:** Meet requirements of MIL-R-83401 ***Physical Characteristics:*** **Flammability:** Conforms to UL94V-0; **Lead Frame Material:** Copper (OLIN 194) 60/40 solder dip ; **Body Material:** Epoxy resin/anhydride disphenol A ***Resistance Tolerance:*** **Isolated/Bussed:** Below 50 ohms ±1 ohms; Above 50 ohms ±2%; **Dual Terminated:** Below 100 ohms ±2 ohms; Above 100 ohms ±2%



Resistance Values (001 and 002)
Isolated and Bussed Circuits
Code (Value)

220 (22)	221 (220)	202 (2K)	183 (18K)	154 (150K)
270 (27)	271 (270)	222 (2.2K)	203 (20K)	184 (180K)
330 (33)	331(330)	272 (2.7K)	223 (22K)	224 (220K)
390 (39)	391 (390)	332 (3.3K)	273 (27K)	274 (270K)
470 (47)	471 (470)	392 (3.9K)	333 (33K)	334 (330K)
560 (56)	561 (560)	472 (4.7K)	393 (39K)	394 (390K)
680 (68)	681 (680)	562 (5.6K)	473 (47K)	474 (470K)
820 (82)	821 (820)	682 (6.8K)	563 (56K)	564 (560K)
101 (100)	102 (1K)	822 (8.2K)	683 (68K)	684 (680K)
121 (120)	122 (1.2K)	103 (10K)	823 (82K)	824 (820K)
151 (150)	152 (1.5K)	123 (12K)	104 (100K)	105 (1M)
181 (180)	182 (1.8K)	153 (15K)	124 (120K)	

Resistance Values (003)
Dual Terminator Circuits
Code (Value)

161/241 (160/240)
181/391 (180/390)
221/271 (220/270)
221/331 (220/230)
331/391 (330/390)
331/471 (330/470)
302/622 (3K/6.2K)

Resistance Values (001 and 002)
Isolated and Bussed Circuits
Code (Value)

220 (22)	221 (220)	202 (2K)	183 (18K)	154 (150K)
270 (27)	271 (270)	222 (2.2K)	203 (20K)	184 (180K)
330 (33)	331(330)	272 (2.7K)	223 (22K)	224 (220K)
390 (39)	391 (390)	332 (3.3K)	273 (27K)	274 (270K)
470 (47)	471 (470)	392 (3.9K)	333 (33K)	334 (330K)
560 (56)	561 (560)	472 (4.7K)	393 (39K)	394 (390K)
680 (68)	681 (680)	562 (5.6K)	473 (47K)	474 (470K)
820 (82)	821 (820)	682 (6.8K)	563 (56K)	564 (560K)
101 (100)	102 (1K)	822 (8.2K)	683 (68K)	684 (680K)
121 (120)	122 (1.2K)	103 (10K)	823 (82K)	824 (820K)
151 (150)	152 (1.5K)	123 (12K)	104 (100K)	105 (1M)
181 (180)	182 (1.8K)	153 (15K)	124 (120K)	

Resistance Values (004)
Dual Terminator Circuits
Code (Value)

161/241 (160/240)
181/391 (180/390)
221/271 (220/270)
221/331 (220/330)
331/391 (330/390)
331/471 (330/470)
302/622 (3K/6.2K)

Fig. A – Isolated

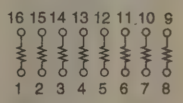


Fig. B – Bussed

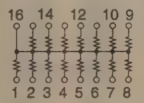


Fig. C – Dual Term

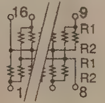


Fig. D – Dual Term

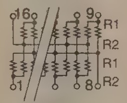


Fig. E – Isolated

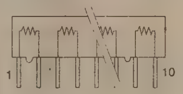


Fig. F – Bussed

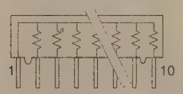
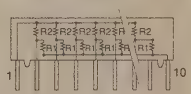


Fig. G – Dual Term



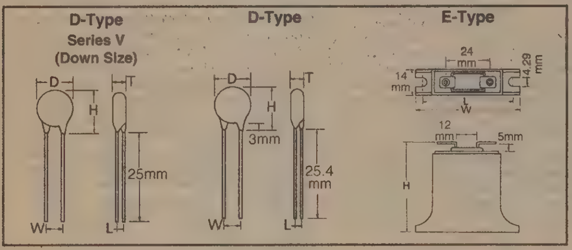
Series	Diagram	No. of Pins	No. of Res.	Dim. "A"	Element Power Rating (W @ 70°C)	Digi-Key* Part No.	Pricing						Bourns* Part No.
							1	10	100	1,000	5,000	10,000	
4100	A	16	8	.865	.25	4116R-1-□□□-ND	.60	5.27	44.20	298.00	255.00/M	226.00/M	4116R-001-□□□
	B	16	15	.865	.125	4116R-2-□□□-ND	.60	5.27	44.20	298.00	255.00/M	226.00/M	4116R-002-□□□
	C	16	28	.865	.125	4116R-3-□□□/□□□-ND	.89	7.91	66.30	446.00	383.00/M	339.00/M	4116R-003-□□□/□□□
4300	F	6	5	.584	.30	4306R-1-□□□-ND	.47	4.19	35.10	236.00	203.00/M	180.00/M	4306R-101-□□□
	E	6	3	.584	.20	4306R-2-□□□-ND	.47	4.19	35.10	236.00	203.00/M	180.00/M	4306R-102-□□□
	G	6	8	.584	.20	4306R-4-□□□/□□□-ND	.67	5.89	49.40	333.00	285.00/M	253.00/M	4306R-104-□□□/□□□
	F	8	7	.784	.30	4308R-1-□□□-ND	.54	4.81	40.30	271.00	233.00/M	206.00/M	4308R-101-□□□
	E	8	4	.784	.20	4308R-2-□□□-ND	.54	4.81	40.30	271.00	233.00/M	206.00/M	4308R-102-□□□
	G	8	12	.784	.20	4308R-4-□□□/□□□-ND	.74	6.51	54.60	368.00	315.00/M	279.00/M	4308R-104-□□□/□□□
	F	10	9	.984	.30	4310R-1-□□□-ND	.65	5.74	48.10	324.00	278.00/M	246.00/M	4310R-101-□□□
	E	10	5	.984	.20	4310R-2-□□□-ND	.65	5.74	48.10	324.00	278.00/M	246.00/M	4310R-102-□□□
	G	10	16	.984	.20	4310R-4-□□□/□□□-ND	.88	7.75	65.00	438.00	375.00/M	333.00/M	4310R-104-□□□/□□□
4600	F	6	5	.598	.30	4606X-1-□□□-ND	.25	2.23	18.72	126.00	108.00/M	96.00/M	4606X-101-□□□
	E	6	3	.598	.20	4606X-2-□□□-ND	.25	2.23	18.72	126.00	108.00/M	96.00/M	4606X-102-□□□
	G	6	8	.598	.20	4606X-4-□□□/□□□-ND	.53	4.65	39.00	263.00	225.00/M	200.00/M	4606X-104-□□□/□□□
	F	8	7	.798	.30	4608X-1-□□□-ND	.32	2.79	23.40	158.00	135.00/M	120.00/M	4608X-101-□□□
	E	8	4	.798	.20	4608X-2-□□□-ND	.32	2.79	23.40	158.00	135.00/M	120.00/M	4608X-102-□□□
	G	8	12	.798	.20	4608X-4-□□□/□□□-ND	.63	5.58	46.80	315.00	270.00/M	239.00/M	4608X-104-□□□/□□□
	F	10	9	.998	.30	4610X-1-□□□-ND	.39	3.41	28.60	193.00	165.00/M	146.00/M	4610X-101-□□□
	E	10	5	.998	.20	4610X-2-□□□-ND	.39	3.41	28.60	193.00	165.00/M	146.00/M	4610X-102-□□□
	G	10	16	.998	.20	4610X-4-□□□/□□□-ND	.70	6.20	52.00	350.00	300.00/M	266.00/M	4610X-104-□□□/□□□
4800	A	16	8	.490	.160	4816P-1-□□□-ND	1.12	9.92	83.20	560.00	480.00/M	426.00/M	4816P-T01-□□□
	B	16	15	.490	.080	4816P-2-□□□-ND	1.12	9.92	83.20	560.00	480.00/M	426.00/M	4816P-T02-□□□
	D	16	28	.490	.080	4816P-3-□□□/□□□-ND	1.75	15.50	130.00	875.00	750.00/M	665.00/M	4816P-T03-□□□/□□□

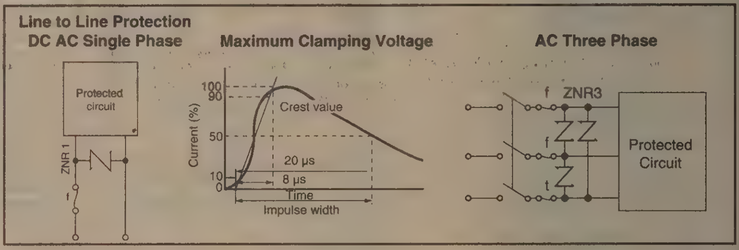
* For complete part number, substitute the corresponding resistance code (listed above) for □□□.

Panasonic® "ZNR" Transient/Surge Absorbers Type D and E

Features: • Excellent clamping voltage characteristic and fast response time (50nsec.) when subjected to impulse surges. Eliminates the discharge lag that is indurative of gap-type arrestors. • Bilateral and symmetrical V-1 characteristic curve. The ZNR can, therefore, be used both in AC and DC circuits, for protection of either positive or negative transients. Panasonic ZNRs are zinc oxide nonlinear resistors whose resistance changes as a function of the applied voltage. The ZNR has a bilateral and symmetrical V-1 characteristic curve and can therefore be used in circuits in place of back-to-back zener diodes. This gives your circuit clamping protection in either direction. The ZNR thus provides a highly reliable and economical way to protect against repeated high voltage transients and surges such as those produced by lightning, switching surges and noise spikes. **Ratings: Varistor Voltage:** The voltage between two terminals with the specified measuring current CmA DC applied is called Vc. The measurement shall be made as fast as possible to avoid heat affection. **Maximum Allowable Voltage:** The recommended maximum sine wave voltage (rms) or the maximum DC voltage that can be applied continuously. **Withstanding Surge Current:** The maximum current within the varistor voltage change of ±10% with the standard impulse current (8x20µsec.) applied one time. **Maximum Clamping Voltage:** The maximum voltage between two terminals with the specified standard impulse current (8x20µ sec.) illustrated.

V Series: ZNR Surge Absorbers Type D,Series V, have been put on the market as a result of the development of a new ceramic material composition, higher quality of parts and materials used in the varistor and an improvement of manufacturing process control. They have a smaller size but a larger surge current and energy ratings so that they can be used in smaller equipment and exhibit their excellent surge protection ability in severe conditions. **Features:** • Improved in "Surge Current Handling Capability (@ 8/20 µs, 2 times)" by 1.6 to 3.0 times over the current "ZNRs, Series C". • Very large "Energy Handling Capability" absorbing transient overvoltages in compact sizes • All standard products are listed under UL1414, UL1449 and CSA 2221 01 except for varistor voltages 82-150V which are UL1449 only • Wide products range for transient/surge protection on AC 100V to AC 480V nominal system with the maximum peak current ratings of 600A to 6500A (@ 8/20 µs, 2 times) • Operating Temperature Range -40° to 85°C





Series	Type	Max. Allow. Volt. (V)		Varistor Volt. ±10% (V)	Max. Clamp Volt. @ Test Current (8x20µsec.)		Surge Current (A)	Dimensions (mm)					Digi-Key Part No.	Pricing						Panasonic Part No.
		AC	DC		Vc(V)	Ip(A)		D Max.	T Max.	W ±1	H Max.	L ±1		1	10	100	1,000	5,000	10,000	
5	D Ser.V	11	14	18	40	1	125	7.0	4.5	5.0	10.0	1.5	P7282-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D180
		14	18	22	48	1	125	7.0	4.5	5.0	10.0	1.5	P7283-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZV05D220
		17	22	27	60	1	125	7.0	4.5	5.0	10.0	1.5	P7284-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D270
		20	26	33	73	1	125	7.0	4.5	5.0	10.0	1.5	P7285-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D330
		25	31	39	86	1	125	7.0	4.5	5.0	10.0	1.5	P7286-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D390
		30	38	47	104	1	125	7.0	4.5	5.0	10.0	1.5	P7287-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D470
		35	45	56	123	1	125	7.0	4.5	5.0	10.0	1.5	P7288-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D560
		40	56	68	150	1	125	7.0	4.5	5.0	10.0	1.5	P7289-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D680
		50	65	82	145	5	600	7.0	4.1	5.0	10.0	1.4	P7180-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D820
		60	85	100	175	5	600	7.0	4.3	5.0	10.0	1.6	P7240-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D101
		75	100	120	210	5	600	7.0	4.5	5.0	10.0	1.8	P7241-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D121
		95	125	150	260	5	600	7.0	4.8	5.0	10.0	2.1	P7242-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D151
		130	170	200	355	5	600	7.0	4.4	5.0	10.0	1.7	P7181-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D201
		140	180	220	380	5	600	7.0	4.5	5.0	10.0	1.8	P7182-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D221
		150	200	240	415	5	600	7.0	4.6	5.0	10.0	1.9	P7183-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D241
		175	225	270	475	5	600	7.0	4.8	5.0	10.0	2.1	P7184-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D271
		210	270	330	570	5	600	7.0	5.1	5.0	10.0	2.4	P7185-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D331
		230	300	360	620	5	600	7.0	5.3	5.0	10.0	2.5	P7243-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D361
		250	320	390	675	5	600	7.0	5.4	5.0	10.0	2.7	P7244-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D391
		275	350	430	745	5	600	7.0	5.6	5.0	10.0	2.9	P7245-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D431
		300	385	470	810	5	600	7.0	5.8	5.0	10.0	3.1	P7186-ND	.34	2.94	24.50	140.00	131.00/M	126.00/M	ERZ-V05D471
7	D Ser.V	11	14	18	36	2.5	250	8.5	4.5	5.0	11.5	1.3	P7290-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D180
		14	18	22	43	2.5	250	8.5	4.6	5.0	11.5	1.4	P7291-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D220
		17	22	27	53	2.5	250	8.5	4.7	5.0	11.5	1.5	P7292-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D270
		20	26	33	65	2.5	250	8.5	4.9	5.0	11.5	1.7	P7293-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D330
		25	31	39	77	2.5	250	8.5	4.8	5.0	11.5	1.6	P7294-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D390
		30	38	47	93	2.5	250	8.5	4.9	5.0	11.5	1.7	P7295-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D470
		35	45	56	110	2.5	250	8.5	5.0	5.0	11.5	1.8	P7296-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D560
		40	56	68	135	2.5	250	8.5	5.2	5.0	11.5	2.0	P7297-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D680
		50	65	82	135	10	1250	8.5	4.1	5.0	11.5	1.4	P7187-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D820
		60	85	100	165	10	1250	8.5	4.3	5.0	11.5	1.6	P7246-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D101
		75	100	120	200	10	1250	8.5	4.5	5.0	11.5	1.8	P7247-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D121
		95	125	150	250	10	1250	8.5	4.8	5.0	11.5	2.1	P7248-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D151
		130	170	200	340	10	1250	8.5	4.4	5.0	11.5	1.7	P7188-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D201
		140	180	220	360	10	1250	8.5	4.5	5.0	11.5	1.8	P7189-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D221
		150	200	240	395	10	1250	8.5	4.6	5.0	11.5	1.9	P7190-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D241
		175	225	270	455	10	1250	8.5	4.8	5.0	11.5	2.1	P7200-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D271
		210	270	330	545	10	1250	8.5	5.1	5.0	11.5	2.4	P7201-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D331
		230	300	360	595	10	1250	8.5	5.3	5.0	11.5	2.5	P7249-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D361
		250	320	390	650	10	1250	8.5	5.4	5.0	11.5	2.7	P7250-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D391
		275	350	430	710	10	1250	8.5	5.8	5.0	11.5	2.9	P7251-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D431
		300	385	470	775	10	1250	8.5	5.8	5.0	11.5	3.1	P7202-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D471
		320	410	510	845	10	1250	8.5	6.0	5.0	11.5	3.3	P7203-ND	.37	3.21	26.75	152.00	143.00/M	138.00/M	ERZ-V07D511
10	D Ser.V	11	14	18	36	5	500	11.5	4.6	7.5	14.5	1.3	P7298-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D180
		14	18	22	43	5	500	11.5	4.7	7.5	14.5	1.4	P7299-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D220
		17	22	27	53	5	500	11.5	4.8	7.5	14.5	1.5	P7300-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D270
		20	26	33	65	5	500	11.5	5.0	7.5	14.5	1.7	P7301-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D330
		25	31	39	77	5	500	11.5	4.9	7.5	14.5	1.6	P7302-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D390
		30	38	47	93	5	500	11.5	5.0	7.5	14.5	1.7	P7303-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D470
		35	45	56	110	5	500	11.5	5.1	7.5	14.5	1.8	P7304-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D560
		40	56	68	135	5	500	11.5	5.3	7.5	14.5	2.0	P7305-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D680
		50	65	82	135	25	2500	11.5	4.5	7.5	14.5	1.6	P7204-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D820
		60	85	100	165	25	2500	11.5	4.7	7.5	14.5	1.8	P7252-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D101
		75	100	120	200	25	2500	11.5	4.9	7.5	14.5	2.0	P7253-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D121
		95	125	150	250	25	2500	11.5	5.2	7.5	14.5	2.3	P7254-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D151
		130	170	200	340	25	2500	11.5	4.8	7.5	14.5	1.9	P7205-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D201
		140	180	220	360	25	2500	11.5	4.9	7.5	14.5	2.0	P7206-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D221
		150	200	240	395	25	2500	11.5	5.0	7.5	14.5	2.1	P7207-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D241
		175	225	270	455	25	2500	11.5	5.2	7.5	14.5	2.3	P7208-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D271
		210	270	330	545	25	2500	11.5	5.5	7.5	14.6	2.6	P7209-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D331
		230	300	360	595	25	2500	11.5	5.7	7.5	14.5	2.8	P7255-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D361
		250	320	390	650	25	2500	11.5	5.8	7.5	14.5	2.9	P7256-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D391
		275	350	430	710	25	2500	11.5	6.0	7.5	14.5	3.1	P7257-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D431

Series	Type	Max. Allow. Volt. (V)		Varistor Volt. ±10% (V)	Max. Clamp Volt. @ Test Current (8x20μsec.)		Surge Current (A)	Dimensions (mm)					Digi-Key Part No.	Pricing						Panasonic Part No.
		AC	DC		Vc(V)	Ip(A)		D Max.	T Max.	W ±1	H Max.	L ±1		1	10	100	1,000	5,000	10,000	
10	D Ser.V	300	385	470	775	25	2500	11.5	6.2	7.5	14.5	3.3	P7210-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ V10D471
		320	410	510	845	25	2500	11.5	6.4	7.5	14.5	3.5	P7211-ND	.54	4.65	38.75	221.00	207.00/M	200.00/M	ERZ-V10D511
		385	505	620	1025	25	2500	12.5	7.1	7.5	15.5	4.2	P7258-ND	.66	5.67	47.25	269.00	252.00/M	244.00/M	ERZ-V10D621
		420	560	680	1120	25	2500	12.5	7.4	7.5	15.5	4.5	P7259-ND	.66	5.67	47.25	269.00	252.00/M	244.00/M	ERZ-V10D681
		460	615	750	1240	25	2500	12.5	7.8	7.5	15.5	4.9	P7260-ND	.66	5.67	47.25	269.00	252.00/M	244.00/M	ERZ-V10D751
		510	670	820	1355	25	2500	12.5	8.1	7.5	15.5	5.2	P7212-ND	.66	5.67	47.25	269.00	252.00/M	244.00/M	ERZ-V10D821
		550	745	910	1500	25	2500	12.5	8.6	7.5	15.5	5.7	P7213-ND	.74	6.30	52.50	299.00	280.00/M	271.00/M	ERZ-V10D911
		625	825	1000	1650	25	2500	12.5	9.1	7.5	15.5	6.2	P7261-ND	.74	6.30	52.50	299.00	280.00/M	271.00/M	ERZ-V10D102
		680	895	1100	1815	25	2500	12.5	9.7	7.5	15.5	6.8	P7214-ND	.74	6.30	52.50	299.00	280.00/M	271.00/M	ERZ-V10D112
		1200	1580	1800	2970	25	2500	13.5	14.4	11.0	16.5	10.5	P7215-ND	1.73	14.79	123.25	703.00	657.00/M	636.00/M	ERZ-V10D182
14	D Ser.V	11	14	18	36	10	1000	15.5	4.6	7.5	18.5	1.3	P7306-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D180
		14	18	22	43	10	1000	15.5	4.7	7.5	18.5	1.4	P7307-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D220
		17	22	27	53	10	1000	15.5	4.8	7.5	18.5	1.5	P7308-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D270
		20	26	33	65	10	1000	15.5	5.0	7.5	18.5	1.7	P7309-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D330
		25	31	39	77	10	1000	15.5	4.9	7.5	18.5	1.6	P7310-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D390
		30	38	47	93	10	1000	15.5	5.0	7.5	18.5	1.7	P7311-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D470
		35	45	56	110	10	1000	15.5	5.1	7.5	18.5	1.8	P7312-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D560
		40	56	68	135	10	1000	15.5	5.3	7.5	18.5	2.0	P7313-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D680
		50	65	82	135	50	4500	15.5	4.5	7.5	18.5	1.6	P7216-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D820
		60	85	100	165	50	4500	15.5	4.7	7.5	18.5	1.8	P7262-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D101
		75	100	120	200	50	4500	15.5	4.9	7.5	18.5	2.0	P7263-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D121
		95	125	150	250	50	4500	15.5	5.2	7.5	18.5	2.3	P7264-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D151
		130	170	200	340	50	4500	15.5	4.8	7.5	18.5	1.9	P7217-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D201
		140	180	220	360	50	4500	15.5	4.9	7.5	18.5	2.0	P7218-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D221
		150	200	240	395	50	4500	15.5	5.0	7.5	18.5	2.1	P7219-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D241
		175	225	270	455	50	4500	15.5	5.2	7.5	18.5	2.3	P7220-ND	.61	5.19	43.25	247.00	231.00/M	223.00/M	ERZ-V14D271
		210	270	330	545	50	4500	15.5	5.5	7.5	18.5	2.6	P7221-ND	.73	6.24	52.00	296.00	277.00/M	268.00/M	ERZ-V14D331
		230	300	360	595	50	4500	15.5	5.7	7.5	18.5	2.8	P7265-ND	.73	6.24	52.00	296.00	277.00/M	268.00/M	ERZ-V14D361
		250	320	390	650	50	4500	15.5	5.8	7.8	18.5	2.9	P7266-ND	.73	6.24	52.00	296.00	277.00/M	268.00/M	ERZ-V14D391
		275	350	430	710	50	4500	15.5	6.0	7.5	18.5	3.1	P7267-ND	.73	6.24	52.00	296.00	277.00/M	268.00/M	ERZ-V14D431
		300	385	470	775	50	4500	15.5	6.2	7.5	18.5	3.3	P7222-ND	.73	6.24	52.00	296.00	277.00/M	268.00/M	ERZ-V14D471
		320	410	510	845	50	4500	15.5	6.4	7.5	18.5	3.5	P7223-ND	.73	6.24	52.00	296.00	277.00/M	268.00/M	ERZ-V14D511
		385	505	620	1025	50	4500	16.0	7.1	7.5	19.0	4.2	P7268-ND	1.35	11.61	96.75	551.00	516.00/M	499.00/M	ERZ-V14D621
		420	560	680	1120	50	4500	16.0	7.4	7.5	19.0	4.5	P7269-ND	1.35	11.61	96.75	551.00	516.00/M	499.00/M	ERZ-V14D681
		460	615	750	1240	50	4500	16.0	7.8	7.5	19.0	4.9	P7270-ND	1.35	11.61	96.75	551.00	516.00/M	499.00/M	ERZ-V14D751
		510	670	820	1355	50	4500	16.0	8.1	7.5	19.0	5.2	P7224-ND	1.35	11.61	96.75	551.00	516.00/M	499.00/M	ERZ-V14D821
		550	745	910	1500	50	4500	16.0	8.6	7.5	19.0	5.7	P7225-ND	1.54	13.20	110.00	627.00	587.00/M	568.00/M	ERZ-V14D911
		625	825	1000	1650	50	4500	16.0	9.1	7.5	19.0	6.2	P7271-ND	1.54	13.20	110.00	627.00	587.00/M	568.00/M	ERZ-V14D102
		680	895	1100	1815	50	4500	16.0	9.7	7.5	19.0	6.8	P7226-ND	1.54	13.20	110.00	627.00	587.00/M	568.00/M	ERZ-V14D112
		1200	1580	1800	2970	50	4500	17.0	14.4	15.0	20.5	10.5	P7227-ND	2.56	22.08	184.00	1049.00	981.00/M	949.00/M	ERZ-V14D182
20	D Ser.V	11	14	18	36	20	2000	21.5	5.1	10.0	24.5	1.5	P7314-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D180
		14	18	22	43	20	2000	21.5	5.2	10.0	24.5	1.6	P7315-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D220
		17	22	27	53	20	2000	21.5	5.3	10.0	24.5	1.7	P7316-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D270
		20	26	33	65	20	2000	21.5	5.5	10.0	24.5	1.9	P7317-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D330
		25	31	39	77	20	2000	21.5	5.5	10.0	24.5	1.9	P7318-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D390
		30	38	47	93	20	2000	21.5	5.6	10.0	24.5	2.0	P7319-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D470
		35	45	56	110	20	2000	21.5	5.7	10.0	24.5	2.1	P7320-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D560
		40	56	68	135	20	2000	21.5	5.8	10.0	24.5	2.2	P7321-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D680
		50	65	82	136	100	6500	21.5	4.9	10.0	24.5	1.8	P7228-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D820
		60	85	100	165	100	6500	21.5	5.1	10.0	24.5	2.0	P7272-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D101
		75	100	120	200	100	6500	21.5	5.3	10.0	24.5	2.2	P7273-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D121
		95	125	150	250	100	6500	21.5	5.6	10.0	24.5	2.5	P7274-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D151
		130	170	200	340	100	6500	21.5	5.2	10.0	24.5	2.1	P7229-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D201
		140	180	220	360	100	6500	21.5	5.3	10.0	24.5	2.2	P7230-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D221
		150	200	240	395	100	6500	21.5	5.4	10.0	24.5	2.3	P7231-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D241
		175	225	270	455	100	6500	21.5	5.6	10.0	24.5	2.5	P7232-ND	1.01	8.64	72.00	410.00	384.00/M	372.00/M	ERZ-V20D271
		210	270	330	545	100	6500	21.5	5.9	10.0	24.5	2.8	P7233-ND	1.49	12.75	106.25	606.00	567.00/M	548.00/M	ERZ-V20D331
		230	300	360	595	100	6500	21.5	6.1	10.0	24.5	3.0	P7275-ND	1.49	12.75	106.25	606.00	567.00/M	548.00/M	ERZ-V20D361
		250	320	390	650	100	6500	21.5	6.2	10.0	24.5	3.1	P7276-ND	1.49	12.75	106.25	606.00	567.00/M	548.00/M	ERZ-V20D391
		275	350	430	710	100	6500	21.5	6.4	10.0	24.5	3.3	P7277-ND	1.49	12.75	106.25	606.00	567.00/M	548.00/M	ERZ-V20D431
		300	385	470	775	100	6500	21.5	6.6	10.0	24.5	3.5	P7234-ND	1.49	12.75	106.25	606.00	567.00/M	548.00/M	ERZ-V20D471
		320	410	510	845	100	6500	21.5	6.8	10.0	24.5	3.7	P7235-ND	1.49	12.75	106.25	606.00	567.00/M	548.00/M	ERZ-V20D511
		385	505	620	1025	100	6500	22.5	7.5	10.0	25.5	4.4	P7278-ND	2.36	20.25	168.75	962.00	900.00/M	871.00/M	ERZ-V20D621
		420	560	680	1120	100	6500	22.5	7.8	10.0	25.5	4.7	P7279-ND	2.36	20.25	168.75	962.00	900.00/M	871.00/M	ERZ-V20D681
		460	615	750	1240	100	6500	22.5	8.2	10.0	25.5	5.1	P7280-ND	2.36	20.25	168.75	962.00	900.00/M	871.00/M	ERZ-V20D751
		510	670	820	1355	100	6500	22.5	8.5	10.0	25.5	5.4	P7236-ND	2.36	20.25	168.75	962.00	900.00/M	871.00/M	ERZ-V20D821
		550	745	910	1500	100	6500	22.5	9.0	10.0	25.5	5.9	P7237-ND	3.12	26.76	223.00	1271.00	1189.00/M	1151.00/M	ERZ-V20D911
		625	825	1000	1650	100	6500	22.5	9.5	10.0	25.5	6.4	P7281-ND	3.12	26.76	223.00	1271.00	1189.00/M	1151.00/M	ERZ-V20D102
		680	895	1100	1815	100	6500	22.5	10.1	10.0	25.5	7.0	P7238-ND	3.12	26.76	223.00	1271.00	1189.00/M	1151.00/M	ERZ-V20D112
		1200	1580	1800	2970	100	6500	23.5	14.8	15.0	28.0	10.7	P7239-ND	4.85	41.61	346.75	1976.00	1849.00/M	1789.00/M	ERZ-V20D182
5	D	11	14	18	40	1	100	7.5	4.5	5.0	10.0	1.5	P7136-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK180
		14	18	22	48	1	100	7.5	4.5	5.0	10.0	1.5	P7005-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK220
		17	22	27	60	1	100	7.5	4.5	5.0	10.0	1.5	P7010-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK270
		20	26	33	73	1	100	7.5	4.5	5.0	10.0	1.5	P7015-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK330
		25	31	39	86	1	100	7.5	4.5	5.0	10.0	1.5	P7020-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK390
		30	38	47	104	1	100	7.5	4.5	5.0	10.0	1.5	P7025-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK470
		35	45	56	123	1	100	7.5	4.5	5.0	10.0	1.5	P7030-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK560
		40	56	68	150	1	100	7.5	4.5	5.0	10.0	1.5	P7035-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK680
		75	100	120	210	5	400	7.0	4.8	5.0	10.0	1.8	P7050-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK121
		140	180	220	380	5	400	7.0	5.3	5.0	10.0	2.1	P7065-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK221U*
		150	200	240	415	5	400	7.0	5.4	5.0	10.0	2.2	P7070-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK241U
		175	225	270	475	5	400	7.0	5.6	5.0	10.0	2.4	P7075-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK271U*
		230	300	360	620	5	400	7.0	6.2	5.0	10.0	3.0	P7080-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK361U*
		275	350	430	745	5	400	7.0	6.7	5.0	10.0	3.5	P7090-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK431U*
		300	385	470	810	5	400	7.0	7.0	5.0	10.0	3.8	P7095-ND	.42	3.60	30.00	171.00	160.00/M	155.00/M	ERZ-C05DK471U*
7	D	11	14	18	36	2.5	250	9.0	4.5	5.0	12.0	1.3	P7137-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK180
		14	18	22	43	2.5	250	9.0	4.6	5.0	12.0	1.4	P7141-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK220
		17	22	27	53	2.5	250	9.0	4.7	5.0	12.0	1.5	P7155-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK270
		25	31	39	77	2.5	250	9.0	4.8	5.0	12.0	1.7	P7145-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK390

* UL approved model available with your indication of suffix "U." File No. E62674 Across the line varistor. File No. E86821 Transient Voltage surge suppressor

G

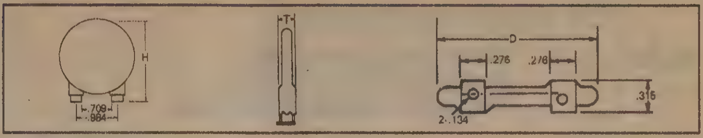
Series	Type	Max. Allow. Volt. (V)		Varistor Volt. ±10% (V)	Max. Clamp Volt. @ Test Current (8x20μsec.)		Surge Current (A)	Dimensions (mm)					Digi-Key Part No.	Pricing						Panasonic Part No.
		AC	DC		Vc(V)	Ip(A)		D Max.	T Max.	W ±1	H Max.	L ±1		1	10	100	1,000	5,000	10,000	
7	D	30	38	47	93	2.5	250	9.0	4.9	5.0	12.0	1.8	P7147-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK470
		60	85	100	165	10	1200	9.0	4.7	5.0	12.0	1.6	P7046-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK101
		95	125	150	250	10	1200	9.0	5.0	5.0	12.0	2.0	P7056-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK151
		130	170	200	340	10	1200	9.0	5.2	5.0	12.0	2.0	P7061-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK201U*
		140	180	220	360	10	1200	9.0	5.3	5.0	12.0	2.1	P7066-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK221U*
		150	200	240	395	10	1200	9.0	5.4	5.0	12.0	2.2	P7071-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK241U*
		175	225	270	455	10	1200	9.0	5.6	5.0	12.0	2.4	P7076-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK271U*
		230	300	360	595	10	1200	9.0	6.2	5.0	12.0	3.0	P7081-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK361U*
		250	320	390	650	10	1200	9.0	6.4	5.0	12.0	3.2	P7086-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK391U*
		275	350	430	710	10	1200	9.0	6.7	5.0	12.0	3.5	P7091-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK431U*
		300	385	470	775	10	1200	9.0	7.0	5.0	12.0	3.8	P7096-ND	.46	3.90	32.50	185.00	173.00/M	168.00/M	ERZ-C07DK471U*
10	D	11	14	18	36	5	500	13.5	4.6	7.5	16.5	1.3	P7138-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK180U
		14	18	22	43	5	500	13.5	4.7	7.5	16.5	1.4	P7007-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK220
		20	26	33	65	5	500	13.5	5.0	7.5	16.5	1.7	P7017-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK330
		25	31	39	77	5	500	13.5	5.1	7.5	16.5	1.8	P7022-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK390
		35	45	56	110	5	500	13.5	5.1	7.5	16.5	1.9	P7032-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK560
		40	56	68	135	5	500	13.5	5.3	7.5	16.5	2.2	P7037-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK680
		50	65	82	135	25	2500	13.5	5.3	7.5	16.5	2.2	P7042-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK820
		60	85	100	165	25	2500	13.5	5.1	7.5	16.5	1.8	P7047-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK101
		75	100	120	200	25	2500	13.5	5.2	7.5	16.5	2.0	P7052-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK121
		95	125	150	250	25	2500	13.5	5.5	7.5	16.5	2.2	P7057-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK151
		140	180	220	360	25	2500	13.5	5.7	7.5	16.5	2.3	P7067-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK221U*
		150	200	240	395	25	2500	13.5	5.8	7.5	16.5	2.4	P7072-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK241U*
		175	225	270	455	25	2500	13.5	6.1	7.5	16.5	2.6	P7077-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK271U*
		230	300	360	595	25	2500	14.0	6.7	7.5	17.0	3.2	P7082-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK361U*
		250	320	390	650	25	2500	14.0	6.8	7.5	17.0	3.4	P7087-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK391U*
		275	350	430	710	25	2500	14.0	7.2	7.5	17.0	3.7	P7092-ND	.63	5.40	45.00	257.00	240.00/M	232.00/M	ERZ-C10DK431U*
		385	505	620	1025	25	2500	14.0	7.2	7.5	17.0	3.8	P7100-ND	.88	7.50	62.50	356.00	333.00/M	323.00/M	ERZ-C10DK621U*
		420	560	680	1120	25	2500	14.0	7.6	7.5	17.0	4.1	P7103-ND	.88	7.50	62.50	356.00	333.00/M	323.00/M	ERZ-C10DK681U*
		510	670	820	1355	25	2500	14.0	8.1	7.5	17.0	4.7	P7112-ND	.88	7.50	62.50	356.00	333.00/M	323.00/M	ERZ-C10DK821U*
		550	745	910	1500	25	2500	14.0	8.6	7.5	17.0	5.2	P7115-ND	1.10	9.45	78.75	449.00	420.00/M	406.00/M	ERZ-C10DK911U*
		625	825	1000	1650	25	2500	14.0	9.0	7.5	17.0	5.6	P7118-ND	1.10	9.45	78.75	449.00	420.00/M	406.00/M	ERZ-C10DK102U*
		680	895	1100	1815	25	2500	14.0	9.5	7.5	17.0	6.1	P7121-ND	1.10	9.45	78.75	449.00	420.00/M	406.00/M	ERZ-C10DK112U*
14	D	11	14	18	36	10	1000	17.0	4.6	7.5	20.0	1.3	P7139-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK180
		14	18	22	43	10	1000	17.0	4.7	7.5	20.0	1.4	P7008-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK220
		20	26	33	65	10	1000	17.0	5.0	7.5	20.0	1.7	P7018-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK330
		25	31	39	77	10	1000	17.0	5.1	7.5	20.0	1.8	P7023-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK390
		30	38	47	93	10	1000	17.0	5.0	7.5	20.0	1.7	P7028-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK470
		35	45	56	110	10	1000	17.0	5.1	7.5	20.0	1.9	P7033-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK560
		40	56	68	135	10	1000	17.0	5.3	7.5	20.0	2.2	P7038-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK680
		50	65	82	135	50	4500	17.0	5.0	7.5	20.0	1.6	P7043-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK820
		60	85	100	165	50	4500	17.0	5.1	7.5	20.0	1.8	P7048-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK101
		75	100	120	200	50	4500	17.0	5.2	7.5	20.0	2.0	P7053-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK121
		95	125	150	250	50	4500	17.0	5.5	7.5	20.0	2.2	P7058-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK151
		130	170	200	340	50	4500	17.0	5.6	7.5	20.0	2.2	P7063-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK201U*
		140	180	220	360	50	4500	17.0	5.7	7.5	20.0	2.3	P7068-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK221U*
		150	200	240	395	50	4500	17.0	5.8	7.5	20.0	2.4	P7073-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK241U*
		175	225	270	455	50	4500	17.0	6.1	7.5	20.0	2.6	P7078-ND	.81	6.90	57.50	328.00	307.00/M	297.00/M	ERZ-C14DK271U*
		230	300	360	595	50	4500	17.5	6.7	7.5	20.5	3.2	P7083-ND	.82	6.99	58.25	332.00	311.00/M	301.00/M	ERZ-C14DK361U*
		250	320	390	650	50	4500	17.5	6.8	7.5	20.5	3.4	P7088-ND	.82	6.99	58.25	332.00	311.00/M	301.00/M	ERZ-C14DK391U*
		275	350	430	710	50	4500	17.5	7.2	7.5	20.5	3.7	P7093-ND	.82	6.99	58.25	332.00	311.00/M	301.00/M	ERZ-C14DK431U*
		385	505	620	1025	50	4500	17.5	7.2	7.5	20.5	3.8	P7101-ND	1.52	12.99	108.25	617.00	577.00/M	559.00/M	ERZ-C14DK621U*
		420	560	680	1120	50	4500	17.5	7.5	7.5	20.5	4.1	P7104-ND	1.52	12.99	108.25	617.00	577.00/M	559.00/M	ERZ-C14DK681U*
		460	615	750	1240	50	4500	17.5	7.8	7.5	20.5	4.4	P7107-ND	1.52	12.99	108.25	617.00	577.00/M	559.00/M	ERZ-C14DK751U*
		510	670	820	1355	50	4500	17.5	8.1	7.5	20.5	4.7	P7113-ND	1.52	12.99	108.25	617.00	577.00/M	559.00/M	ERZ-C14DK821U*
		680	895	1100	1815	50	4500	17.5	9.5	7.5	20.5	6.1	P7122-ND	1.73	14.79	123.25	703.00	657.00/M	636.00/M	ERZ-C14DK112U*
		1000	1465	1800	2970	50	4500	17.5	14.0	15.0	22.0	9.5	P7124-ND	2.88	24.72	206.00	1174.00	1099.00/M	1063.00/M	ERZ-C14DK182U*
20	D	14	18	22	43	20	2000	23.0	5.2	10.0	27.0	1.6	P7142-ND	1.19	10.20	85.00	485.00	453.00/M	439.00/M	ERZ-C20DK220
		20	26	33	65	20	2000	23.0	5.5	10.0	27.0	1.9	P7144-ND	1.19	10.20	85.00	485.00	453.00/M	439.00/M	ERZ-C20DK330
		25	31	39	77	20	2000	23.0	5.5	10.0	27.0	1.9	P7146-ND	1.19	10.20	85.00	485.00	453.00/M	439.00/M	ERZ-C20DK390
		40	56	68	135	20	2000	23.0	5.8	10.0	27.0	2.4	P7152-ND	1.19	10.20	85.00	485.00	453.00/M	439.00/M	ERZ-C20DK680
		50	65	82	135	100	6500	23.0	5.5	10.0	27.0	1.8	P7154-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK820
		60	85	100	165	100	6500	23.0	5.6	10.0	27.0	2.0	P7049-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK101
		75	100	120	200	100	6500	23.0	5.7	10.0	27.0	2.2	P7054-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK121
		130	170	200	340	100	6500	23.0	6.0	10.0	27.0	2.4	P7064-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK201U*
		140	180	220	360	100	6500	23.0	6.2	10.0	27.0	2.6	P7069-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK221U*
		150	200	240	395	100	6500	23.0	6.3	10.0	27.0	2.7	P7074-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK241U*
		175	225	270	455	100	6500	23.0	6.5	10.0	27.0	2.9	P7079-ND	1.13	9.69	80.75	460.00	431.00/M	417.00/M	ERZ-C20DK271U*
		230	300	360	595	100	6500	24.0	7.2	10.0	28.0	3.5	P7084-ND	1.67	14.28	119.00	678.00	635.00/M	614.00/M	ERZ-C20DK361U*
		275	350	430	710	100	6500	24.0	7.7	10.0	28.0	4.0	P7094-ND	1.67	14.28	119.00	678.00	635.00/M	614.00/M	ERZ-C20DK431U*
		300	385	470	775	100	6500	24.0	8.0	10.0	28.0	4.3	P7099-ND	1.67	14.28	119.00	678.00	635.00/M	614.00/M	ERZ-C20DK471U*
		385	505	620	1025	100	6500	24.0	7.6	10.0	28.0	4.1	P7102-ND	2.65	22.68	189.00	1077.00	1008.00/M	975.00/M	ERZ-C20DK621U*
		420	560	680	1120	100	6500	24.0	7.9	10.0	28.0	4.4	P7105-ND	2.65	22.68	189.00	1077.00	1008.00/M	975.00/M	ERZ-C20DK681U*
		460	615	750	1240	100	6500	24.0	8.3	10.0	28.0	4.8	P7108-ND	2.65	22.68	189.00	1077.00	1008.00/M	975.00/M	ERZ-C20DK751U*
		550	745	910	1500	100	6500	24.0	9.1	10.0	28.0	5.6	P7117-ND	3.50	29.97	249.75	1424.00	1332.00/M	1289.00/M	ERZ-C20DK911U*
		625	825	1000	1650	100	6500	24.0	9.5	10.0	28.0	6.0	P7120-ND	3.12	26.70	222.50	1268.00	1187.00/M	1148.00/M	ERZ-C20DK102U*
		1000	1465	1800	2970	100	6500	25.0	14.0	15.0	30.0	9.5	P7125-ND	4.98	42.72	356.00	2029.00	1899.00/M	1837.00/M	ERZ-C20DK182U*
20	E	130	170	200	340	100	8000	—	—	48.0	42.0	39.0	P7126-ND	17.33	148.55	1237.88	7056.00	6602.00/M	6387.00/M	ERZ-C20EK201
		150	200	240	395	100	8000	—	—	48.0	42.0	39.0	P7127-ND	17.33	148.55	1237.88	7056.00	6602.00/M	6387.00/M	ERZ-C20EK241
		250	320	390	650	100	8000	—	—	48.0	42.0	39.0	P7128-ND	20.63	176.84	1473.64	8400.00	7859.00/M	7604.00/M	ERZ-C20EK391
25	E	130	170	200	340	150	15000	—	—	60.0	55.0	51.0	P7129-ND	30.92	265.04	2208.64	12589.00	11779.00/M	11397.00/M	ERZ-C25EK201
		150	200	240	395	150	15000	—	—	60.0	55.0	51.0	P7130-ND	30.92	265.04	2208.64	12589.00	11779.00/M	11397.00/M	ERZ-C25EK241
		250	320	390	650	150	15000	—	—	60.0	55.0	51.0	P7131-ND	36.81	315.54	2629.48	14988.00	14024.00/M	13568.00/M	ERZ-C25EK391
		510	670	820	1355	150	15000	—	—	60.0	55.0	51.0	P7157-ND	38.04	326.02	2716.84	15486.00	14490.00/M	14019.00/M	ERZ-C25EK821
32	E	130	170	200	340	200	25000	—	—	60.0	55.0	51.0	P7132-ND	38.37	328.84	2740.36	15620.00	14615.00/M	14140.00/M	ERZ-C32EK201
		150	200	240	395	200	25000	—	—	60.0	55.0	51.0	P7133-ND	38.37	328.84	2740.36	15620.00	14615.00/M	14140.00/M	ERZ-C32EK241
		250	320	390	650	200	25000	—	—	60.0	55.0	51.0	P7134-ND	39.91	342.05	2850.40	16247.00	15202.00/M	14708.00/M	ERZ-C32EK391
		550	1500	910	1500	200	25000	—	—	60.0	55.0	51.0	P7135-ND	52.80	452.56	3771.32	21497.00	20114.00/M	19460.00/M	ERZ-C32EK911

* UL approved model available with your indication of suffix "U." File No. E62674 Across the line varistor. File No. E86821 Transient Voltage surge suppressor.

Panasonic® "ZNR" With Tabs, Type C Series 32 and 40

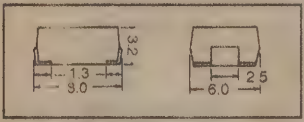
These are heavy duty type ZNR with very unique tab terminals which are used as electrical connecting terminals and also its mounting legs. This ZNR is meant for application in power supplies or transient voltage surge suppressor units where high surge current or high surge energy absorption is required.

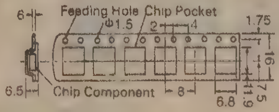
Features:
● High energy handling capability (210 to 710 joules). ● Large withstanding surge current (25 to 30kA). ● Compact size. ● Common terminals for electrical connection and mounting. ● UL recognized.

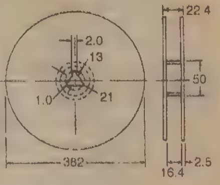


Series	Type	Max. Allow. Volt. (V) AC	DC	Varistor Volt. ±10% (V)	Max. Clamp Volt. @ Test Current (8x20µsec.) Vc(V)	Lp(A)	Surge Current (kA)	Dimensions (in.) D max.	T ±.039	H max.	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
32	C	130	170	200	340	200	25	1.417	.295	1.811	P7158-ND	13.92	119.31	994.28	5667.00	5303.00/M	5130.00/M	ERZ-C32CK201B
		150	200	240	395	200	25	1.417	295	1.811	P7159-ND	13.92	119.31	994.28	5667.00	5303.00/M	5130.00/M	ERZ-C32CK241B
		230	300	360	595	200	25	1.417	.354	1.811	P7160-ND	14.90	127.75	1064.56	6068.00	5678.00/M	5493.00/M	ERZ-C32CK361B
		250	320	390	650	200	25	1.417	.354	1.811	P7161-ND	14.90	127.75	1064.56	6068.00	5678.00/M	5493.00/M	ERZ-C32CK391B
		275	350	430	710	200	25	1.417	.354	1.811	P7162-ND	14.90	127.75	1064.56	6068.00	5678.00/M	5493.00/M	ERZ-C32CK431B
		385	505	620	1025	200	25	1.417	.382	1.811	P7163-ND	16.81	144.08	1200.64	6844.00	6403.00/M	6195.00/M	ERZ-C32CK621B
		420	560	680	1120	200	25	1.417	.382	1.811	P7164-ND	16.81	144.08	1200.64	6844.00	6403.00/M	6195.00/M	ERZ-C32CK681B
		460	615	750	1240	200	25	1.417	.453	1.811	P7165-ND	16.81	144.08	1200.64	6844.00	6403.00/M	6195.00/M	ERZ-C32CK751B
		485	640	780	1290	200	25	1.417	.453	1.811	P7166-ND	16.81	144.08	1200.64	6844.00	6403.00/M	6195.00/M	ERZ-C32CK781B
		510	670	820	1355	200	25	1.417	.453	1.811	P7167-ND	18.32	157.01	1308.44	7458.00	6978.00/M	6752.00/M	ERZ-C32CK821B
		550	745	910	1500	200	25	1.417	.453	1.811	P7168-ND	19.70	168.84	1407.00	8020.00	7504.00/M	7260.00/M	ERZ-C32CK911B
40	C	130	170	200	340	250	30	1.732	.295	1.969	P7169-ND	20.88	178.95	1491.28	8500.00	7953.00/M	7695.00/M	ERZ-C40CK201B
		150	200	240	395	250	30	1.732	.295	1.969	P7170-ND	20.88	178.95	1491.28	8500.00	7953.00/M	7695.00/M	ERZ-C40CK241B
		230	300	360	595	250	30	1.732	.354	1.969	P7171-ND	22.26	190.78	1589.84	9062.00	8479.00/M	8204.00/M	ERZ-C40CK361B
		250	320	390	650	250	30	1.732	.354	1.969	P7172-ND	22.26	190.78	1589.84	9062.00	8479.00/M	8204.00/M	ERZ-C40CK391B
		275	350	430	710	250	30	1.732	.354	1.969	P7173-ND	22.26	190.78	1589.84	9062.00	8479.00/M	8204.00/M	ERZ-C40CK431B
		385	505	620	1025	250	30	1.732	.382	1.969	P7174-ND	26.13	223.98	1866.48	10639.00	9955.00/M	9631.00/M	ERZ-C40CK621B
		420	560	680	1120	250	30	1.732	.382	1.969	P7175-ND	26.13	223.98	1866.48	10639.00	9955.00/M	9631.00/M	ERZ-C40CK681B
		460	615	750	1240	250	30	1.732	.453	1.969	P7176-ND	26.13	223.98	1866.48	10639.00	9955.00/M	9631.00/M	ERZ-C40CK751B
		485	640	780	1290	250	30	1.732	.453	1.969	P7177-ND	26.13	223.98	1866.48	10639.00	9955.00/M	9631.00/M	ERZ-C40CK781B
		510	670	820	1355	250	30	1.732	.453	1.969	P7178-ND	27.18	232.98	1941.52	11067.00	10355.00/M	10018.00/M	ERZ-C40CK821B
		550	745	910	1500	250	30	1.732	.453	1.969	P7179-ND	28.49	244.24	2035.32	11601.00	10855.00/M	10502.00/M	ERZ-C40CK911B

Panasonic® "ZNR" Chip Type
Type CF & SF Surface Mount







Features:
- Designed for flow/reflow soldering
- Excellent response against high steep surge voltage
- Compact package with large withstanding surge capability
- Low Clamping Voltage for better surge protection
- SF Type has the ability to withstand 2 or 3 times the surge current of the CF Type

Suggestions for Handling:
Flow Soldering: Recommended condition: 260°C within 5 seconds. Suggestions: Gas removal is recommended to keep good solderability at high mounting density of components. Reflow Soldering: Recommended condition: 230°C within 10 seconds. Suggestions: If land is too large in comparison with the size of the terminal surface, part may be ill situated at solder melting.

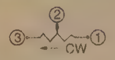
Type	Varistor Voltage ±10% (V)	Maximum Allowable Voltage (V) AC	DC	Maximum* Clamping Voltage Vxa(V)	Rated Power (W)	Energy (2ms) (J)	Maximum† Peak Current	Digi-Key Part No.	Pricing 10	100	1,000	Digi-Key Part No.	Tape & Reel Pricing 2,000	6,000	10,000	Panasonic Part No.
SF	22	14	18	43	0.02	0.9	125	P220ZSCT-ND	16.87	141.52	1143.00	P220ZSTR-ND	778.00/M	726.00/M	680 00/M	ERZ-SF2MK220
	27	17	22	53	0.02	1.0	125	P270ZSCT-ND	16.87	141.52	1143.00	P270ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK270
	33	20	26	65	0.02	1.2	125	P330ZSCT-ND	16.87	141.52	1143.00	P330ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK330
	39	25	31	77	0.02	1.5	125	P390ZSCT-ND	16.87	141.52	1143.00	P390ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK390
	47	30	38	93	0.02	1.8	125	P470ZSCT-ND	16.87	141.52	1143.00	P470ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK470
	56	35	45	110	0.02	2.2	125	P560ZSCT-ND	16.87	141.52	1143.00	P560ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK560
	68	40	56	135	0.02	2.5	125	P680ZSCT-ND	16.87	141.52	1143.00	P680ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK680
	82	50	65	135	0.25	3.5	600	P820ZSCT-ND	16.87	141.52	1143.00	P820ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK820
	120	75	100	200	0.25	5.0	600	P121ZSCT-ND	16.87	141.52	1143.00	P121ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK121
	220	140	180	360	0.25	9.0	600	P221ZSCT-ND	16.87	141.52	1143.00	P221ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK221
	240	150	200	395	0.25	10.0	600	P241ZSCT-ND	16.87	141.52	1143.00	P241ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK241
	270	175	225	455	0.25	12.0	600	P271ZSCT-ND	16.87	141.52	1143.00	P271ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK271
	390	250	320	650	0.25	12.0	400	P391ZSCT-ND	16.87	141.52	1143.00	P391ZSTR-ND	778 00/M	726.00/M	680.00/M	ERZ-SF2MK391
	470	300	385	775	0.25	12.0	400	P471ZSCT-ND	16.87	141.52	1143.00	P471ZSTR-ND	778.00/M	726.00/M	680.00/M	ERZ-SF2MK471
CF	22	14	18	48	0.01	0.4	50	P220ZFCT-ND	15.52	130.17	1051.00	P220ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK220
	27	17	22	60	0.01	0.5	50	P270ZFCT-ND	15.52	130.17	1051.00	P270ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK270
	33	20	26	73	0.01	0.6	50	P330ZFCT-ND	15.52	130.17	1051.00	P330ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK330
	39	25	31	86	0.01	0.8	50	P390ZFCT-ND	15 52	130.17	1051.00	P390ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK390
	47	30	38	104	0.01	1.0	50	P470ZFCT-ND	15.52	130.17	1051.00	P470ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK470
	56	35	45	123	0.01	1.0	50	P560ZFCT-ND	15.52	130.17	1051.00	P560ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK560
	68	40	56	150	0.01	1.2	50	P680ZFCT-ND	15.52	130.17	1051.00	P680ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK680
	82	50	65	145	0.1	1.7	200	P820ZFCT-ND	15.52	130.17	1051.00	P820ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK820
	100	60	85	175	0.1	2.0	200	P101ZFCT-ND	15.52	130.17	1051.00	P101ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK101
	120	75	100	210	0.1	2.5	200	P121ZFCT-ND	15.52	130.17	1051.00	P121ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK121
	150	95	125	200	0.1	3.0	200	P151ZFCT-ND	15.52	130.17	1051.00	P151ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK151
	200	130	170	355	0.1	4.0	200	P201ZFCT-ND	15.52	130.17	1051.00	P201ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK201
	220	140	180	380	0.1	4.5	200	P221ZFCT-ND	15.52	130.17	1051.00	P221ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK221
	240	150	200	415	0.1	5.0	200	P241ZFCT-ND	15.52	130.17	1051.00	P241ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK241
	270	175	225	475	0.1	6.0	200	P271ZFCT-ND	15.52	130.17	1051.00	P271ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK271
	360	230	300	620	0.1	6.0	200	P361ZFCT-ND	15.52	130.17	1051.00	P361ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK361
	390	260	320	675	0.1	6.0	200	P391ZFCT-ND	15.52	130.17	1051.00	P391ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK391
	430	275	350	745	0.1	6.3	200	P431ZFCT-ND	15.52	130.17	1051.00	P431ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK431
	470	300	385	810	0.1	7.0	200	P471ZFCT-ND	15.52	130.17	1051.00	P471ZFTR-ND	716.00/M	668.00/M	626.00/M	ERZ-CF2MK471

† (8/20 us, 2 times), * Measuring Current of Maximum Clamping Voltage is as follows: For Varistor Voltage of 22 to 68 V: xA=1A, For Varistor Voltage of 82 to 470 V: xA=5A ● Temperature Characteristics of Varistor Voltage 0 to -0.05%/°C ● Operating Temperature Range: -40 to 85°C ● Storage Temperature Range: -40 to 125°C

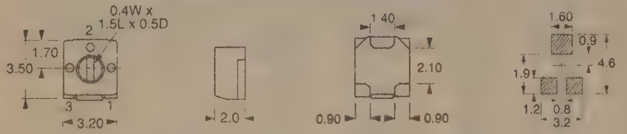
MEPCOPAL / PHILIPS

POTENTIOMETERS

MODEL ST3 SURFACE MOUNT, 3mm SQUARE SINGLE-TURN, CERMET POTENTIOMETERS



MODEL ST3A — TOP ADJUST

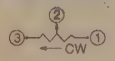


FEATURES: • Sealed to Allow for Automatic Processing • Precious Metal Alloy Contact • Chip Style Design for Compact Size. ***ELECTRICAL:*** **Resistance Range:** 10 Ohms to 1 Meg. Ohms. **Resistance Tolerance:** ±20% Standard. **Temp. Coeff. of Resistance:** 10 Ohms to 50 Ohms ± 250 ppm/°C, 100 Ohms to 1 Meg. Ohm ± 100 ppm/°C. **Power Rating:** 0.125W at 70°C. **Operating Voltage Max.:** 200VDC or Power Rating, Whichever is less. **Wiper Current Max.:** 100mA or Power Rating, Whichever Is Less. **Nom. Electrical Angle:** 210°. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 2 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC. **Dielectic Strength:** 500VAC rms, 1 min., 1 milliamp max. ***MECHANICAL:*** **Nom. Mechanical Angle:** 240°. **Operating Torque:** 50 gram-cm max. (.69 Oz. in.). **Min. Stop Strength:** 200 gram-cm min (2.8 Oz. in.). **Rotational Life:** 100 cycles (▲ R/R ≤ 2 Ω +3%).

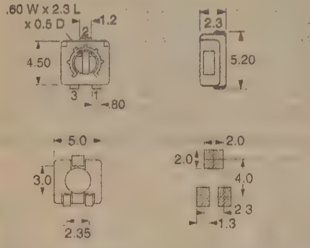
Res. (Ohms)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	T&R* 1,000
1K	ST3A102CT-ND	2.05	18.96	177.75	ST3A102TR-ND	1110.00
2K	ST3A202CT-ND	2.05	18.96	177.75	ST3A202TR-ND	1110.00
5K	ST3A502CT-ND	2.05	18.96	177.75	ST3A502TR-ND	1110.00
10K	ST3A103CT-ND	2.05	18.96	177.75	ST3A103TR-ND	1110.00
20K	ST3A203CT-ND	2.05	18.96	177.75	ST3A203TR-ND	1110.00
50K	ST3A503CT-ND	2.05	18.96	177.75	ST3A503TR-ND	1110.00
100K	ST3A104CT-ND	2.05	18.96	177.75	ST3A104TR-ND	1110.00

Units Marked with Resistance Mark and 1 Digit Date Code. *T&R Denotes Tape & Reel Pricing.

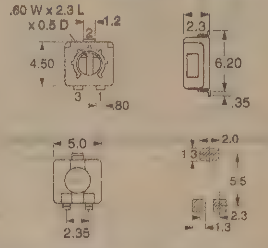
MODEL ST4 SURFACE MOUNT, 4mm SQUARED SINGLE-TURN, CERMET POTENTIOMETERS



MODEL ST4A — J LEAD, TOP ADJUST



MODEL ST4B — GULL WING, TOP ADJUST

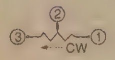


FEATURES: • Sealed to Allow for Automatic Processing • Vertical and Horizontal Adjustment Styles • Precious Metal Alloy Contact • Gull Wing, J Lead and Thru Hole Pin Styles. ***ELECTRICAL:*** **Resistance Range:** 10 Ohms to 2 Meg. Ohms. **Resistance Tolerance:** ±20% Standard. **Temp. Coeff. of Resistance:** 100 Ohms to 2 Meg. ± 100 ppm, other ±250 ppm. **Power Rating:** 1/4W at 70°C. **Operating Voltage Max.:** 200VDC or Power Rating, Whichever is less. **Wiper Current Max.:** 100mA or Power Rating, Whichever is Less. **Nom. Electrical Angle:** 210°. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 2 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC for 2 minutes. **Dielectic Strength:** 500VAC rms, 1 min., 1 milliamp max. ***MECHANICAL:*** **Nom. Mechanical Angle:** 240°. **Operating Torque:** 100 gram-cm max. (1.39 Oz. in.). **Min. Stop Strength:** 300 gram-cm min (4.17 Oz. in.). **Rotational Life:** 100 cycles (▲ R/R ≤ 2 Ω +3%).

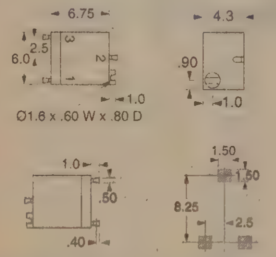
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Digi-Key Part No.	T&R* Pricing 500
1K	ST4A102CT-ND	ST4B102CT-ND	1.59	14.64	137.25	ST4A102TR-ND	ST4B102TR-ND	530.00
2K	ST4A202CT-ND	ST4B202CT-ND	1.46	13.44	126.00	ST4A202TR-ND	ST4B202TR-ND	486.50
5K	ST4A502CT-ND	ST4B502CT-ND	1.59	14.64	137.25	ST4A502TR-ND	ST4B502TR-ND	530.00
10K	ST4A103CT-ND	ST4B103CT-ND	1.46	13.44	126.00	ST4A103TR-ND	ST4B103TR-ND	486.50
20K	ST4A203CT-ND	ST4B203CT-ND	1.59	14.64	137.25	ST4A203TR-ND	ST4A203TR-ND	530.00
50K	ST4A503CT-ND	ST4B503CT-ND	1.59	14.64	137.25	ST4A503TR-ND	ST4A503TR-ND	530.00
100K	ST4A104CT-ND	ST4B104CT-ND	1.59	14.64	137.25	ST4A104TR-ND	ST4A104TR-ND	530.00

Units Marked with Resistance Mark and 1 Digit Date Code *T&R Denotes Tape & Reel Pricing.

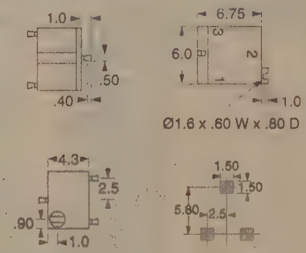
MODEL ST5 SURFACE MOUNT, 6mm SQUARED MULTI-TURN, CERMET POTENTIOMETERS



MODEL ST5P — GULL WING, SIDE ADJUST



MODEL ST5W — GULL WING, TOP ADJUST

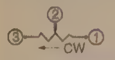


FEATURES: • Sealed to Allow for Automatic Processing • Vertical and Horizontal Mount • Precious Metal Alloy Contact. ***ELECTRICAL:*** **Resistance Range:** 10 Ohms to 2 Meg. Ohms. **Resistance Tolerance:** ±10% Standard. **Temp. Coeff. of Resistance:** 100 Ohms to 2 Meg. ± 100 ppm/°C, others ±250 ppm/°C. **Power Rating:** 1/4W at 85°C. **Operating Voltage Max.:** 200VDC or Power Rating, Whichever is less. **Wiper Current Max.:** 100mA or Power Rating, Whichever Is Less. **Nom. Electrical Angle:** 11 Turns. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 2 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever Is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC for 2 minutes. **Dielectic Strength:** 600VAC rms, 1 min., 1 milliamp max. ***MECHANICAL:*** **Nom. Mechanical Angle:** 14 Turns. **Operating Torque:** 200 gram-cm max. (2.78 Oz. in.). **Min. Stop Strength:** N/A, Wiper Idles. **Rotational Life:** 200 cycles. 10Ω to 200 (▲ R/R ≤ 0.5 Ω +3%), 500Ω to 2MΩ (▲ R/R ≤ 0.5 Ω +2%).

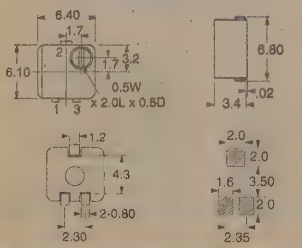
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Digi-Key Part No.	T&R* Pricing 500
1K	ST5P102CT-ND	ST5W102CT-ND	4.81	43.48	370.00	ST5P102TR-ND	ST5W102TR-ND	1645.00
2K	ST5P202CT-ND	ST5W202CT-ND	4.81	43.48	370.00	ST5P202TR-ND	ST5W202TR-ND	1645.00
5K	ST5P502CT-ND	ST5W502CT-ND	4.81	43.48	370.00	ST5P502TR-ND	ST5W502TR-ND	1645.00
10K	ST5P103CT-ND	ST5W103CT-ND	4.81	43.48	370.00	ST5P103TR-ND	ST5W103TR-ND	1645.00
20K	ST5P203CT-ND	ST5W203CT-ND	4.81	43.48	370.00	ST5P203TR-ND	ST5W203TR-ND	1645.00
50K	ST5P503CT-ND	ST5W503CT-ND	4.81	43.48	370.00	ST5P503TR-ND	ST5W503TR-ND	1645.00
100K	ST5P104CT-ND	ST5W104CT-ND	4.81	43.48	370.00	ST5P104TR-ND	ST5W104TR-ND	1645.00

Units Marked with Resistance Mark and 1 Digit Date Code. *T&R Denotes Tape & Reel Pricing.

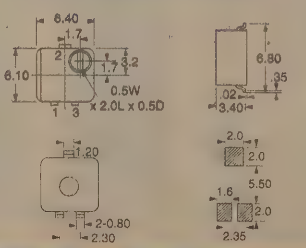
MODEL ST7 SURFACE MOUNT, 7MM SQUARED MULTI-TURN, CERMET POTENTIOMETERS



MODEL ST7A — J LEAD, TOP ADJUST



MODEL ST7B — GULL WING, TOP ADJUST



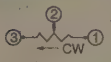
FEATURES: • Sealed to Allow for Automatic Processing • Precious Metal Alloy Contact. ***ELECTRICAL:*** **Resistance Range:** 50 Ohms to 1 Meg. Ohms. **Resistance Tolerance:** ±20% Standard. **Temp. Coeff. of Resistance:** 100 Ohms to 1 Meg. ± 100 ppm/°C, 50Ω ±250 ppm/°C. **Power Rating:** 1/4W at 70°C. **Operating Voltage Max.:** 200VDC or Power Rating, Whichever is less. **Wiper Current Max.:** 100mA or Power Rating, Whichever is Less. **Nom. Electrical Angle:** 2.5 Turns. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 3 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC for 2 minutes. **Dielectic Strength:** 500VAC rms, 1 min., 1 milliamp max. ***MECHANICAL:*** **Nom. Mechanical Angle:** 3 Turns. **Operating Torque:** 50 gram-cm max. (0.70 Oz. in.). **Min. Stop Strength:** N/A, Wiper Idles. **Rotational Life:** 100 cycles (▲ R/R ≤ 2.0 Ω +3%).

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Digi-Key Part No.	T&R* Pricing 500
1K	ST7A102CT-ND	ST7B102CT-ND	5.33	48.18	410.00	ST7A102TR-ND	ST7B102TR-ND	1710.00
2K	ST7A202CT-ND	ST7B202CT-ND	5.33	48.18	410.00	ST7A202TR-ND	ST7B202TR-ND	1710.00
5K	ST7A502CT-ND	ST7B502CT-ND	5.33	48.18	410.00	ST7A502TR-ND	ST7B502TR-ND	1710.00
10K	ST7A103CT-ND	ST7B103CT-ND	5.33	48.18	410.00	ST7A103TR-ND	ST7B103TR-ND	1710.00
20K	ST7A203CT-ND	ST7B203CT-ND	5.33	48.18	410.00	ST7A203TR-ND	ST7B203TR-ND	1710.00
50K	ST7A503CT-ND	ST7B503CT-ND	5.33	48.18	410.00	ST7A503TR-ND	ST7B503TR-ND	1710.00
100K	ST7A104CT-ND	ST7B104CT-ND	5.33	48.18	410.00	ST7A104TR-ND	ST7B104TR-ND	1710.00

Units Marked with Resistance Mark and 1 Digit Date Code. *T&R Denotes Tape & Reel Pricing.

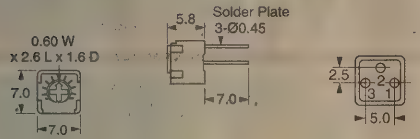
MEPCOPAL / PHILIPS POTENTIOMETERS

MODEL CT6 6mm SQUARED SINGLE TURN, CERMET POTENTIOMETERS

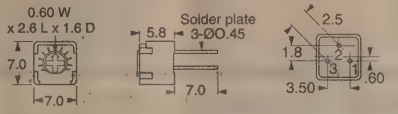


FEATURES: • Sealed to Allow for Automatic Processing • Precious Metal Alloy Contact • Highly Automated Assembly. ***ELECTRICAL:*** **Resistance Range:** 10 Ohms to 2 Meg. Ohms. **Resistance Tolerance:** ±10% Standard. **Temp. Coeff. of Resistance:** 50 Ohms to 2 Meg. ± 100 ppm/°C, others ±250 ppm/°C. **Power Rating:** 1/2W at 70°C. **Operating Voltage Max.**: 200VDC or Power Rating, Whichever is less. **Wiper Current Max.**: 100mA or Power Rating, Whichever is Less. **Nom. Electrical Angle:** 220°. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 2 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC for 2 minutes. **Dielectic Strength:** 900VAC rms, 1 min., 1 milliamp max. ***MECHANICAL:*** **Nom. Mechanical Angle:** 260°. **Operating Torque:** 20-200 gram-cm max. (0.27-2.78 Oz. in.). **Min. Stop Strength:** 500 gram-cm min. (6.94 Oz.-in.). **Rotational Life:** 200 cycles (▲ R/R ≤ 2 Ω +3%) **Solderability:** Mil-Std-202 Method 208. **Min. Terminal Strength:** 1 Kg.

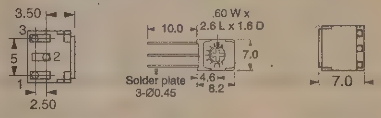
MODEL CT6P — TOP ADJUST



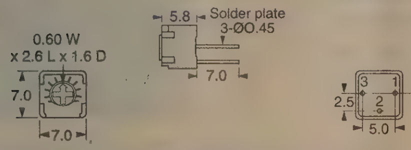
MODEL CT6W — TOP ADJUST



MODEL CT6X — SIDE ADJUST



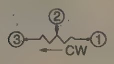
MODEL CT6R — TOP ADJUST



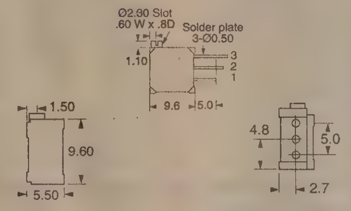
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Pricing 1	10	100	500	1,000
1K	CT6P102-ND	CT6R102-ND	CT6W102-ND	CT6X102-ND	.99	8.58	77.55	330.00	577.50
2K	CT6P202-ND	CT6R202-ND	CT6W202-ND	CT6X202-ND	.99	8.58	77.55	330.00	577.50
5K	CT6P502-ND	CT6R502-ND	CT6W502-ND	CT6X502-ND	.99	8.58	77.55	330.00	577.50
10K	CT6P103-ND	CT6R103-ND	CT6W103-ND	CT6X103-ND	.99	8.58	77.55	330.00	577.50
20K	CT6P203-ND	CT6R203-ND	CT6W203-ND	CT6X203-ND	.99	8.58	77.55	330.00	577.50
50K	CT6P503-ND	CT6R503-ND	CT6W503-ND	CT6X503-ND	.99	8.58	77.55	330.00	577.50
100K	CT6P104-ND	CT6R104-ND	CT6W104-ND	CT6X104-ND	.99	8.58	77.55	330.00	577.50

Units Marked with Resistance Mark and 1 Digit Date Code.

MODEL CT9P 9mm SQUARED MULTI-TURN, CERMET POTENTIOMETERS

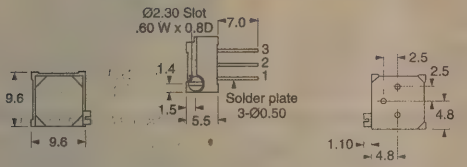


MODEL CT9X — SIDE ADJUST

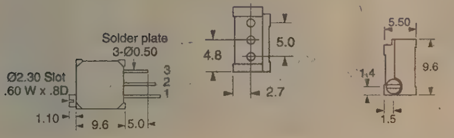


FEATURES: • Sealed to Withstand Board Washing • Precious Metal Contact • Highly Automated Assembly. ***ELECTRICAL:*** **Resistance Range:** 10 Ohms to 5 Meg. Ohms. **Resistance Tolerance:** ±10% Standard. **Temp. Coeff. of Resistance:** 50 Ohms to 2 Meg. ± 100 ppm/°C, others ±250 ppm/°C. **Power Rating:** 1/2W at 70°C. **Operating Voltage Max.**: 300VDC or Power Rating, Whichever is less. **Wiper Current Max.**: 100mA or Power Rating, Whichever is Less. **Nom. Electrical Angle:** 16 Turns. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 2 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC for 2 minutes. **Dielectic Strength:** 900VAC rms, 1 min., 1 milliamp max ***MECHANICAL:*** **Nom. Mechanical Angle:** 18 Turns. **Operating Torque:** 360 gram-cm max. (5 Oz.-in.). **Min. Stop Strength:** N/A, Wiper Idles. **Rotational Life:** 200 cycles, 10 Ω - 200 Ω, ▲ R/R ≤ ± (0.5 Ω + 3%), 500 Ω - 5M Ω ▲ R/R ≤ ± (0.5 Ω + 2%). **Solderability:** Mil-Std-202 Method 208. **Min. Terminal Strength:** 1 Kg.

MODEL CT9P — SIDE ADJUST



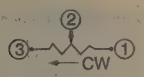
MODEL CT9W — TOP ADJUST



Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Pricing 1	10	100	500	1,000	5,000
1K	CT9P102-ND	CT9W102-ND	CT9X102-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M
2K	CT9P202-ND	CT9W202-ND	CT9X202-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M
5K	CT9P502-ND	CT9W502-ND	CT9X502-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M
10K	CT9P103-ND	CT9W103-ND	CT9X103-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M
20K	CT9P203-ND	CT9W203-ND	CT9X203-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M
50K	CT9P503-ND	CT9W503-ND	CT9X503-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M
100K	CT9P104-ND	CT9W104-ND	CT9X104-ND	1.65	15.51	132.00	610.50	1069.20	976.80/M

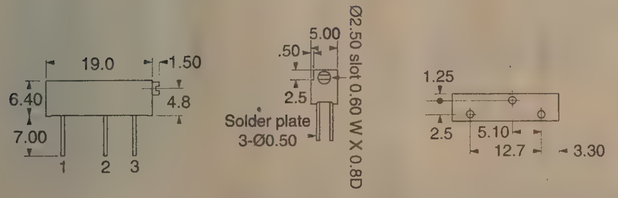
Units Marked with Resistance Mark and 1 Digit Date Code.

MODEL CT20 20mm RECTANGULAR MULTI-TURN, CERMET POTENTIOMETERS



FEATURES: • Sealed to Allow for Automatic Processing • Precious Metal Alloy Contact • Highly Automated Assembly. ***ELECTRICAL:*** **Resistance Range:** 10 Ohms to 5 Meg. Ohms. **Resistance Tolerance:** ±10% Standard. **Temp. Coeff. of Resistance:** 50 Ohms to 2 Meg. ± 100 ppm/°C, others ± 250 ppm/°C. **Power Rating:** 3/4W at 70°C. **Operating Voltage Max.**: 300VDC or Power Rating, Whichever is less. **Wiper Current Max.**: 100mA or Power Rating, Whichever is Less. **Nom. Electrical Angle:** 12 Turns. **Electrical Continuity:** Continuous Over Full Mechanical Range. **End Resistance:** 1% or 2 Ohms, Whichever is Greater. **Resolution:** Essentially Infinite. **Contact Resistance Variation:** 1% or 3 Ohms, Whichever is Greater. **Oper. Temp. Range:** -55°C to +125°C. **Min. Insulation Resistance:** 1000 Meg. at 500VDC for 2 min. **Dielectic Strength:** 600VAC rms, 1 min., 1 milliamp max. ***MECHANICAL:*** **Nom. Mechanical Angle:** 15 Turns. **Operating Torque:** 360 gram-cm max. (5 Oz.-in.). **Min. Stop Strength:** N/A, Wiper Idles. **Rotational Life:** 200 cycles, 10Ω-200Ω ▲ R/R ≤ ± (0.5 Ω + 3%), 500 Ω - 5M Ω ▲ R/R ≤ ± (0.5 Ω + 2%) **Solderability:** Mil-Std-202 Method 208.

MODEL CT20P — SIDE ADJUST



Res. (Ohms)	Digi-Key Part No.	Pricing 1	10	100	500	1000
1K	CT20P102-ND	1.65	15.34	138.65	590.00	1062.00
2K	CT20P202-ND	1.65	15.34	138.65	590.00	1062.00
5K	CT20P502-ND	1.65	15.34	138.65	590.00	1062.00
10K	CT20P103-ND	1.65	15.34	138.65	590.00	1062.00
20K	CT20P203-ND	1.65	15.34	138.65	590.00	1062.00
50K	CT20P503-ND	1.65	15.34	138.65	590.00	1062.00
100K	CT20P104-ND	1.65	15.34	138.65	590 00	1062.00

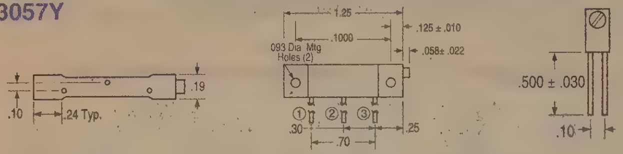
Units Marked with Resistance Mark and 1 Digit Date Code.

BOURNS Trimmer Potentiometers

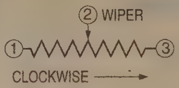
SERIES 3057 1-1/4" RECTANGULAR/MULTITURN (22) WIREWOUND/INDUSTRIAL/SEALED

Resistance Tolerance: ±5% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Travel:** 22 turns nom. **Power Rating:** 70°C — 1 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +150°C. **Temperature Coefficient:** ±50ppm/°C. **Load Life:** 1,000 hours 1 watt @ 70°C (2% ΔTR). **Rotational Life:** 200 cycles (2% ΔTR). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.

3057Y



.19
.10
.24 Typ.
1.25
.1000
.125 ± .010
.058 ± .022
.093 Dia. Mtg. Holes (2)
① ② ③
.30
.70
.25
.500 ± .030
.10



② WIPER
① ③
CLOCKWISE

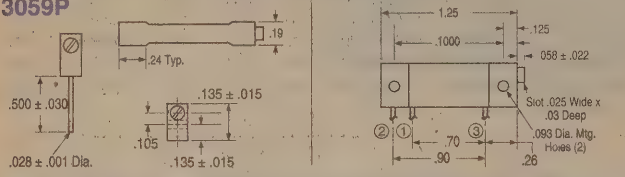
Res. (Ohms)	Digi-Key Part No.	Nominal Resolution (Percent)
200	3057Y-201-ND	0.86
500	3057Y-501-ND	0.89
1K	3057Y-102-ND	0.72
2K	3057Y-202-ND	0.58
5K	3057Y-502-ND	0.43
10K	3057Y-103-ND	0.34
20K	3057Y-203-ND	0.31

Series	Pricing 1	10	100	500	1,000
3057Y	12.91	113.05	993.65	4581.50	8032.50

SERIES 3059 1-1/4" RECTANGULAR/MULTITURN (22) CERMET/INDUSTRIAL/SEALED

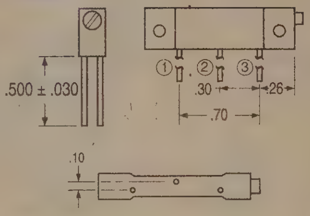
Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 22 turns nom. **Power Rating:** 70°C — 1 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +150°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 1 watt @ 70°C (3% ΔTR; CRV, 1% or 1 ohm, whichever is greater). **Rotational Life:** 200 cycles (2% ΔTR; CRV, 1% or 1 ohm, whichever is greater). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.

3059P



.19
.24 Typ.
.500 ± .030
.028 ± .001 Dia.
.135 ± .015
.105
.135 ± .015
1.25
.125
.1000
.058 ± .022
Slot .025 Wide x .03 Deep
.093 Dia. Mtg. Holes (2)
② ① ③
.70
.90
.26

3059Y



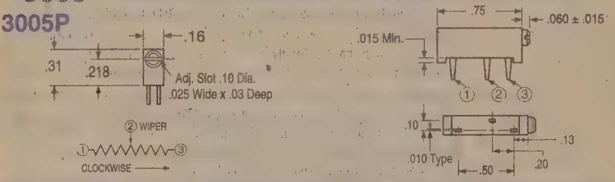
.500 ± .030
① ② ③
.30
.26
.70
.10

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
100	3059P-101-ND	3059Y-101-ND
200	3059P-201-ND	3059Y-201-ND
500	3059P-501-ND	3059Y-501-ND
1K	3059P-102-ND	3059Y-102-ND
2K	3059P-202-ND	3059Y-202-ND
5K	3059P-502-ND	3059Y-502-ND
10K	3059P-103-ND	3059Y-103-ND
20K	3059P-203-ND	3059Y-203-ND
50K	3059P-503-ND	3059Y-503-ND
100K	3059P-104-ND	3059Y-104-ND
200K	3059P-204-ND	3059Y-204-ND
500K	3059P-504-ND	3059Y-504-ND
1M	3059P-105-ND	3059Y-105-ND

Series	Pricing 1	10	100	500	1,000
3059P/3059Y	5.12	44.84	394.12	1817.20	3186.00

SERIES 3005 3/4" RECTANGULAR/MULTITURN (20) WIREWOUND/INDUSTRIAL/SEALED

3005P



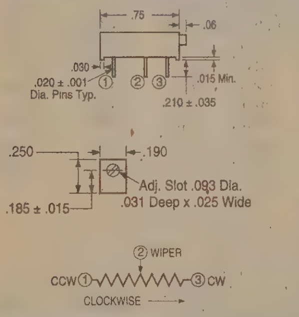
.16
.31
.218
Adj. Slot .10 Dia. .025 Wide x .03 Deep
② WIPER
① ③
CLOCKWISE
.75
.060 ± .015
.015 Min.
① ② ③
.10
.13
.010 Type
.50
.20

Sealed to prevent contamination from fluxing, soldering and cleaning. **Resistance Tolerance:** ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Travel:** 20 turns nom. **Power Rating:** 70°C — 1 watt; 125°C — 0 watt. **Temperature Range:** −65°C to +125°C. **Temperature Coefficient:** ±50ppm/°C. **Load Life:** 1,000 hours 1 watt @ 70°C (3% ΔTR). **Rotational Life:** 200 cycles (4% ΔTR). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.

Res. (Ohms)	Digi-Key Part No.	Nominal Resolution (Percent)
100	3005P-101-ND	0.8
200	3005P-201-ND	0.7
500	3005P-501-ND	0.5
1K	3005P-102-ND	0.5
2K	3005P-202-ND	0.4
5K	3005P-502-ND	0.3
10K	3005P-103-ND	0.3
20K	3005P-203-ND	0.2

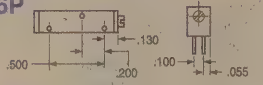
Series	Pricing 1	10	100	500	1,000
3005P	6.14	53.77	452.80	2080.05	3679.00

SERIES 3006 3/4" RECTANGULAR/MULTITURN (15) CERMET/INDUSTRIAL/SEALED



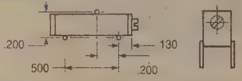
.75
.06
.030
.020 ± .001 Dia. Pins Typ.
① ② ③
.015 Min.
.210 ± .035
.250
.190
Adj. Slot .093 Dia. .031 Deep x .025 Wide
.185 ± .015
② WIPER
CCW ① ③ CW
CLOCKWISE

3006P



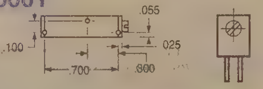
.130
.500
.200
.100
.055

3006W



.200
130
500
.200

3006Y



.055
.100
.025
.700
.600

Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min **Adjustment Angle:** 15 turns nom. **Power Rating** (400 volts max.): 70°C — 0.75 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.75 watt @ 70°C (4% ΔTR). **Rotational Life:** 200 cycles (3% ΔTR; CRV, 1% or 1 ohm, whichever is greater). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.

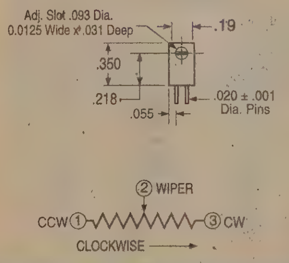
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3006P-101-ND*	3006W-101-ND	3006Y-101-ND
200	3006P-201-ND*	3006W-201-ND	3006Y-201-ND
500	3006P-501-ND*	3006W-501-ND	3006Y-501-ND
1K	3006P-102-ND*	3006W-102-ND	3006Y-102-ND
2K	3006P-202-ND*	3006W-202-ND	3006Y-202-ND
5K	3006P-502-ND*	3006W-502-ND	3006Y-502-ND
10K	3006P-103-ND*	3006W-103-ND	3006Y-103-ND
20K	3006P-203-ND*	3006W-203-ND	3006Y-203-ND
25K	3006P-253-ND*	3006W-253-ND	3006Y-253-ND
50K	3006P-503-ND*	3006W-503-ND	3006Y-503-ND
100K	3006P-104-ND*	3006W-104-ND	3006Y-104-ND
200K	3006P-204-ND*	3006W-204-ND	3006Y-204-ND
250K	3006P-254-ND	3006W-254-ND	3006Y-254-ND
500K	3006P-504-ND*	3006W-504-ND	3006Y-504-ND
1M	3006P-105-ND*	3006W-105-ND	3006Y-105-ND
2M	3006P-205-ND*	3006W-205-ND	3006Y-205-ND

Series	Pricing 1	10	100	500	1,000
3006P/3006W/3006Y	1.37	11.97	105.21	485.10	850.50

* **3006P-KIT-ND** 10 each of values denoted (150 total pieces).
Notebook style storage case and bin storage guide included........159.00

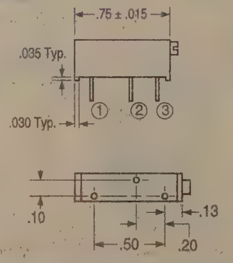
SERIES 3009 3/4" RECTANGULAR/MULTITURN (15) CERMET/INDUSTRIAL/SEALED

Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc 1,000 megohms min. **Adjustment Travel:** 15 turns nom. **Power Rating** (400 volts max.): 70°C — 0.75 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.75 watt @ 70°C (4% ΔTR). **Rotational Life:** 200 cycles (3% ΔTR; CRV, 1% or 1 ohm, whichever is greater). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.



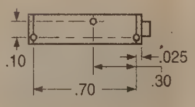
Adj. Slot .093 Dia. 0.0125 Wide x .031 Deep
.19
.350
.218
.055
.020 ± .001 Dia. Pins
② WIPER
CCW ① ③ CW
CLOCKWISE

3009P



.75 ± .015
.035 Typ.
① ② ③
.030 Typ.
.10
.13
.50
.20

3009Y



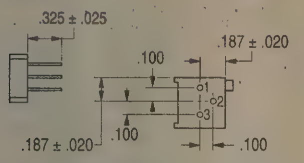
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
100	3009P-101-ND	3009Y-101-ND
200	3009P-201-ND	3009Y-201-ND
500	3009P-501-ND	3009Y-501-ND
1K	3009P-102-ND	3009Y-102-ND
2K	3009P-202-ND	3009Y-202-ND
5K	3009P-502-ND	3009Y-502-ND
10K	3009P-103-ND	3009Y-103-ND
20K	3009P-203-ND	3009Y-203-ND
25K	3009P-253-ND	3009Y-253-ND
50K	3009P-503-ND	3009Y-503-ND
100K	3009P-104-ND	3009Y-104-ND
200K	3009P-204-ND	3009Y-204-ND
500K	3009P-504-ND	3009Y-504-ND
1M	3009P-105-ND	3009Y-105-ND

Series	Pricing 1	10	100	500	1,000
3009P/3009Y	2.16	18.81	165.33	762.30	1336.50

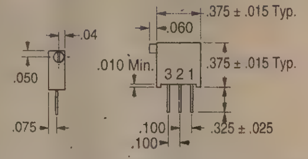
BOURNS Trimmer Potentiometers

SERIES 3292 3/8" SQUARE/MULTITURN (25) CERMET/INDUSTRIAL/SEALED

3292P

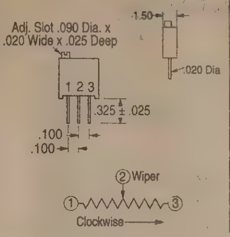

.325 ± .025
.187 ± .020
.100
1
2
3
.187 ± .020
.100
.100

3292X


.04
.050
.075
.375 ± .015 Typ.
.060
.010 Min.
3 2 1
.375 ± .015 Typ.
.100
.100
.325 ± .025

Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 25 turns nom. **Power Rating** (400 volts max.): 85°C — 0.5 watt; 150°C — 0 watt. **Temperature Range:** −65°C to +150°C. **Temperature Coefficient:** ±100 ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 85°C (2% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (2% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.

3292W

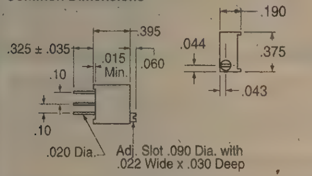

Adj. Slot .090 Dia. x .020 Wide x .025 Deep
1.50
.020 Dia
1 2 3
.325 ± .025
.100
.100
② Wiper
①
③
Clockwise

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3292P-101-ND	3292W-101-ND	3292X-101-ND
200	3292P-201-ND	3292W-201-ND	3292X-201-ND
500	3292P-501-ND	3292W-501-ND	3292X-501-ND
1K	3292P-102-ND	3292W-102-ND	3292X-102-ND
2K	3292P-202-ND	3292W-202-ND	3292X-202-ND
5K	3292P-502-ND	3292W-502-ND	3292X-502-ND
10K	3292P-103-ND	3292W-103-ND	3292X-103-ND
20K	3292P-203-ND	3292W-203-ND	3292X-203-ND
50K	3292P-503-ND	3292W-503-ND	3292X-503-ND
100K	3292P-104-ND	3292W-104-ND	3292X-104-ND
200K	3292P-204-ND	3292W-204-ND	3292X-204-ND
500K	3292P-504-ND	3292W-504-ND	3292X-504-ND
1M	3292P-105-ND	3292W-105-ND	3292X-105-ND

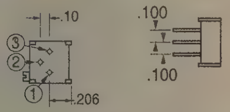
Series	Pricing 1	10	100	500	1,000
3292P/3292W/3292X	12.24	107.16	941.88	4342.80	7614.00

SERIES 3296 3/8" SQUARE/MULTITURN (25) CERMET/INDUSTRIAL/SEALED

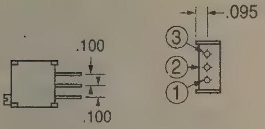
Common Dimensions


.325 ± .035
.395
.015 Min.
.060
.10
.10
.020 Dia.
Adj. Slot .090 Dia. with .022 Wide x .030 Deep
.190
.044
.375
.043

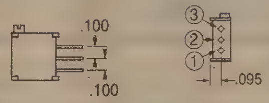
3296P


.10
③
②
①
.206
.100
.100

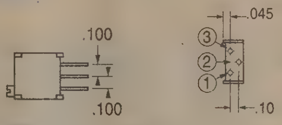
3296W


.100
.100
.095
③
②
①

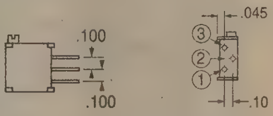
3296X

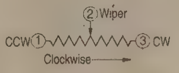

.100
.100
③
②
①
.095

3296Y


.100
.100
.045
③
②
①
.10

3296Z


.100
.100
.045
③
②
①
.10


② Wiper
CCW ①
③ CW
Clockwise

Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 25 tums nom. **Power Rating** (300 volts max.): 70°C — 0.5 watt; 125°C — 0 watt. **Temperature Range:** —55°C to +125°C. **Temperature Coefficient:** ±100 ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Torque:** 3.0 oz-in. max. **Mechanical Stops:** Wiper idles.

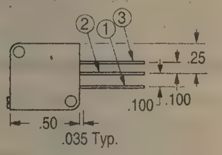
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
10	3296P-100-ND*	3296W-100-ND*	3296X-100-ND*	3296Y-100-ND*	3296Z-100-ND*
20	3296P-200-ND	3296W-200-ND	3296X-200-ND	3296Y-200-ND	3296Z-200-ND
50	3296P-500-ND*	3296W-500-ND*	3296X-500-ND*	3296Y-500-ND*	3296Z-500-ND*
100	3296P-101-ND*	3296W-101-ND*	3296X-101-ND*	3296Y-101-ND*	3296Z-101-ND*
200	3296P-201-ND	3296W-201-ND	3296X-201-ND	3296Y-201-ND	3296Z-201-ND
500	3296P-501-ND*	3296W-501-ND*	3296X-501-ND*	3296Y-501-ND*	3296Z-501-ND*
1K	3296P-102-ND*	3296W-102-ND*	3296X-102-ND*	3296Y-102-ND*	3296Z-102-ND*
2K	3296P-202-ND*	3296W-202-ND*	3296X-202-ND*	3296Y-202-ND*	3296Z-202-ND*
5K	3296P-502-ND*	3296W-502-ND*	3296X-502-ND*	3296Y-502-ND*	3296Z-502-ND*
10K	3296P-103-ND*	3296W-103-ND*	3296X-103-ND*	3296Y-103-ND*	3296Z-103-ND*
20K	3296P-203-ND*	3296W-203-ND*	3296X-203-ND*	3296Y-203-ND*	3296Z-203-ND*
25K	3296P-253-ND	3296W-253-ND	3296X-253-ND	3296Y-253-ND	3296Z-253-ND
50K	3296P-503-ND*	3296W-503-ND*	3296X-503-ND*	3296Y-503-ND*	3296Z-503-ND*
100K	3296P-104-ND*	3296W-104-ND*	3296X-104-ND*	3296Y-104-ND*	3296Z-104-ND*
200K	3296P-204-ND*	3296W-204-ND*	3296X-204-ND*	3296Y-204-ND*	3296Z-204-ND*
250K	3296P-254-ND	3296W-254-ND	3296X-254-ND	3296Y-254-ND	3296Z-254-ND
500K	3296P-504-ND*	3296W-504-ND*	3296X-504-ND*	3296Y-504-ND*	3296Z-504-ND*
1M	3296P-105-ND*	3296W-105-ND*	3296X-105-ND*	3296Y-105-ND*	3296Z-105-ND*
2M	3296P-205-ND*	3296W-205-ND*	3296X-205-ND*	3296Y-205-ND*	3296Z-205-ND*
5M	3296P-505-ND	3296W-505-ND	3296X-505-ND	3296Y-505-ND	3296Z-505-ND

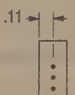
Series	Pricing 1	10	100	500	1,000
3296P/3296Z	3.05	26.07	234.22	1078.00	1891.40
3296W/3296X/3296Y	2.83	24.21	217.49	1001.00	1756.30

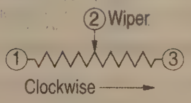
* **3296☐-KIT-ND** 5 each of values denoted in series (75 total pieces). Notebook style case and bin storage guide included. For complete number, substitute corresponding letter (P,W,X,Y,Z) for ☐ **$139.00**

SERIES 3250 1/2" SQUARE/MULTITURN (25) WIREWOUND/SEALED

3250W


②
①
③
.25
.100
.100
.50
.035 Typ.




② Wiper
①
③
Clockwise

Resistance Tolerance: ±5% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Travel:** 25 turns nom. **Power Rating:** 85°C — 1 watt; 150°C — 0 watt. **Temperature Range:** −65°C to +150°C. **Temperature Coefficient:** ±70 ppm/°C. **Load Life:** 1,000 hours 1 watt @ 85°C (2% ΔTR; ENR, 500 ohms). **Rotational Life:** 200 cycles (2% ΔTR; ENR, 500 ohms). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.

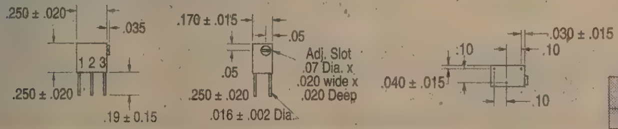
Res. (Ohms)	Digi-Key Part No.	Nominal Resolution (Percent)
200	3250W-201-ND	0.70
500	3250W-501-ND	0.60
1K	3250W-102-ND	0.40
2K	3250W-202-ND	0.30
5K	3250W-502-ND	0.25
10K	3250W-103-ND	0.19
20K	3250W-203-ND	0.16

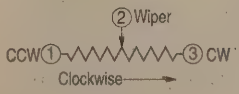
Series	Pricing 1	10	100	500	1,000
3250W	7.27	63.65	559.45	2579.50	4522.50

SERIES 3260 1/4" SQUARE/MULTITURN (11) WIREWOUND/INDUSTRIAL/SEALED

Resistance Tolerance: ±5% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Angle:** 11 turns nom. **Power Rating:** 85°C – 0.25 watt; 150°C – 0 watt. **Temperature Range:** −65°C to +150°C. **Temperature Coefficient:** +70ppm/°C. **Load Life:** 1,000 hours 0.25 watt @ 85°C (2% DTR; ENR, 500 ohms). **Rotational Life:** 200 cycles (2% DTR; ENR, 500 ohms). **Torque:** 3.0 oz-in. max. **Mechanical Stops:** Wiper idles.

3260H


.250 ± .020
.035
1 2 3
.250 ± .020
.19 ± 0.15
.170 ± .015
.05
.05
Adj. Slot .07 Dia. x .020 wide x .020 Deep
.250 ± .020
.016 ± .002 Dia.
.10
.030 ± .015
.10
.040 ± .015
.10


② Wiper
CCW ①
③ CW
Clockwise

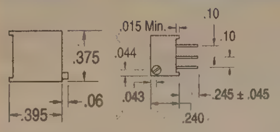
Res. (Ohms)	Digi-Key Part No.	Nominal Resolution (Percent)
100	3260H-101-ND	1.00
200	3260H-201-ND	0.94
500	3260H-501-ND	0.58
1K	3260H-102-ND	0.50
2K	3260H-202-ND	0.45
10K	3260H-103-ND	0.29
20K	3260H-203-ND	0.28

Series	Pricing 1	10	100	500	1,000
3260H	18.05	158.08	1389.44	6406.40	11232.00

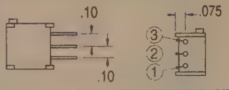
BOURNS INC Trimmer Potentiometers

SERIES 3299 3/8" SQUARE/MULTITURN (25) CERMET/INDUSTRIAL/SEALED

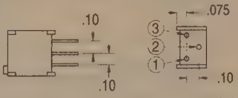
Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 25 turns nom. **Power Rating** (300 volts max.): 70°C – 0.5 watt; 125°C – 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Torque:** 3.0 oz-in. max. **Mechanical Stops:** Wiper idles.



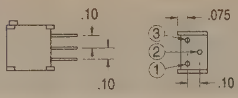
3299X



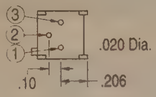
3299Y



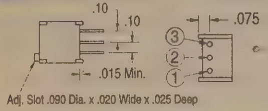
3299Z

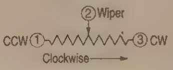


3299P



3299W





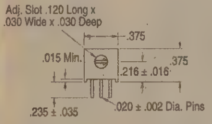
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
10	3299P-100-ND	3299W-100-ND	3299X-100-ND	3299Y-100-ND	3299Z-100-ND
20	3299P-200-ND	3299W-200-ND	3299X-200-ND	3299Y-200-ND	3299Z-200-ND
50	3299P-500-ND	3299W-500-ND	3299X-500-ND	3299Y-500-ND	3299Z-500-ND
100	3299P-101-ND	3299W-101-ND	3299X-101-ND	3299Y-101-ND	3299Z-101-ND
200	3299P-201-ND	3299W-201-ND	3299X-201-ND	3299Y-201-ND	3299Z-201-ND
500	3299P-501-ND	3299W-501-ND	3299X-501-ND	3299Y-501-ND	3299Z-501-ND
1K	3299P-102-ND	3299W-102-ND	3299X-102-ND	3299Y-102-ND	3299Z-102-ND
2K	3299P-202-ND	3299W-202-ND	3299X-202-ND	3299Y-202-ND	3299Z-202-ND
5K	3299P-502-ND	3299W-502-ND	3299X-502-ND	3299Y-502-ND	3299Z-502-ND
10K	3299P-103-ND	3299W-103-ND	3299X-103-ND	3299Y-103-ND	3299Z-103-ND
20K	3299P-203-ND	3299W-203-ND	3299X-203-ND	3299Y-203-ND	3299Z-203-ND
25K	3299P-253-ND	3299W-253-ND	3299X-253-ND	3299Y-253-ND	3299Z-253-ND
50K	3299P-503-ND	3299W-503-ND	3299X-503-ND	3299Y-503-ND	3299Z-503-ND
100K	3299P-104-ND	3299W-104-ND	3299X-104-ND	3299Y-104-ND	3299Z-104-ND
200K	3299P-204-ND	3299W-204-ND	3299X-204-ND	3299Y-204-ND	3299Z-204-ND
250K	3299P-254-ND	3299W-254-ND	3299X-254-ND	3299Y-254-ND	3299Z-254-ND
500K	3299P-504-ND	3299W-504-ND	3299X-504-ND	3299Y-504-ND	3299Z-504-ND
1M	3299P-105-ND	3299W-105-ND	3299X-105-ND	3299Y-105-ND	3299Z-105-ND
2M	3299P-205-ND	3299W-205-ND	3299X-205-ND	3299Y-205-ND	3299Z-205-ND
5M	3299P-505-ND	3299W-505-ND	3299X-505-ND	3299Y-505-ND	3299Z-505-ND

	Pricing				
Series	1	10	100	500	1,000
3299P	3.55	30.32	271.32	1254.00	2200.20
3299W/3299X/3299Y/3299Z	3.30	28.20	252.28	1166.00	2045.80

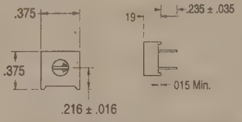
SERIES 3386 3/8" SQUARE/SINGLE-TURN CERMET/INDUSTRIAL/SEALED

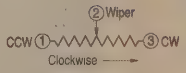
Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Angle:** 280° **Power Rating** (300 volts max.): 85°C – 0.5 watt; 125°C – 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (3% ΔTR; CRV, 1% or 1 ohm, whichever is greater). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 1% or 1 ohm, whichever is greater). **Mechanical Angle:** 310° nom. **Torque:** 5.0 oz-in. max. **Stop Strength:** 15.0 oz-in. min.

Common Dimensions Side Adjust

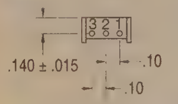


Common Dimensions Top Adjust

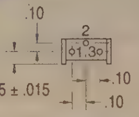




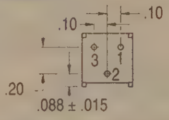
3386C



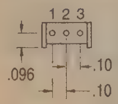
3386H



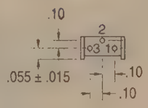
3386F



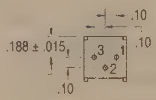
3386W



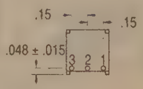
3386X



3386P



3386R



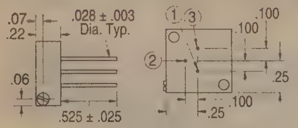
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
50	3386C-500-ND*	3386F-500-ND*	3386H-500-ND	3386P-500-ND*	3386R-500-ND*	3386W-500-ND	3386X-500-ND*
100	3386C-101-ND*	3386F-101-ND*	3386H-101-ND	3386P-101-ND*	3386R-101-ND*	3386W-101-ND	3386X-101-ND*
200	3386C-201-ND*	3386F-201-ND*	3386H-201-ND	3386P-201-ND*	3386R-201-ND*	3386W-201-ND	3386X-201-ND*
500	3386C-501-ND*	3386F-501-ND*	3386H-501-ND	3386P-501-ND*	3386R-501-ND*	3386W-501-ND	3386X-501-ND*
1K	3386C-102-ND*	3386F-102-ND*	3386H-102-ND	3386P-102-ND*	3386R-102-ND*	3386W-102-ND	3386X-102-ND*
2K	3386C-202-ND*	3386F-202-ND*	3386H-202-ND	3386P-202-ND*	3386R-202-ND*	3386W-202-ND	3386X-202-ND*
5K	3386C-502-ND*	3386F-502-ND*	3386H-502-ND	3386P-502-ND*	3386R-502-ND*	3386W-502-ND	3386X-502-ND*
10K	3386C-103-ND*	3386F-103-ND*	3386H-103-ND	3386P-103-ND*	3386R-103-ND*	3386W-103-ND	3386X-103-ND*
20K	3386C-203-ND*	3386F-203-ND*	3386H-203-ND	3386P-203-ND*	3386R-203-ND*	3386W-203-ND	3386X-203-ND*
25K	3386C-253-ND	3386F-253-ND	3386H-253-ND	3386P-253-ND	3386R-253-ND	3386W-253-ND	3386X-253-ND
50K	3386C-503-ND*	3386F-503-ND*	3386H-503-ND	3386P-503-ND*	3386R-503-ND*	3386W-503-ND	3386X-503-ND*
100K	3386C-104-ND*	3386F-104-ND*	3386H-104-ND	3386P-104-ND*	3386R-104-ND*	3386W-104-ND	3386X-104-ND*
200K	3386C-204-ND*	3386F-204-ND*	3386H-204-ND	3386P-204-ND*	3386R-204-ND*	3386W-204-ND	3386X-204-ND*
250K	3386C-254-ND	3386F-254-ND	3386H-254-ND	3386P-254-ND	3386R-254-ND	3386W-254-ND	3386X-254-ND
500K	3386C-504-ND*	3386F-504-ND*	3386H-504-ND	3386P-504-ND*	3386R-504-ND*	3386W-504-ND	3386X-504-ND*
1M	3386C-105-ND*	3386F-105-ND*	3386H-105-ND	3386P-105-ND*	3386R-105-ND*	3386W-105-ND	3386X-105-ND*
2M	3386C-205-ND*	3386F-205-ND*	3386H-205-ND	3386P-205-ND*	3386R-205-ND*	3386W-205-ND	3386X-205-ND*

	Pricing				
Series	1	10	100	500	1,000
3386C/3386R	1.11	9.88	86.32	397.80	707.20
3386F/3386H/3386P/3386W/3386X	1.00	8.93	78.02	359.55	639.20

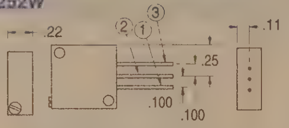
* **3386☐-KIT-ND** 5 each of values denoted in series (75 total pieces). Notebook style kit box and bin storage guide included. For complete number, substitute corresponding letter (C,F,P,R,X) for☐ **$64.95**

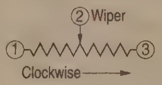
SERIES 3252 1/2" SQUARE/MULTITURN (25) CERMET/INDUSTRIAL/SEALED

Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 25 turns nom. **Power Rating** (400 volts max.): 85°C – 0.75 watt; 150°C – 0 watt. **Temperature Range:** −65°C to +150°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.75 watt @ 85°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (2% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Torque:** 5.0 oz-in. max. **Mechanical Stops:** Wiper idles.



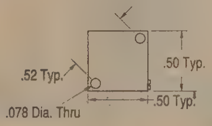
3252W



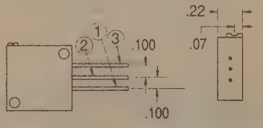


Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3252P-101-ND*	3252W-101-ND*	3252X-101-ND*
200	3252P-201-ND	3252W-201-ND	3252X-201-ND
500	3252P-501-ND*	3252W-501-ND*	3252X-501-ND*
1K	3252P-102-ND*	3252W-102-ND*	3252X-102-ND*
2K	3252P-202-ND	3252W-202-ND	3252X-202-ND
5K	3252P-502-ND*	3252W-502-ND*	3252X-502-ND*
10K	3252P-103-ND*	3252W-103-ND*	3252X-103-ND*
20K	3252P-203-ND	3252W-203-ND	3252X-203-ND
50K	3252P-503-ND*	3252W-503-ND*	3252X-503-ND*
100K	3252P-104-ND	3252W-104-ND	3252X-104-ND
200K	3252P-204-ND	3252W-204-ND	3252X-204-ND

3252P



3252X



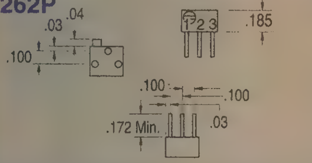
	Pricing				
Series	1	10	100	500	1,000
3252P/3252W/3252X	11.39	99.75	876.75	4042.50	7087.50

* **3252-KIT-ND** 5 each of values denoted (90 total pieces). Notebook style kit box and bin storage guide included **$569.00**

SERIES 3262 1/4" SQUARE/MULTITURN (12) CERMET/INDUSTRIAL/SEALED

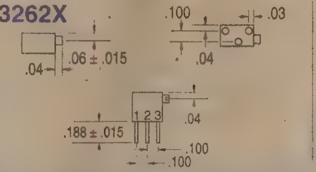
Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 12 turns nom. **Power Rating** (300 volts max.): 85°C — 0.25 watt; 150°C — 0 watt. **Temperature Range:** −65°C to +150°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.25 watt @ 85°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (2% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Torque:** 3.0 oz-in. max. **Mechanical Stops:** Wiper idles.

3262P



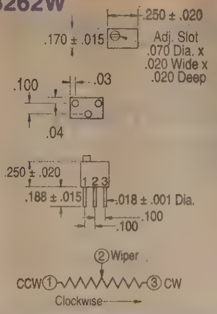
.03
.04
.100
1 2 3
.185
.100
.100
.172 Min.
.03

3262X



.100
.03
.06 ± .015
.04
.04
1 2 3
.04
.188 ± .015
.100
.100

3262W



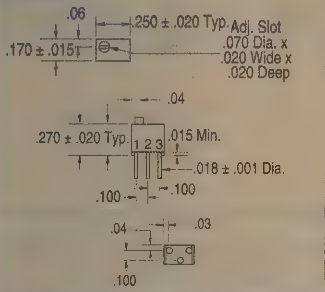
.250 ± .020
.170 ± .015
Adj. Slot
.070 Dia. x
.020 Wide x
.020 Deep
.100
.03
.04
.250 ± .020
.188 ± .015
1 2 3
.018 ± .001 Dia.
.100
.100
②Wiper
CCW①
③CW
Clockwise

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
10	3262P-100-ND	3262W-100-ND	3262X-100-ND
20	3262P-200-ND	3262W-200-ND	3262X-200-ND
50	3262P-500-ND	3262W-500-ND	3262X-500-ND
100	3262P-101-ND	3262W-101-ND	3262X-101-ND
200	3262P-201-ND	3262W-201-ND	3262X-201-ND
500	3262P-501-ND	3262W-501-ND	3262X-501-ND
1K	3262P-102-ND	3262W-102-ND	3262X-102-ND
2K	3262P-202-ND	3262W-202-ND	3262X-202-ND
5K	3262P-502-ND	3262W-502-ND	3262X-502-ND
10K	3262P-103-ND	3262W-103-ND	3262X-103-ND
20K	3262P-203-ND	3262W-203-ND	3262X-203-ND
25K	3262P-253-ND	3262W-253-ND	3262X-253-ND
50K	3262P-503-ND	3262W-503-ND	3262X-503-ND
100K	3262P-104-ND	3262W-104-ND	3262X-104-ND
200K	3262P-204-ND	3262W-204-ND	3262X-204-ND
250K	3262P-254-ND	3262W-254-ND	3262X-254-ND
500K	3262P-504-ND	3262W-504-ND	3262X-504-ND
1M	3262P-105-ND	3262W-105-ND	3262X-105-ND

	Pricing				
Series	1	10	100	500	1,000
3262P/3262W/3262X	11.28	98.80	868.40	4004.00	7020.00

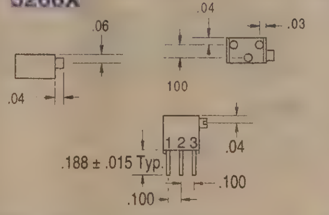
SERIES 3266 1/4" SQUARE/MULTITURN (12) CERMET/INDUSTRIAL/SEALED

3266W

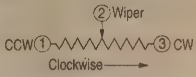


.06
.250 ± .020 Typ.
Adj. Slot
.170 ± .015
.070 Dia. x
.020 Wide x
.020 Deep
.04
.270 ± .020 Typ.
1 2 3
.015 Min.
.018 ± .001 Dia.
.100
.100
.04
.03
.100

3266X



.04
.06
.03
100
.04
1 2 3
.04
.188 ± .015 Typ.
.100
.100



②Wiper
CCW①
③CW
Clockwise

Resistance Tolerance: ±10% std.

Insulation Resistance: 500vdc. 1,000 megohms min.

Effective Travel: 12 turns nom.

Power Rating (300 volts max.): 70°C — 0.25 watt; 150°C — 0 watt.

Temperature Range: −55°C to +125°C.

Temperature Coefficient: ±100ppm/°C.

Load Life: 1,000 hours 0.25 watt @ 70°C (3% ΔTR; CRV, 3%).

Rotational Life: 200 cycles (4% ΔTR; CRV, 3% or 3 ohms, whichever is greater).

Torque: 3.0 oz-in. max.

Mechanical Stops: Wiper idles.

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
10	3266W-100-ND*	3266X-100-ND*
20	3266W-200-ND*	3266X-200-ND*
50	3266W-500-ND*	3266X-500-ND*
100	3266W-101-ND*	3266X-101-ND*
200	3266W-201-ND*	3266X-201-ND*
500	3266W-501-ND*	3266X-501-ND*
1K	3266W-102-ND*	3266X-102-ND*
2K	3266W-202-ND*	3266X-202-ND*
5K	3266W-502-ND*	3266X-502-ND*
10K	3266W-103-ND*	3266X-103-ND*
20K	3266W-203-ND*	3266X-203-ND*
25K	3266W-253-ND*	3266X-253-ND*
50K	3266W-503-ND*	3266X-503-ND*
100K	3266W-104-ND*	3266X-104-ND*
200K	3266W-204-ND*	3266X-204-ND*
250K	3266W-254-ND*	3266X-254-ND*
500K	3266W-504-ND*	3266X-504-ND*
1M	3266W-105-ND	3266X-105-ND

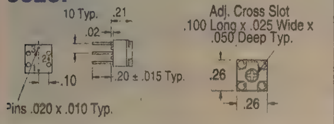
	Pricing				
Series	1	10	100	500	1,000
3266W/3266X	2.83	24.70	217.10	1001.00	1755.00

* **3266☐-KIT-ND** 5 each in values denoted in series (85 total pieces). Notebook style storage case and bin storage guide included. For complete number, substitute corresponding letter (W,X) for ☐ **$189.00**

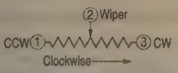
SERIES 3323 1/4" SQUARE/SINGLE-TURN CERMET/INDUSTRIAL/SEALED

- Miniature industrial single-turn. • Rotor designed for automatic machine adjust interface. **Resistance Tolerance:** ±20% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Angle:** 240° nom. **Power Rating** (300 volts max.): 70°C — 0.5 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Mechanical Angle:** 270° nom. **Torque:** 3.0 oz-in. max. **Stop Strength:** 8.0 oz-in. min.

3323P

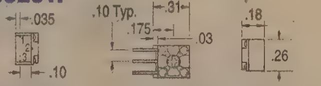


10 Typ.
.21
.02
Adj. Cross Slot
.100 Long x .025 Wide x
.050 Deep Typ.
.10
.20 ± .015 Typ.
.26
.26
Pins .020 x .010 Typ.



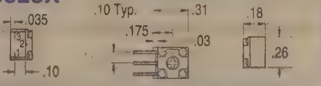
②Wiper
CCW①
③CW
Clockwise

3323W



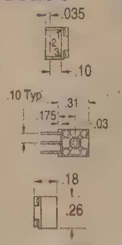
.035
.10 Typ.
.31
.18
.175
.03
.26
.10

3323X



.035
.10 Typ.
.31
.18
.175
.03
.26
.10

3323S



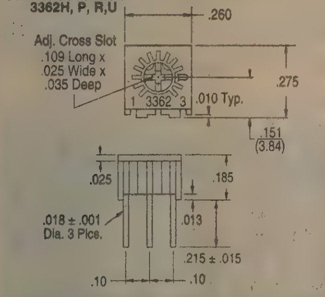
.035
.10
.10 Typ
.31
.175
.03
.18
.26

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3323P-101-ND	3323S-101-ND	3323W-101-ND	3323X-101-ND
200	3323P-201-ND	3323S-201-ND	3323W-201-ND	3323X-201-ND
500	3323P-501-ND	3323S-501-ND	3323W-501-ND	3323X-501-ND
1K	3323P-102-ND	3323S-102-ND	3323W-102-ND	3323X-102-ND
2K	3323P-202-ND	3323S-202-ND	3323W-202-ND	3323X-202-ND
5K	3323P-502-ND	3323S-502-ND	3323W-502-ND	3323X-502-ND
10K	3323P-103-ND	3323S-103-ND	3323W-103-ND	3323X-103-ND
20K	3323P-203-ND	3323S-203-ND	3323W-203-ND	3323X-203-ND
50K	3323P-503-ND	3323S-503-ND	3323W-503-ND	3323X-503-ND
100K	3323P-104-ND	3323S-104-ND	3323W-104-ND	3323X-104-ND
200K	3323P-204-ND	3323S-204-ND	3323W-204-ND	3323X-204-ND
500K	3323P-504-ND	3323S-504-ND	3323W-504-ND	3323X-504-ND
1M	3323P-105-ND	3323S-105-ND	3323W-105-ND	3323X-105-ND

	Pricing				
Series	1	10	100	500	1,000
3323P/3323W	1.33	11.59	101.87	472.75	823.50
3323S/3323X	1.40	12.16	106.88	496.00	864.00

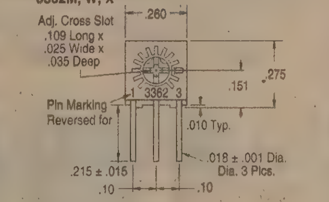
SERIES 3362 1/4" SQUARE/SINGLE-TURN CERMET/INDUSTRIAL/SEALED

Common Dimensions
3362H, P, R,U

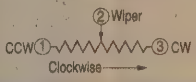


.260
Adj. Cross Slot
.109 Long x
.025 Wide x
.035 Deep
.275
1 3362 3
.010 Typ.
.151
(3.84)
.025
.185
.018 ± .001
Dia. 3 Plcs.
.013
.215 ± .015
.10
.10

Common Dimensions
3362M, W, X

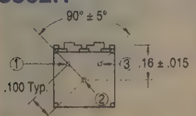


.260
Adj. Cross Slot
.109 Long x
.025 Wide x
.035 Deep
.275
.151
1 3362 3
Pin Marking
Reversed for
.010 Typ.
.018 ± .001 Dia.
Dia. 3 Plcs.
.215 ± .015
.10
.10



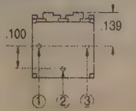
②Wiper
CCW①
③CW
Clockwise

3362H

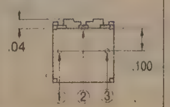


90° ± 5°
①
③
.16 ± .015
.100 Typ.
②

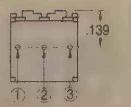
3362P



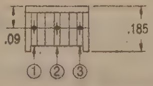
3362R



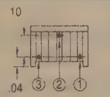
3362U



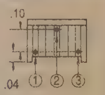
3362M



3362W



3362X



- Miniature package. • Rotor designed for automatic machine adjust interface. • Multi-wire wiper to minimize CRV. • Withstands harsh environments and immersion cleaning process. **Resistance Tolerance:** ±20% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Angle:** 240° nom. **Power Rating** (300 volts max.): 70°C — 0.5 watt; 125°C — 0 watt. **Temperature Range:** —55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Mechanical Angle:** 270° nom. **Torque:** 3.0 oz-in. max. **Stop Strength:** 7.0 oz-in. min.

Res. (Ohms)	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key Part No.	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key Part No.	Digi-Key* Part No.
100	3362H-101-ND	3362M-101-ND	3362P-101-ND	3362R-101-ND	3362U-101-ND	3362W-101-ND	3362X-101-ND
200	3362H-201-ND	3362M-201-ND	3362P-201-ND	3362R-201-ND	3362U-201-ND	3362W-201-ND	3362X-201-ND
500	3362H-501-ND	3362M-501-ND	3362P-501-ND	3362R-501-ND	3362U-501-ND	3362W-501-ND	3362X-501-ND
1K	3362H-102-ND	3362M-102-ND	3362P-102-ND	3362R-102-ND	3362U-102-ND	3362W-102-ND	3362X-102-ND
2K	3362H-202-ND	3362M-202-ND	3362P-202-ND	3362R-202-ND	3362U-202-ND	3362W-202-ND	3362X-202-ND
5K	3362H-502-ND	3362M-502-ND	3362P-502-ND	3362R-502-ND	3362U-502-ND	3362W-502-ND	3362X-502-ND
10K	3362H-103-ND	3362M-103-ND	3362P-103-ND	3362R-103-ND	3362U-103-ND	3362W-103-ND	3362X-103-ND
20K	3362H-203-ND	3362M-203-ND	3362P-203-ND	3362R-203-ND	3362U-203-ND	3362W-203-ND	3362X-203-ND
25K	3362H-253-ND	3362M-253-ND	3362P-253-ND	3362R-253-ND	3362U-253-ND	3362W-253-ND	3362X-253-ND
50K	3362H-503-ND	3362M-503-ND	3362P-503-ND	3362R-503-ND	3362U-503-ND	3362W-503-ND	3362X-503-ND
100K	3362H-104-ND	3362M-104-ND	3362P-104-ND	3362R-104-ND	3362U-104-ND	3362W-104-ND	3362X-104-ND
200K	3362H-204-ND	3362M-204-ND	3362P-204-ND	3362R-204-ND	3362U-204-ND	3362W-204-ND	3362X-204-ND
500K	3362H-504-ND	3362M-504-ND	3362P-504-ND	3362R-504-ND	3362U-504-ND	3362W-504-ND	3362X-504-ND
1M	3362H-105-ND	3362M-105-ND	3362P-105-ND	3362R-105-ND	3362U-105-ND	3362W-105-ND	3362X-105-ND

	Pricing				
Series	1	10	100	500	1,000
3362H/3362M/3362P/ 3362R/3362U/3362W/3362X	.89	7.50	60.90	249.00	459.00

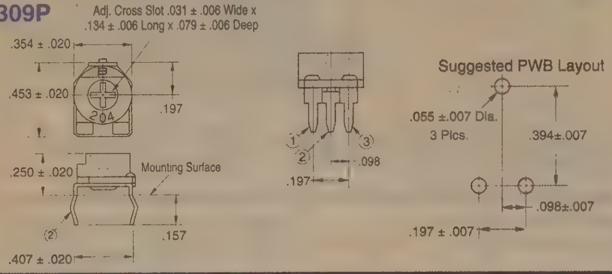
* **3362☐-KIT-ND** 10 each of all values in denoted series (140 total pieces). Notebook style storage case and bin storage guide included. For complete number, substitute corresponding letter (H,R,U,M,X) for ☐.....**$89.95**

BOURNS INC Trimmer Potentiometers

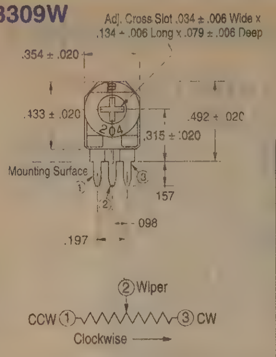
SERIES 3309 9MM ROUND/SINGLE-TURN CERMET/INDUSTRIAL/OPEN FRAME

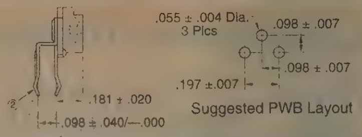
Resistance Tolerance: ±25% std. **Adjustment Angle:** 235° nom. **Power Rating** (250 volts max.): 70°C — 0.5 watt. **Temperature Range:** −25°C to +100°C. **Temperature Coefficient:** ±250ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (5% ΔTR). **Torque:** 5.0 oz-in. max. **Stop Strength:** 11.0 oz-in. min.

3309P


Adj. Cross Slot .031 ± .006 Wide x .134 ± .006 Long x .079 ± .006 Deep
.354 ± .020
.453 ± .020
.197
.250 ± .020
Mounting Surface
.157
.407 ± .020
①
②
③
.098
.197
Suggested PWB Layout
.055 ±.007 Dia.
3 Plcs.
.394±.007
.098±.007
.197 ± .007

3309W


Adj. Cross Slot .034 ± .006 Wide x .134 ± .006 Long x .079 ± .006 Deep
.354 ± .020
.433 ± .020
.492 ± .020
.315 ± .020
Mounting Surface
①
②
③
157
.098
.197
②Wiper
CCW ①
③ CW
Clockwise


②
.181 ± .020
.098 ± .040/—.000
.055 ± .004 Dia.
3 Plcs
.098 ± .007
.098 ± .007
.197 ±.007
Suggested PWB Layout

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
100	3309P-101-ND*	3309W-101-ND*
200	3309P-201-ND	3309W-201-ND
500	3309P-501-ND*	3309W-501-ND*
1K	3309P-102-ND*	3309W-102-ND*
2K	3309P-202-ND*	3309W-202-ND*
5K	3309P-502-ND*	3309W-502-ND*
10K	3309P-103-ND*	3309W-103-ND*
20K	3309P-203-ND*	3309W-203-ND*
50K	3309P-503-ND*	3309W-503-ND*
100K	3309P-104-ND*	3309W-104-ND*
200K	3309P-204-ND	3309W-204-ND
500K	3309P-504-ND	3309W-504-ND
1M	3309P-105-ND	3309W-105-ND

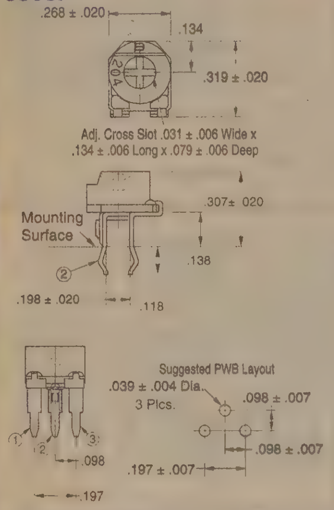
			Pricing		
Series	**1**	**10**	**100**	**500**	**1,000**
3309P/3309W	.80	6.75	55.95	159.75	280.50

* **3309-KIT-ND** 10 each of values denoted (180 total pieces).
Notebook style storage case and bin storage guide included. **$89.95**

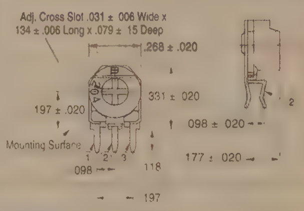
SERIES 3306 6MM ROUND/SINGLE-TURN CERMET/INDUSTRIAL/OPEN FRAME

• Cross slot rotor design suitable for automatic adjustment equipment. • Board retention feature. • Dust resistant/splash resistant cover. • Front and top adjust styles. **Resistance Tolerance:** ±25% std. **Adjustment Angle:** 215° nom. **Power Rating** (100 volts max.): 70°C — 0.2 watt. **Temperature Range:** −25°C to +100°C. **Temperature Coefficient:** ±250ppm/°C. **Load Life:** 1,000 hours 0.2 watt @ 70°C (5% ΔTR). **Torque** (Operating): 4.5 oz-in. max. **Stop Strength:** 6.5 oz-in. min.

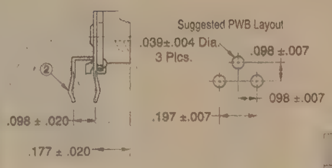
3306P


.268 ± .020
.134
.319 ± .020
Adj. Cross Slot .031 ± .006 Wide x .134 ± .006 Long x .079 ± .006 Deep
Mounting Surface
.307± .020
②
.138
.198 ± .020
.118
Suggested PWB Layout
.039 ± .004 Dia.
3 Plcs.
.098 ± .007
.098 ± .007
.197 ± .007
①
②
③
.098
.197

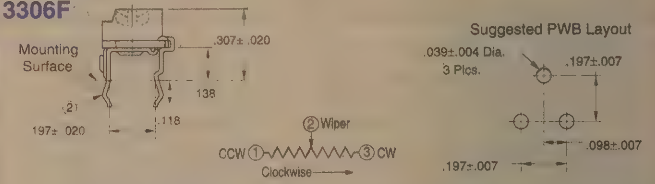
3306W


Adj. Cross Slot .031 ± .006 Wide x .134 ± .006 Long x .079 ± .15 Deep
.268 ± .020
.197 ± .020
.331 ± .020
Mounting Surface
1
2
3
.098
.118
.098 ± .020
.177 ± .020
.197
2

3306K


Suggested PWB Layout
.039±.004 Dia.
3 Plcs.
.098 ±.007
②
.098 ±.007
.098 ± .020
.197 ±.007
.177 ± .020

3306F


Mounting Surface
.307± .020
.138
②
.197± .020
.118
②Wiper
CCW ①
③ CW
Clockwise
Suggested PWB Layout
.039±.004 Dia.
3 Plcs.
.197±.007
.098±.007
.197±.007

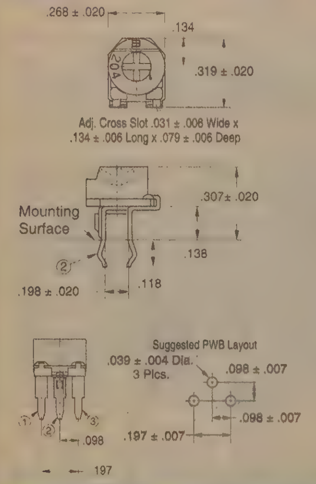
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3306F-101-ND	3306K-101-ND	3306P-101-ND	3306W-101-ND
200	3306F-201-ND	3306K-201-ND	3306P-201-ND	3306W-201-ND
500	3306F-501-ND	3306K-501-ND	3306P-501-ND	3306W-501-ND
1K	3306F-102-ND	3306K-102-ND	3306P-102-ND	3306W-102-ND
2K	3306F-202-ND	3306K-202-ND	3306P-202-ND	3306W-202-ND
5K	3306F-502-ND	3306K-502-ND	3306P-502-ND	3306W-502-ND
10K	3306F-103-ND	3306K-103-ND	3306P-103-ND	3306W-103-ND
20K	3306F-203-ND	3306K-203-ND	3306P-203-ND	3306W-203-ND
50K	3306F-503-ND	3306K-503-ND	3306P-503-ND	3306W-503-ND
100K	3306F-104-ND	3306K-104-ND	3306P-104-ND	3306W-104-ND
200K	3306F-204-ND	3306K-204-ND	3306P-204-ND	3306W-204-ND
500K	3306F-504-ND	3306K-504-ND	3306P-504-ND	3306W-504-ND
1M	3306F-105-ND	3306K-105-ND	3306P-105-ND	3306W-105-ND

			Pricing		
Series	**1**	**10**	**100**	**500**	**1,000**
3306F/3306K/3306P/3306W	1.00	7.50	70.05	200.25	349.50

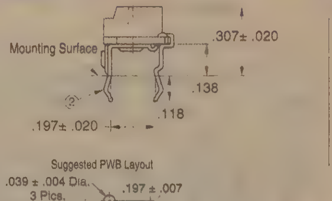
SERIES 3316 6MM ROUND/SINGLE-TURN CARBON/COMMERCIAL/OPEN FRAME

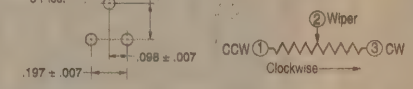
• Cross slot rotor design suitable for automatic adjustment equipment. • Board retention feature. • Dust resistant/splash resistant cover. • PC board stand-offs. • Front and top adjust styles. **Resistance Tolerance:** ±25% std. **Adjustment Angle:** 215° nom. **Power Rating** (100 volts max.): 70°C — 0.1 watt. **Temperature Range:** −25°C to +100°C. **Temperature Coefficient:** ±1,000ppm/°C. **Load Life:** 1,000 hours 0.1 watt @ 70°C (10% ΔTR). **Torque** (Operating): 4.5 oz-in. max. **Stop Strength:** 6.5 oz-in. min.

3316P

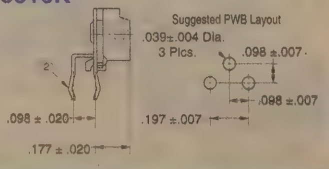

.268 ± .020
.134
.319 ± .020
Adj. Cross Slot .031 ± .006 Wide x .134 ± .006 Long x .079 ± .006 Deep
Mounting Surface
.307± .020
②
.138
.198 ± .020
.118
Suggested PWB Layout
.039 ± .004 Dia.
3 Plcs.
.098 ± .007
.098 ± .007
.197 ± .007
①
②
③
.098
.197

3316F

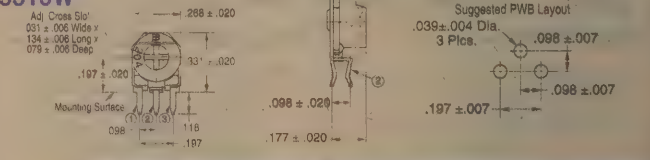

Mounting Surface
.307± .020
②
.138
.118
.197± .020


Suggested PWB Layout
.039 ± .004 Dia.
3 Plcs.
.197 ± .007
.098 ± .007
.197 ± .007
②Wiper
CCW ①
③ CW
Clockwise

3316K


Suggested PWB Layout
.039±.004 Dia.
3 Plcs.
.098 ±.007
2
.098 ±.007
.098 ± .020
.197 ±.007
.177 ± .020

3316W


Adj Cross Slot .031 ± .006 Wide x .134 ± .006 Long x .079 ± .006 Deep
.268 ± .020
.331 ± .020
.197 ± .020
Mounting Surface
①
②
③
.098
.118
.197
.098 ± .020
.177 ± .020
②
Suggested PWB Layout
.039±.004 Dia.
3 Plcs.
.098 ±.007
.098 ±.007
.197 ±.007

Res. (Ohms)	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.
100	3316F-101-ND	3316K-101-ND	3316P-101-ND	3316W-101-ND
200	3316F-201-ND	3316K-201-ND	3316P-201-ND	3316W-201-ND
500	3316F-501-ND	3316K-501-ND	3316P-501-ND	3316W-501-ND
1K	3316F-102-ND	3316K-102-ND	3316P-102-ND	3316W-102-ND
2K	3316F-202-ND	3316K-202-ND	3316P-202-ND	3316W-202-ND
5K	3316F-502-ND	3316K-502-ND	3316P-502-ND	3316W-502-ND
10K	3316F-103-ND	3316K-103-ND	3316P-103-ND	3316W-103-ND
20K	3316F-203-ND	3316K-203-ND	3316P-203-ND	3316W-203-ND
50K	3316F-503-ND	3316K-503-ND	3316P-503-ND	3316W-503-ND
100K	3316F-104-ND	3316K-104-ND	3316P-104-ND	3316W-104-ND
200K	3316F-204-ND	3316K-204-ND	3316P-204-ND	3316W-204-ND
500K	3316F-504-ND	3316K-504-ND	3316P-504-ND	3316W-504-ND
1M	3316F-105-ND	3316K-105-ND	3316P-105-ND	3316W-105-ND

			Pricing		
Series	**1**	**10**	**100**	**500**	**1,000**
3316F/3316K/3316P/3316W	.80	6.00	48.00	175.20	279.60

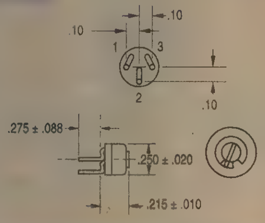
* **3316[ ]-KIT-ND** 10 each of all values in a series (130 total pieces). Notebook style storage case and bin storage guide included. For complete number, substitute corresponding letter (F,K,P,W) for [ ]. . . . . **$59.[illegible]**

BOURNS Trimmer Potentiometers

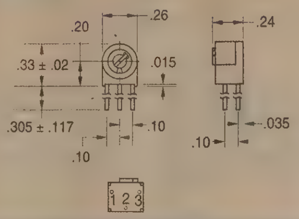
SERIES 3329 1/4" ROUND/SINGLE-TURN CERMET/INDUSTRIAL/SEALED

Resistance Tolerance: ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Angle:** 240° nom. **Power Rating** (300 volts max.): 85°C — 0.5 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +150°C. **Temperature Coefficient:** ±100 ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 85°C (3% ΔTR; CRV, 3%). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 4%). **Mechanical Angle:** 260° nom. **Torque:** 5.0 oz-in. max. **Stop Strength:** 5.0 oz-in. min.

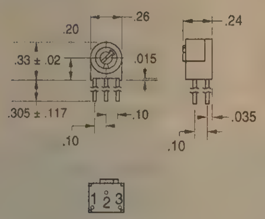
3329P


.10
.10
1
3
2
.10
.275 ± .088
.250 ± .020
.215 ± .010

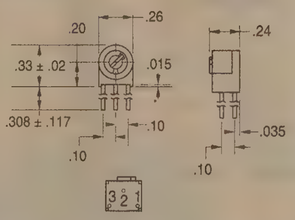
3329S


.26
.24
.20
.33 ± .02
.015
.305 ± .117
.10
.035
.10
.10
1 2 3

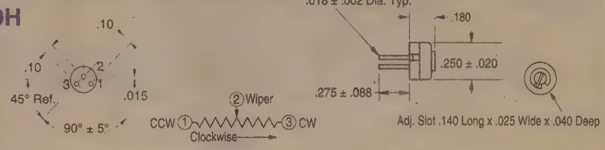
3329X


.26
.24
.20
.33 ± .02
.015
.305 ± .117
.10
.035
.10
.10
1 2 3

3329W


.26
.24
.20
.33 ± .02
.015
.308 ± .117
.10
.035
.10
.10
3 2 1

3329H


.10
.10
2
3
1
45° Ref.
.015
90° ± 5°
②Wiper
CCW ①
③ CW
Clockwise
.018 ± .002 Dia. Typ.
.180
.250 ± .020
.275 ± .088
Adj. Slot .140 Long x .025 Wide x .040 Deep

Res. (Ohms)	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.
50	3329H-500-ND	3329P-500-ND	3329S-500-ND	3329W-500-ND	3329X-500-ND
100	3329H-101-ND	3329P-101-ND	3329S-101-ND	3329W-101-ND	3329X-101-ND
200	3329H-201-ND	3329P-201-ND	3329S-201-ND	3329W-201-ND	3329X-201-ND
500	3329H-501-ND	3329P-501-ND	3329S-501-ND	3329W-501-ND	3329X-501-ND
1K	3329H-102-ND	3329P-102-ND	3329S-102-ND	3329W-102-ND	3329X-102-ND
2K	3329H-202-ND	3329P-202-ND	3329S-202-ND	3329W-202-ND	3329X-202-ND
5K	3329H-502-ND	3329P-502-ND	3329S-502-ND	3329W-502-ND	3329X-502-ND
10K	3329H-103-ND	3329P-103-ND	3329S-103-ND	3329W-103-ND	3329X-103-ND
20K	3329H-203-ND	3329P-203-ND	3329S-203-ND	3329W-203-ND	3329X-203-ND
50K	3329H-503-ND	3329P-503-ND	3329S-503-ND	3329W-503-ND	3329X-503-ND
100K	3329H-104-ND	3329P-104-ND	3329S-104-ND	3329W-104-ND	3329X-104-ND
200K	3329H-204-ND	3329P-204-ND	3329S-204-ND	3329W-204-ND	3329X-204-ND
500K	3329H-504-ND	3329P-504-ND	3329S-504-ND	3329W-504-ND	3329X-504-ND
1M	3329H-105-ND	3329P-105-ND	3329S-105-ND	3329W-105-ND	3329X-105-ND

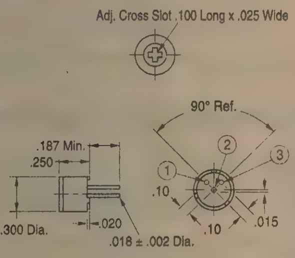
Series	Pricing 1	10	100	500	1,000
3329H/3329P	2.01	18.05	154.85	717.25	1254.00
3329S/3329W/3329X	2.42	21.66	185.82	860.70	1504.80

* **3329☐-KIT-ND** 5 each of all values in denoted series (70 total pieces). Notebook style case and bin storage guide included. For complete number, substitute corresponding letter (H,P,S,W,X) for☐ **$119.95**

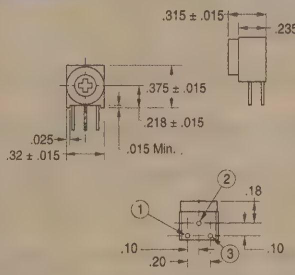
SERIES 3339 5/16" ROUND/FOUR-TURN CERMET/INDUSTRIAL/SEALED

• Unique planetary drive offers precise wiper setting of a multiturn in a single-turn package size. • Top and side adjust styles. **Resistance Tolerance:** ±10% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Effective Travel:** 4 turns nom. **Power Rating** (300 volts max.): 85°C — 0.5 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +150°C. **Temperature Coefficient:** ±100 ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 85°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Torque:** 3.0 oz-in. max. **Mechanical Stops:** Wiper idles.

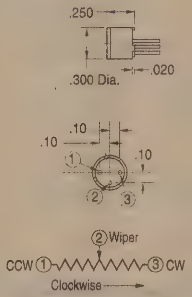
3339H


Adj. Cross Slot .100 Long x .025 Wide
90° Ref.
.187 Min.
.250
②
①
③
.10
.10
.015
.300 Dia.
.020
.018 ± .002 Dia.

3339W


.315 ± .015
.235
.375 ± .015
.218 ± .015
.025
.32 ± .015
.015 Min.
②
.18
①
.10
③
.10
.20

3339P


.250
.300 Dia.
.020
.10
.10
.10
①
②
③
②Wiper
CCW ①
③ CW
Clockwise

Res. (Ohms)	Digi-Key Part No.	Digi-Key* Part No.	Digi-Key* Part No.
50	3339H-500-ND	3339P-500-ND	3339W-500-ND
100	3339H-101-ND	3339P-101-ND	3339W-101-ND
200	3339H-201-ND	3339P-201-ND	3339W-201-ND
500	3339H-501-ND	3339P-501-ND	3339W-501-ND
1K	3339H-102-ND	3339P-102-ND	3339W-102-ND
2K	3339H-202-ND	3339P-202-ND	3339W-202-ND
5K	3339H-502-ND	3339P-502-ND	3339W-502-ND
10K	3339H-103-ND	3339P-103-ND	3339W-103-ND
20K	3339H-203-ND	3339P-203-ND	3339W-203-ND
50K	3339H-503-ND	3339P-503-ND	3339W-503-ND
100K	3339H-104-ND	3339P-104-ND	3339W-104-ND
200K	3339H-204-ND	3339P-204-ND	3339W-204-ND
500K	3339H-504-ND	3339P-504-ND	3339W-504-ND
1M	3339H-105-ND	3339P-105-ND	3339W-105-ND

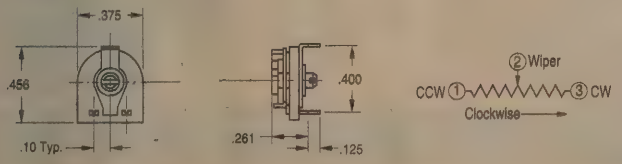
Series	Pricing 1	10	100	500	1,000
3339H/3339P	4.17	36.48	320.64	1478.40	2592.00
3339W	5.99	52.44	460.92	2125.20	3726.00

* **3339☐-KIT-ND** 5 each of all values in denoted series (70 total pieces). Notebook style case and bin storage guide included. For complete number, substitute corresponding letter (P,W) for☐ **$259.00**

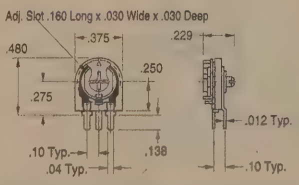
SERIES 3359 3/8" ROUND/SINGLE-TURN CERMET/INDUSTRIAL/OPEN FRAME

• Adjustable from front and rear, or top and bottom. • Carbon tip wiper for long life. • Durable metal construction. **Resistance Tolerance:** ±20% std. **Adjustment Angle:** 250° nom. **Power Rating** (250 volts max.): 70°C — 0.5 watt; 125°C — 0 watt. **Temperature Range:** −65°C to +125°C. **Temperature Coefficient:** 100 ohms to 1K ohms — ±300ppm/°C; 2K ohms to 2 megohms — +150/ −50ppm°C. **Load Life:** 1,000 hours 0.5 watt @ 70°C (2% ΔTR). **Rotational Life:** 500 cycles (10% ΔTR). **Mechanical Angle:** 270° nom. **Torque:** 6.0 oz-in. max.; 1.5 oz-in. min. **Stop Strength:** 12 oz-in. min.

3359P


.375
.456
.10 Typ.
.400
.261
.125
②Wiper
CCW ①
③ CW
Clockwise

3359W


Adj. Slot .160 Long x .030 Wide x .030 Deep
.375
.229
.480
.250
.275
.012 Typ.
.10 Typ.
.138
.04 Typ.
.10 Typ.

Res. (Ohms)	Digi-Key* Part No.	Digi-Key* Part No.
100	3359P-101-ND	3359W-101-ND
200	3359P-201-ND	3359W-201-ND
500	3359P-501-ND	3359W-501-ND
1K	3359P-102-ND	3359W-102-ND
2K	3359P-202-ND	3359W-202-ND
5K	3359P-502-ND	3359W-502-ND
10K	3359P-103-ND	3359W-103-ND
20K	3359P-203-ND	3359W-203-ND
50K	3359P-503-ND	3359W-503-ND
100K	3359P-104-ND	3359W-104-ND
200K	3359P-204-ND	3359W-204-ND
500K	3359P-504-ND	3359W-504-ND
1M	3359P-105-ND	3359W-105-ND

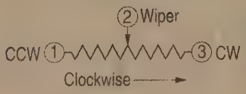
Series	Pricing 1	10	100	500	1,000
3359P/3359W	1.20	10.45	91.85	423.50	748.00

* **3359☐-KIT-ND** 5 each of all values in denoted series (65 total pieces). Notebook style case and bin storage guide included. For complete number, substitute corresponding letter (P,W) for☐ **$49.95**

BOURNS Trimmer Potentiometers

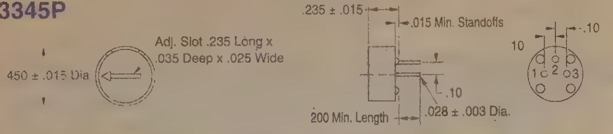
SERIES 3345 1/2" ROUND/SINGLE-TURN WIREWOUND/INDUSTRIAL/SEALED

• Industrial wirewound. • 1.0 watt power rating at 70°C. **Resistance Tolerance:** ±5% std. **Adjustment Angle:** 280° nom. **Power Rating:** 70°C — 1 watt; 150°C — 0 watt **Temperature Range:** −55°C to +150°C. **Temperature Coefficient:** ±50ppm/°C. **Load Life:** 1,000 hours 1 watt @ 70°C. **Rotational Life:** 200 cycles (2% ΔTR; ENR, 500 ohms). **Mechanical Angle:** 310° nom. **Torque:** 5.0 oz-in. max. **Stop Strength:** 15 oz-in. min.


② Wiper
CCW ① ③ CW
Clockwise

Res. (Ohms)	Digi-Key* Part No.	Nominal Resolution (Percent)
50	3345P-500-ND	0.58
100	3345P-101-ND	0.49
200	3345P-201-ND	0.49
500	3345P-501-ND	0.38
1K	3345P-102-ND	0.30
2K	3345P-202-ND	0.24
5K	3345P-502-ND	0.18
10K	3345P-103-ND	0.14
20K	3345P-203-ND	0.13

3345P

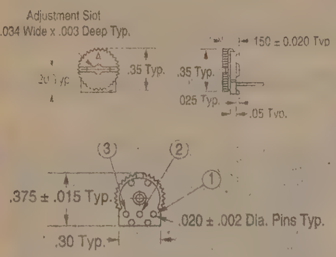

Adj. Slot .235 Long x .035 Deep x .025 Wide
.450 ± .015 Dia
.235 ± .015
.015 Min. Standoffs
.10
.200 Min. Length
.028 ± .003 Dia.
10
.10
1
2
3

Series	Pricing 1	10	100	500	1,000
3345P	5.21	45.60	400.80	1848.00	3216.00

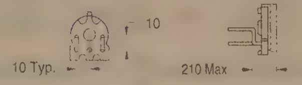
* **3345P-KIT-ND** 5 each of all values (45 total pieces).
Notebook style case and bin storage guide included **$169.95**

SERIES 3352 3/8" ROUND/SINGLE-TURN CERMET/INDUSTRIAL/OPEN FRAME

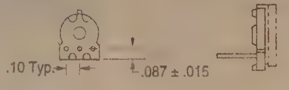
Resistance Tolerance: ±20% std. **Adjustment Angle:** 205° nom. **Power Rating** (250 volts max.): 85°C — 0.5 watt; 125°C — 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** Below 2K — ±150ppm/°C, 2K & up — +100ppm/°C. **Load Life:** 1,000 hours 0.5 watt @ 85°C (3% ΔTR). **Rotational Life:** 200 cycles (10% ΔTR). **Mechanical Angle:** 250° nom. **Torque:** 3.0 oz-in. max. **Stop Strength:** 8 oz-in. min.


Adjustment Slot .034 Wide x .003 Deep Typ.
.150 ± 0.020 Typ
.20 Typ
.35 Typ.
.35 Typ.
.025 Typ.
.05 Typ.
③
②
①
.375 ± .015 Typ.
.020 ± .002 Dia. Pins Typ.
.30 Typ.

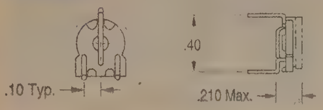
3352P


10
.10 Typ.
.210 Max

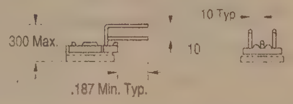
3352T


.10 Typ.
.087 ± .015

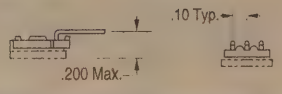
3352E

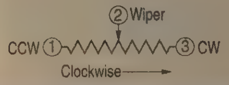

.40
.10 Typ.
.210 Max.

3352H


10 Typ
.300 Max.
10
.187 Min. Typ.

3352W


.10 Typ.
.200 Max.


② Wiper
CCW ① ③ CW
Clockwise

Res. (Ohms)	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.	Digi-Key* Part No.
100	3352E-101-ND	3352H-101-ND	3352P-101-ND	3352T-101-ND	3352W-101-ND
200	3352E-201-ND	3352H-201-ND	3352P-201-ND	3352T-201-ND	3352W-201-ND
500	3352E-501-ND	3352H-501-ND	3352P-501-ND	3352T-501-ND	3352W-501-ND
1K	3352E-102-ND	3352H-102-ND	3352P-102-ND	3352T-102-ND	3352W-102-ND
2K	3352E-202-ND	3352H-202-ND	3352P-202-ND	3352T-202-ND	3352W-202-ND
5K	3352E-502-ND	3352H-502-ND	3352P-502-ND	3352T-502-ND	3352W-502-ND
10K	3352E-103-ND	3352H-103-ND	3352P-103-ND	3352T-103-ND	3352W-103-ND
20K	3352E-203-ND	3352H-203-ND	3352P-203-ND	3352T-203-ND	3352W-203-ND
25K	3352E-253-ND	3352H-253-ND	3352P-253-ND	3352T-253-ND	3352W-253-ND
50K	3352E-503-ND	3352H-503-ND	3352P-503-ND	3352T-503-ND	3352W-503-ND
100K	3352E-104-ND	3352H-104-ND	3352P-104-ND	3352T-104-ND	3352W-104-ND
200K	3352E-204-ND	3352H-204-ND	3352P-204-ND	3352T-204-ND	3352W-204-ND
250K	3352E-254-ND	3352H-254-ND	3352P-254-ND	3352T-254-ND	3352W-254-ND
500K	3352E-504-ND	3352H-504-ND	3352P-504-ND	3352T-504-ND	3352W-504-ND
1M	3352E-105-ND	3352H-105-ND	3352P-105-ND	3352T-105-ND	3352W-105-ND

Series	Pricing 1	10	100	500	1,000
3352E/3352H/3352P/ 3352T/3352W	.88	7.60	66.40	66.40	536.00

* **3352☐-KIT-ND** 5 each of all values in denoted series (75 total pieces). Notebook style kit box and bin storage guide included. For complete number, substitute corresponding letter (E,H,P,T,W,) for ☐ **$46.95**

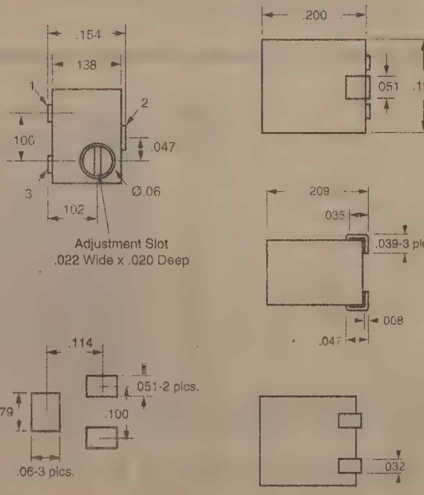
SERIES 3224 SMT 4MM MULTI-TURN (11) TOP ADJUST/CERMET

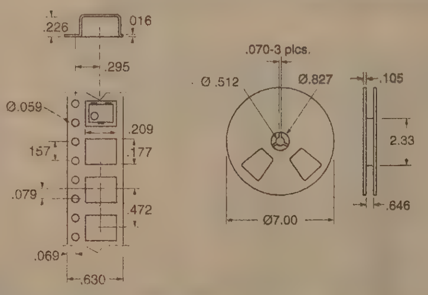
3224W ELECTRICAL CHARACTERISTICS: Standard Resistance Range: 10 ohms to 2 megohms. **Resistance Tolerance:** ±10% std. **Absolute Minimum Resistance:** 1% or 2.0 ohms (whichever is greater). **Contact Resistance Variation:** 1% or 3 ohms max. **Resolution:** Essentially Infinite. **Insulation Resistance:** 500 vdc., 100 megohms min. **Dielectric Strength: Sea Level:** 600 vac (1 minute), **Adjustment Angle:** 11 turns nom.

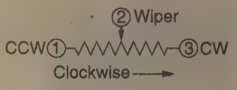
ENVIRONMENTAL CHARACTERISTICS: Power Rating (300 volts max.): 85°C: 0.25 watt, 150°C: 0 watt. **Temperature Range:** -65°C to +150°C. **Temperature Coefficient:** ±100ppm/°C. **Humidity:** MIL-STD 202 Method 106, TRS ±2%; IR 10 megohms. **Vibration:** 20G TRS ±1%, VRS ±1%. **Shock:** 100G TRS ±1%, VRS ±1%. **Load Life (@ 85°C Rated Power 1000 Hours):** TRS 3 ohms or 3% (whichever is greater). **Rotational Cycling:** 200 cycles, TRS 3 ohms or 3% (whichever is greater). **Thermal Shock:** 5 cycles, TRS ±2%, VRS ±1%.

PHYSICAL CHARACTERISTICS: Mechanical Stop: Wiper Idles. **Torque:** 180g-cm Max. **Weight:** approximately 0.01 oz. **Marking:** Manufacturer's code, resistance code and date code.

3224W


.154
.138
1
2
.100
.047
3
Ø.06
.102
Adjustment Slot .022 Wide x .020 Deep
.200
.051
.190
.209
.035
.039-3 plcs
.008
.047
.114
.051-2 plcs.
.079
.100
.06-3 plcs.
.032


.226
.016
.295
Ø.059
.209
.157
.177
.079
.472
.069
.630
.070-3 plcs.
Ø.512
Ø.827
.105
2.33
.646
Ø7.00


② Wiper
CCW ① ③ CW
Clockwise

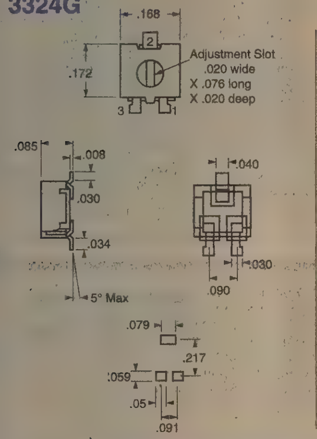
Res. (Ohms)	Digi-Key Part No.
2K	3224W-202E☐☐-ND
5K	3224W-502E☐☐-ND
10K	3224W-103E☐☐-ND
20K	3224W-203E☐☐-ND

Series	Part No.	Pricing 1	10	100	Tape & Reel Part No.	Pricing 250	500	1,000	2,500	5,000
3224W	Add "CT-ND"	5.22	44.70	387.40	Add "TR-ND"	670.50	1214.50	2235.00	2012.00/M	1863.00/M

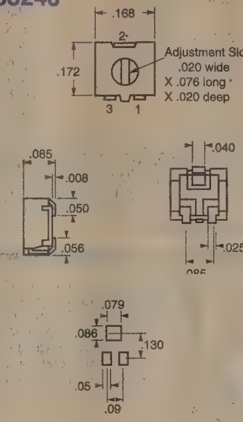
BOURNS Trimmer Potentiometers

SERIES 3324 SMT 4MM SINGLE-TURN TOP ADJUST/CERMET

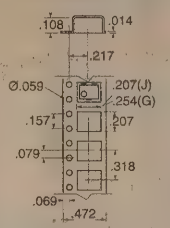
3324G


.168
2
.172
Adjustment Slot
.020 wide
X .076 long
X .020 deep
3
1
.085
.008
.030
.034
5° Max
.040
.030
.090
.079
.217
.059
.05
.091

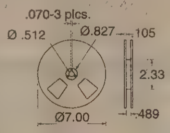
3324J


.168
2
.172
Adjustment Slot
.020 wide
X .076 long
X .020 deep
3
1
.085
.008
.050
.056
.040
.025
.079
.086
.130
.05
.09

(G,J Styles)


.108
.014
.217
Ø.059
.207(J)
.254(G)
.157
.207
.079
.318
.069
.472

Tape

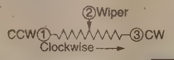

.070-3 plcs.
Ø .512
Ø.827
.105
2.33
Ø7.00
.489

Reel

ELECTRICAL CHARACTERISTICS: Standard Resistance Range: 10 ohms to 2 megohms. **Resistance Tolerance:** ±20% std (tighter resistance available). **End Resistance:** 1% or 3 ohms max. (whichever is greater). **Contact Resistance Variation:** 2% or 3 ohms max. (whichever is greater). **Resolution:** Essentially Infinite. **Insulation Resistance:** 500 vdc., 100 megohms min. **Dielectric Strength: Sea Level:** 500 vac (1 minute), **Adjustment Angle:** 220° nom.

ENVIRONMENTAL CHARACTERISTICS: Soldering Heat: 260°C, 10 seconds, TRS ±1%. **Power Rating (200 volts max.):** 70°C: 0.25 watt, 125°C: 0 watt. **Operating Temperature Range:** -55°C to +125°C. **Temperature Coefficient:** ≤100 ohms: ±150ppm/°C, >100 ohms: ±100ppm/°C. **Humidity:** 80-98% RH, 10 cycles, 240 hours, TRS ±3%; IR 10 megohms. **Vibration:** 20G TRS ±1%, VRS ±1%. **Shock:** 100G TRS ±1%, VRS ±1%. **Load Life (@ 70°C Rated Power 1000 Hours):** TRS ±3%. **Rotational Cycling:** 100 cycles, TRS ±3%. **Thermal Shock:** 5 cycles, TRS ±2%, VRS ±1%.

PHYSICAL CHARACTERISTICS: Mechanical Angle: 250° nom. **Torque:** 50g-cm typical. **Stop Strength:** 200g-cm typical. **Weight:** approximately 0.01 oz. **Marking:** Manufacturer's code, resistance code and date code.


②Wiper
CCW①
③CW
Clockwise

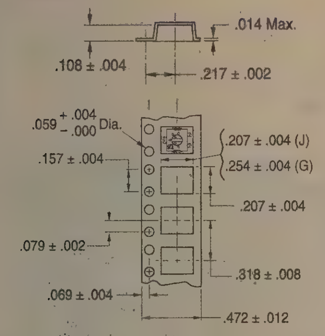
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
1K	3324G-102E☐☐-ND	3324J-102E☐☐-ND
2K	3324G-202E☐☐-ND	3324J-202E☐☐-ND
5K	3324G-502E☐☐-ND	3324J-502E☐☐-ND
10K	3324G-103E☐☐-ND	3324J-103E☐☐-ND

Series	Part No.	Pricing 1	10	100	Tape & Reel Part No.	Pricing 500	1,000	2,500	5,000
3324G/3324J	Add "CT-ND"	2.10	18.00	156.00	Add "TR-ND"	489.00	900.00	810.00/M	750.00/M

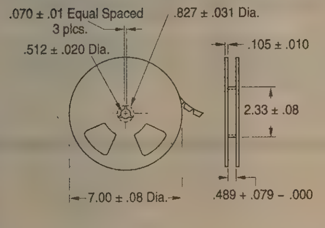
SERIES 3314 SMD 4MM SQUARE/SINGLE-TURN CERMET/INDUSTRIAL/SEALED

- Compatible with all surface mount soldering processes. • Very low CRV — 1%. • Standoffs facilitate board-washing and mechanical stability. **Resistance Tolerance:** ±20% std. **Insulation Resistance:** 500vdc. 100 megohms min. **Adjustment Angle:** 210° nom. **Soldering Heat:** 260°C, 10 seconds, TRS ±1%. **Power Rating** (300 volts max.): 70°C — 0.25 watt; 125°C — 0 watt. **Temperature Range:** −55°C to +125°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** (@ 70°C Rated Power 1,000 hours) TRS ±3%. **Rotational Life:** 100 cycles TRS ±3%. **Mechanical Angle:** 240° nom. **Torque:** 180 g-cm. typical. **Stop Strength:** 300 g-cm. typical.

(J,G Styles)


.014 Max.
.108 ± .004
.217 ± .002
.059 + .004 − .000 Dia.
.207 ± .004 (J)
.254 ± .004 (G)
.157 ± .004
.207 ± .004
.079 ± .002
.318 ± .008
.069 ± .004
.472 ± .012

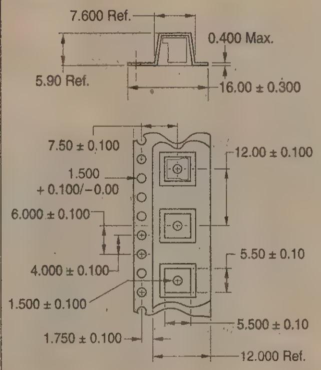
Tape

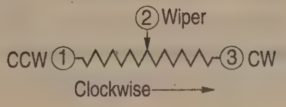

.070 ± .01 Equal Spaced 3 plcs.
.827 ± .031 Dia.
.512 ± .020 Dia.
.105 ± .010
2.33 ± .08
7.00 ± .08 Dia.
.489 + .079 − .000

Reel

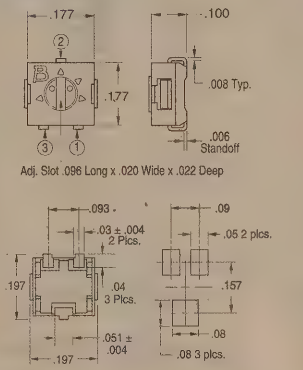
(S Style)

Tape


7.600 Ref.
0.400 Max.
5.90 Ref.
16.00 ± 0.300
7.50 ± 0.100
12.00 ± 0.100
1.500 + 0.100/−0.00
6.000 ± 0.100
5.50 ± 0.10
4.000 ± 0.100
1.500 ± 0.100
5.500 ± 0.10
1.750 ± 0.100
12.000 Ref.

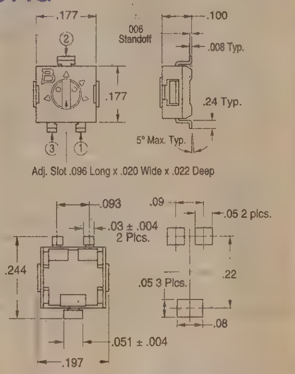

②Wiper
CCW①
③CW
Clockwise

3314J


.177
.100
②
.177
.008 Typ.
.006 Standoff
③ ①
.093
.03 ± .004 2 Plcs.
.09
.05 2 plcs.
.197
.04 3 Plcs.
.157
.051 ± .004
.08
.197
.08 3 plcs.

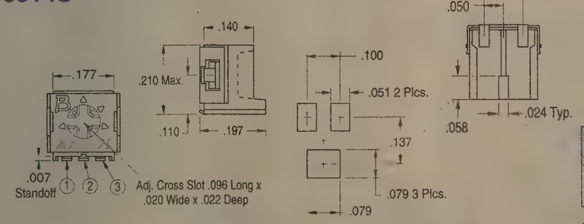
Adj. Slot .096 Long x .020 Wide x .022 Deep

3314G


.177
.100
006 Standoff
.008 Typ.
②
.177
.24 Typ.
5° Max. Typ.
③ ①
.093
.09
.05 2 plcs.
.03 ± .004 2 Plcs.
.244
.05 3 Plcs.
.22
.08
.051 ± .004
.197

Adj. Slot .096 Long x .020 Wide x .022 Deep

3314S


.140
.177
.210 Max.
.110
.197
.100
.051 2 Plcs.
.137
.079 3 Plcs.
.079
.050
.100
.058
.024 Typ.
.007 Standoff
① ② ③
Adj. Cross Slot .096 Long x .020 Wide x .022 Deep

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3314G-101E☐☐-ND	3314J-101E☐☐-ND*	3314S-101E☐☐-ND*
200	3314G-201E☐☐-ND	3314J-201E☐☐-ND	3314S-201E☐☐-ND
500	3314G-501E☐☐-ND*	3314J-501E☐☐-ND*	3314S-501E☐☐-ND*
1K	3314G-102E☐☐-ND*	3314J-102E☐☐-ND*	3314S-102E☐☐-ND*
2K	3314G-202E☐☐-ND	3314J-202E☐☐-ND	3314S-202E☐☐-ND
5K	3314G-502E☐☐-ND*	3314J-502E☐☐-ND*	3314S-502E☐☐-ND*
10K	3314G-103E☐☐-ND*	3314J-103E☐☐-ND*	3314S-103E☐☐-ND*
20K	3314G-203E☐☐-ND	3314J-203E☐☐-ND	3314S-203E☐☐-ND
25K	3314G-253E☐☐-ND*	3314J-253E☐☐-ND*	3314S-253E☐☐-ND*
50K	3314G-503E☐☐-ND*	3314J-503E☐☐-ND*	3314S-503E☐☐-ND*
100K	3314G-104E☐☐-ND*	3314J-104E☐☐-ND*	3314S-104E☐☐-ND*
200K	3314G-204E☐☐-ND*	3314J-204E☐☐-ND*	3314S-204E☐☐-ND*
250K	3314G-254E☐☐-ND	3314J-254E☐☐-ND	3314S-254E☐☐-ND
500K	3314G-504E☐☐-ND*	3314J-504E☐☐-ND*	3314S-504E☐☐-ND*
1M	3314G-105E☐☐-ND	3314J-105E☐☐-ND	3314S-105E☐☐-ND
2M	3314G-205E☐☐-ND	3314J-205E☐☐-ND	3314S-205E☐☐-ND

Series	Part No.	Pricing 5	100	Tape & Reel Part No.	Pricing 200	500	600	1,500	1,800
3314G/3314J	Add "CT-ND"	9.00	156.00	Add "TR-ND"	—	489.00	—	900.00/M	—
3314S	Add "CT-ND"	9.90	170.28	Add "TR-ND"	244.20	—	649.20	—	990.00/M

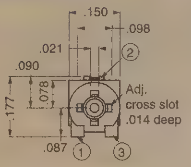
* **3314A-KIT-ND** 5 each of values denoted (150 total pieces).
Notebook style kit box w/ velcro closure & easy-to-read kit index included. $159.00

BOURNS INC Trimmer Potentiometers

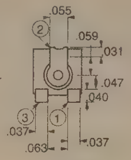
SERIES 3364 SMD 4MM SQUARE/SINGLE-TURN CERMET/INDUSTRIAL/OPEN FRAME

• Cross-slot rotor designs suitable for automatic adjustment equipment. • Supplied in 12mm embossed tape, compatible with automatic pick-and-place assembly equipment. • Rear adjust versions available. **Resistance Tolerance:** ±25%std. **Adjustment Angle:** 260°±20°. **Power Rating** (50 volts max.): 70°C — 0.2 watt. **Temperature Range:** -40°C to +100°C. **Temperature Coefficient:** ±250ppm/°C. **Load Life:** 1,000 hours 0.2 watt @ 70°C (5% ΔTR). **Rotational Life:** 20 cycles (15% ΔTR). **Torque:** 20 to 200g-cm. **Mechanical Angle:** Continuous.

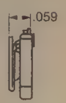
3364W & X

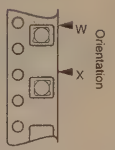


.150
.098
.021
②
.090
.078
.177
Adj.
cross slot
.014 deep
.087
①
③

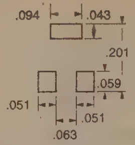


.055
②
.059
.031
.047
.040
③
①
.037
.063
.037

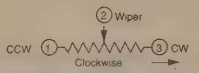




W
X
Orientation



.094
.043
.201
.059
.051
.051
.063



② Wiper
CCW ①
③ CW
Clockwise

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
500	3364W-501E☐☐-ND*	3364X-501E☐☐-ND
1K	3364W-102E☐☐-ND*	3364X-102E☐☐-ND
2K	3364W-202E☐☐-ND*	3364X-202E☐☐-ND
5K	3364W-502E☐☐-ND*	3364X-502E☐☐-ND
10K	3364W-103E☐☐-ND*	3364X-103E☐☐-ND
20K	3364W203E☐☐-ND*	3364X-203E☐☐-ND
50K	3364W-503E☐☐-ND*	3364X-503E☐☐-ND
100K	3364W-104E☐☐-ND*	3364X-104E☐☐-ND
200K	3364W-204E☐☐-ND*	3364X-204E☐☐-ND
500K	3364W-504E☐☐-ND*	3364X-504E☐☐-ND
1M	3364W-105E☐☐-ND*	3364X-105E☐☐-ND

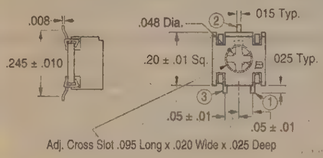
		Pricing		Tape & Reel	Pricing		
Series	Part No.	5	100	Part No.	1,000	5,000	10,000
3364W/3364X	Add "CT"-ND	6.50	87.00	Add "TR"-ND	494.00	396.00/M	320.00/M

* **3364W-KIT-ND** 5 each of all values (55 total pieces) **$39.95**

SERIES 3335 SMD 5MM SQUARE/SINGLE-TURN CERMET/INDUSTRIAL/SEALED

• Available in 3 and 4 pad SMD design. • Auto adjust rotor design, packaged in 16mm wide (7' reel) embossed tape, compatible with automatic placement equipment. • Rugged lead frame construction. • Multi-wire hoetip wiper. • Recommended for reflow processing only. **Resistance Tolerance:** ±20% std. **Insulation Resistance:** 500vdc. 1,000 megohms min. **Adjustment Travel:** 240° nom. **Maximum Exposure** (Temp./Time): +215°C/3 min. **Power Rating** (100 volts max.): 85°C — 0.2 watt; 150°C — 0 watt. **Temperature Range:** −55°C to +150°C. **Temperature Coefficient:** ±100ppm/°C. **Load Life:** 1,000 hours 0.2 watt @ 85°C (3% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Rotational Life:** 200 cycles (4% ΔTR; CRV, 3% or 3 ohms, whichever is greater). **Mechanical Angle:** 270° nom. **Torque:** 3.0 oz-in. max. **Stop Strength:** 4.0 oz-in. min.

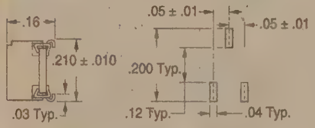
Common Dimensions 3335A, B



.008
.245 ± .010
.048 Dia.
②
015 Typ.
.20 ± .01 Sq.
025 Typ.
B
③
①
.05 ± .01
.05 ± .01

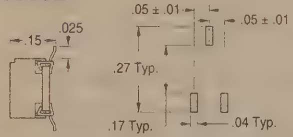
Adj. Cross Slot .095 Long x .020 Wide x .025 Deep

3335A

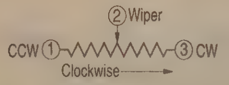


.16
.210 ± .010
.03 Typ.
.05 ± .01
.05 ± .01
.200 Typ.
.12 Typ.
.04 Typ.

3335B



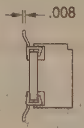
.15
.025
.05 ± .01
.05 ± .01
.27 Typ.
.17 Typ.
.04 Typ.

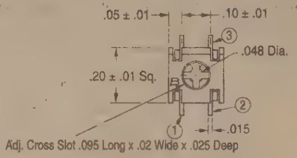


② Wiper
CCW ①
③ CW
Clockwise

Common Dimensions 3335W, X

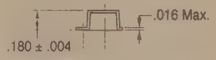
3335-4 Pad



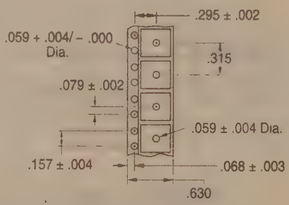


.05 ± .01
.10 ± .01
③
.048 Dia.
.20 ± .01 Sq.
B
②
①
.015

Adj. Cross Slot .095 Long x .02 Wide x .025 Deep



.016 Max.
.180 ± .004

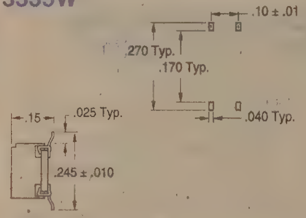


.295 ± .002
.059 + .004/ − .000 Dia.
.315
.079 ± .002
.059 ± .004 Dia.
.157 ± .004
.068 ± .003
.630

Meets EIA specification 481

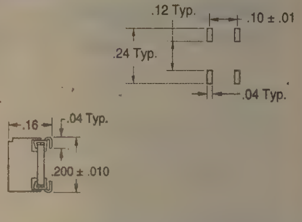
Tape

3335W



.10 ± .01
.270 Typ.
.170 Typ.
.040 Typ.
.15
.025 Typ.
.245 ± .010

3335X



.12 Typ.
.10 ± .01
.24 Typ.
.04 Typ.
.16
.04 Typ.
.200 ± .010

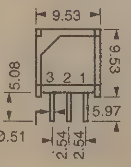
Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.	Digi-Key Part No.
100	3335A-101E☐☐-ND*	3335B-101E☐☐-ND*	3335W-101E☐☐-ND*	3335X-101E☐☐-ND*
200	3335A-201E☐☐-ND	3335B-201E☐☐-ND	3335W-201E☐☐-ND	3335X-201E☐☐-ND
500	3335A-501E☐☐-ND*	3335B-501E☐☐-ND*	3335W-501E☐☐-ND*	3335X-501E☐☐-ND*
1K	3335A-102E☐☐-ND*	3335B-102E☐☐-ND*	3335W-102E☐☐-ND*	3335X-102E☐☐-ND*
2K	3335A-202E☐☐-ND	3335B-202E☐☐-ND	3335W-202E☐☐-ND	3335X-202E☐☐-ND
5K	3335A-502E☐☐-ND*	3335B-502E☐☐-ND*	3335W-502E☐☐-ND*	3335X-502E☐☐-ND*
10K	3335A-103E☐☐-ND*	3335B-103E☐☐-ND*	3335W-103E☐☐-ND*	3335X-103E☐☐-ND*
20K	3335A-203E☐☐-ND	3335B-203E☐☐-ND	3335W-203E☐☐-ND	3335X-203E☐☐-ND
25K	3335A-253E☐☐-ND	3335B-253E☐☐-ND	3335W-253E☐☐-ND	3335X-253E☐☐-ND
50K	3335A-503E☐☐-ND*	3335B-503E☐☐-ND*	3335W-503E☐☐-ND*	3335X-503E☐☐-ND*
100K	3335A-104E☐☐-ND*	3335B-104E☐☐-ND*	3335W-104E☐☐-ND*	3335X-104E☐☐-ND*
200K	3335A-204E☐☐-ND	3335B-204E☐☐-ND	3335W-204E☐☐-ND	3335X-204E☐☐-ND
250K	3335A-254E☐☐-ND	3335B-254E☐☐-ND	3335W-254E☐☐-ND	3335X-254E☐☐-ND
500K	3335A-504E☐☐-ND	3335B-504E☐☐-ND*	3335W-504E☐☐-ND*	3335X-504E☐☐-ND

		Pricing		Tape & Reel	Pricing		
Series	Part No.	5	100	Part No.	500	1,500	5,000
3335A/3335B/3335W/3335X	Add "CT"-ND	15.15	218.16	Add "TR"-ND	772.50	1515.00/M	1364.00/M

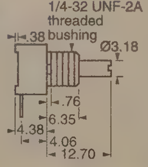
* **3335A-KIT-ND** 5 each of values denoted (150 total pieces) **$249.00**

SERIES 3310 9MM SQUARE PANEL CONTROL CONDUCTIVE PLASTIC, SEALED

3310C

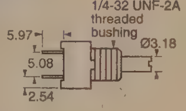


9.53
9.53
5.08
3 2 1
5.97
Ø.51
2.54
2.54

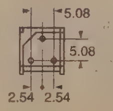


1/4-32 UNF-2A threaded bushing
.38
Ø3.18
.76
6.35
4.38
4.06
12.70

3310Y



1/4-32 UNF-2A threaded bushing
5.97
Ø3.18
5.08
2.54



5.08
5.08
2.54
2.54

• Conductive plastic • Linear • PC board and bushing mount • Plastic bushing and plastic shaft • Withstands typical industrial washing processes • Compact package saves board and panel space

Standard Resistance Range (Linear): 1K ohms to 1 megohm **Total Resistance Tolerance (Linear Tapers):** ±20% **Independent Linearity:** ±5% **Absolute Minimum Resistance:** 2 ohms maximum **Effective Electrical Angle:** 270° ±15° **Contact Resistance Variation:** 1% or 1 ohm (whichever is greater) **Dielectric Withstanding Voltage: (Sea Level)** 900 VAC minimum; **(70,000 Feet)** 350 VAC minimum **Insulation Resistance:** 1,000 megohms minimum **Power Rating @ 70°C (Derate to 0 at 125°C - Voltage Limited By Power Dissipation or 200 VAC, Whichever is Less):** 0.25 watts **Stop Strength:** 5.65 nom. **Mechanical Angle:** 300° nominal **Torque (Running):** 3.53 nom.

Res. (Ohms)	Digi-Key Part No.	Digi-Key Part No.
1K	3310C-1-102-ND	3310Y-1-102-ND
2K	3310C-1-202-ND	3310Y-1-202-ND
5K	3310C-1-502-ND	3310Y-1-502-ND
10K	3310C-1-103-ND	3310Y-1-103-ND
20K	3310C-1-203-ND	3310Y-1-203-ND
50K	3310C-1-503-ND	3310Y-1-503-ND
100K	3310C-1-104-ND	3310Y-1-104-ND
200K	3310C-1-204-ND	3310Y-1-204-ND
500K	3310C-1-504-ND	3310Y-1-504-ND
1M	3310C-1-105-ND	3310Y-1-105-ND

	Pricing				
Series	1	10	100	1,000	5,000
3310C/3310Y	2.59	22.94	192.40	1295.00	1110.00/M

CTS® "Stock Pot" Potentiometers 15/16" Diameter

Series 450

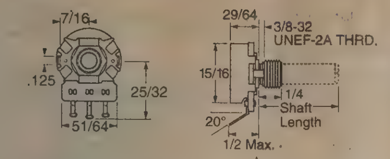
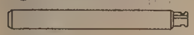


Fig. A — SD Slot

Fig. B — Flat

Fig. C — Round



To determine shaft length, use appropriate variable (1-8) shown below						
Shaft Length	1/2"	5/8"	3/4"	7/8"	1"	2"
Figure A - Slot	1	2	3	4	5	—
Figure B - Flat	—	—	—	6	7	—
Figure C - Round	—	—	—	—	—	8

Res. Ohms	Digi-Key Part No. *	Pricing 1	10	100	250	500	1000
500	450D501-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
1K	450D102-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
2.5K	450D252-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
5K	450D502-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
10K	450D103-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
25K	450D253-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
50K	450D503-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
100K	450D104-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
250K	450D254-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80
500K	450D504-☐-ND	3.18	28.62	243.80	503.50	848.00	1409.80

***For complete part number, substitute corresponding variable (from chart above) for ☐.**

Features:

• Off the shelf availability • Wide Resistance Range • Available with three shaft styles: knurled & slotted, flatted or round • Economical in limited volume applications

Electrical and Mechanical Specifications:

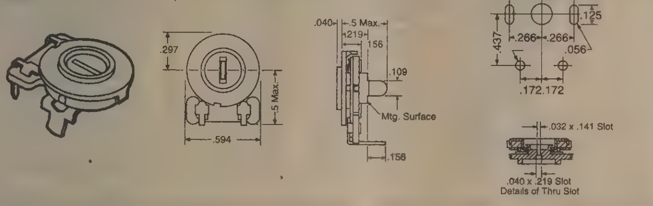
• **Resistance Range:** 500Ω through 500KΩ • **Resistance Tolerance:** ±20% • **Power Rating, Watts:** Through 10KΩ, 1/2 watt; above 10KΩ through 100KΩ, 1/3 watt; above 100KΩ, 1/4 watt • **Voltage Rating:** Bushing to terminals: High pot test, one minute - 1080 VAC • **Shaft Information:** Diameter: .250" (Dia. over knurl .240" - .246") • **Angle of Rotation:** Total rotation — 300° ±5°; Effective Rotation approximately 300° • **Bushing Information:** Material - Diecast zinc; Diameter - EIA st. 3/8" - 32 UNEF-2A thread; Length - 1/4" ±1/64" • **Terminal Information:** Solder lug, formed to rear • **Locating Lug:** Left side, terminals down

Mounting hardware included

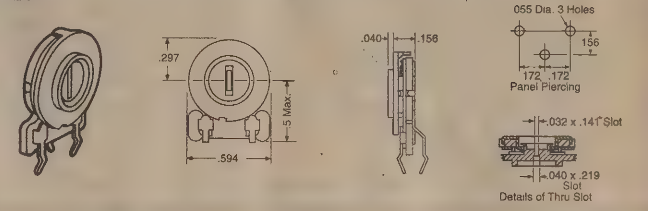
CTS® Miniature 19/32" Trimmer Potentiometers

Series 201

U201



X201



Features:

• Miniature size — knob 19/32" diameter • Rim to guide screwdriver • Printed circuit mounting with knob parallel or perpendicular to printed circuit board • Wide resistance range • Knob slotted for front or rear screwdriver adjustment • Reliable CTS composition resistance element • Press fit self-supporting mounting

Electrical and Mechanical Specifications:

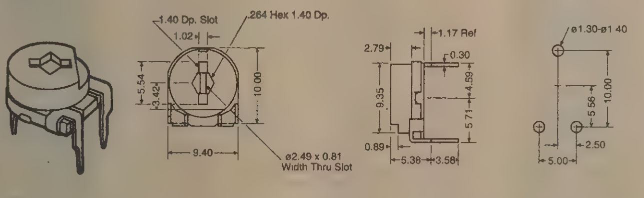
• **Resistance Range:** 100Ω through 1 Megohm • **Resistance Tolerance:** ±20% • **Power Rating, Watts:** Below 5000Ω — 1/4 watt @ 40°C; 5000Ω and above — 1/4 watt @ 55°C • **Voltage Rating:** 350 VDC • **Resistance Tapers:** Linear • **Adjusting Knob Information:** Blue nylon knob, 19/32" diameter, slotted for front or rear screwdriver adjustment with rim to guide screwdriver. • **Angle of Rotation:** Total rotation — 260° ±5°

Res. Ohms.	Digi-Key Part No. Laydown Version	Digi-Key Part No. Standup Version	Pricing 1	100	500	1,000	5,000	10,000	CTS Part No. Laydown Version	CTS Part No. Standup Version
100	U201R101B-ND	X201R101B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R101B	X201R101B
250	U201R251B-ND	X201R251B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R251B	X2015251B
500	U201R501B-ND	X201R501B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R501B	X201R501B
IK	U201R102B-ND	X201R102B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R102B	X201R102B
2.5K	U201R252B-ND	X201R252B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R252B	X201R252B
5K	U201R502B-ND	X201R502B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R502B	X201R502B
10K	U201R103B-ND	X201R103B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R103B	X201R103B
25K	U201R253B-ND	X201R253B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R253B	X201R253B
50K	U201R503B-ND	X201R503B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R503B	X201R503B
100K	U201R104B-ND	X201R104B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R104B	X201R104B
250K	U201R254B-ND	X201R254B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R254B	X201R254B
500K	U201R504B-ND	X201R504B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R504B	X201R504B
1M	U201R105B-ND	X201R105B-ND	.50	41.70	161.94	264.10	222.40/M	180.70/M	U201R105B	X201R105B

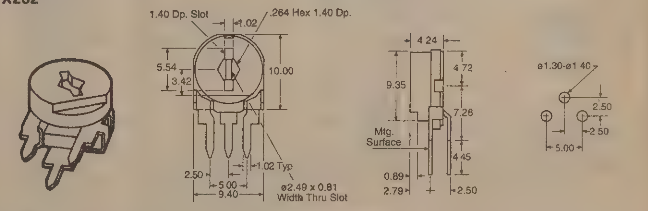
CTS® Miniature 10mm Trimmer Potentiometers

Series 262

U262



X262



Features: • Miniature size • Adjustment knob slotted for front or rear screwdriver adjustment • P.C. mounting with knob parallel or perpendicular to printed circuit board • Low height profile • Wide resistance range • Reliable screened CTS composition element

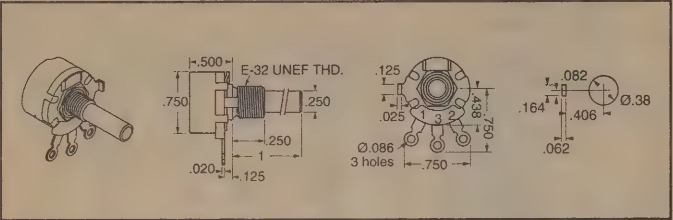
Electrical and Mechanical Specifications:
Resistance Range: Standard — 500 ohms through 1 megohm • **Resistance Tolerance:** Standard — ±20% • **Power Rating Watts:** 0.15 watts @ 40°C • **Voltage Rating:** Operating maximum — 350 VDC. • **Resistance Tapers:** Linear • **Adjustment Knob:** Color coded nylon knob with hex hole for top adjustment plus slot for either top or bottom screwdriver adjustment. • **Angle of Rotation:** Total rotation — 265° ±5% • **Rotational Torque:** .3 to 5 inch ounces • **Stop Strength:** 16 inch ounces

Res. Ohms.	Color	Digi-Key Part No. Laydown Version	Digi-Key Part No. Standup Version	Pricing 1	100	500	1,000	5,000	10,000	CTS Part No. Laydown Version	CTS Part No. Standup Version
500	Green	U262R501B-ND	X262R501B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R501B	X262R501B
1K	Yellow	U262R102B-ND	X262R102B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R102B	X262R102B
2.5K	Red	U262R252B-ND	X262R252B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R252B	X262R252B
5K	Blue	U262R502B-ND	X262R502B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R502B	X262R502B
10K	White	U262R103B-ND	X262R103B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R103B	X262R103B
25K	Black	U262R253B-ND	X262R253B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R253B	X262R253B
50K	Orange	U262R503B-ND	X262R503B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R503B	X262R503B
100K	Gray	U262R104B-ND	X262R104B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R104B	X262R104B
250K	Violet	U262R254B-ND	X262R254B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R254B	X262R254B
500K	Brown	U262R504B-ND	X262R504B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R504B	X262R504B
IM	Lt. Blue	U262R105B-ND	X262R105B-ND	.51	42.90	166.60	271.70	228.80/M	185.90/M	U262R105B	X262R105B

CTS Cermet Potentiometers - 2 Watt

Series 550

SPECIFICATIONS:
Resistance Range: 500 ohms through 5 megohm (linear taper) **Resistance Tolerance:** ±20% **Power Rating Watts:** 2 Watts @ 70°C Derated to No Load @ 150°C **Voltage Rating:** Operating Max: 500VDC **Temperature Coefficient:** ±250/°C **Angle of Rotation:** Total Rotation: 280° ±5°. Effective Electrical Rotation: 256° ±3°. **Resistance Taper:** Linear **Locating Lug:** Left Side, Terminals Down **Bushing Information:** Diameter: 3/8" -32 UNEF-2A Thread. Length: 1/4". **Shaft Information:** 1" FMS x .250" Diameter, Metal Plain Round

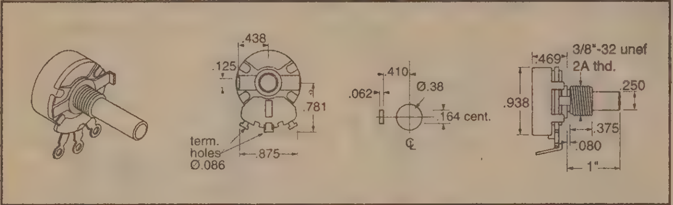


Ohms	Digi-Key Part No.	Pricing 1	10	50	100	CTS Part No.
500	CT2350-ND	11.46	106.60	442.39	799.50	550T23R501B11
1K	CT2351-ND	11.46	106.60	442.39	799.50	550T23R102B11
2.5K	CT2352-ND	11.46	106.60	442.39	799.50	550T23R252B11
5K	CT2353-ND	11.46	106.60	442.39	799.50	550T23R502B11
10K	CT2354-ND	11.46	106.60	442.39	799.50	550T23R103B11
25K	CT2355-ND	11.46	106.60	442.39	799.50	550T23R253B11
50K	CT2356-ND	11.46	106.60	442.39	799.50	550T23R503B11
100K	CT2357-ND	11.46	106.60	442.39	799.50	550T23R104B11
250K	CT2358-ND	11.46	106.60	442.39	799.50	550T23R254B11
500K	CT2359-ND	11.46	106.60	442.39	799.50	550T23R504B11
1MEG	CT2360-ND	11.46	106.60	442.39	799.50	550T23R105B11
5MEG	CT2361-ND	11.46	106.60	442.39	799.50	550T23R505B11

CTS Wirewound Potentiometers - 5 Watt

Series 026

SPECIFICATONS:
Resistance Range: 5Ω through 25KΩ **Resistance Tolerance:** ±20% **Power Rating Watts:** 5 Watts @ 25°C Derated to No Load @ 105°C **Voltage Rating:** Operating Max. 500VDC **Shaft Information:** 1" FMS x .250" Diameter, Metal, Plain Round **Angle of Rotation:** 300° ±5° **Bushing Information:** Diameter: EIA Std. 3/8"-32, UNEF-2A Thread Length: 3/8"±1/64" **Terminal Information:** Solder Lug, Formed to Rear **Locating Lug:** Left Side, Terminals Down



Ohms	Digi-Key Part No.	Pricing 1	10	50	100	CTS Part No.
5	CT2150-ND	3.46	32.20	133.63	241.50	026T332R5AOB1A4
10	CT2151-ND	3.46	32.20	133.63	241.50	026T332R100B1A4
25	CT2152-ND	3.46	32.20	133.63	241.50	026T332R250B1A4
50	CT2153-ND	3.46	32.20	133.63	241.50	026T332R500B1A4
100	CT2154-ND	3.46	32.20	133.63	241.50	026T332R101B1A4
250	CT2155-ND	3.46	32.20	133.63	241.50	026T332R251B1A4
500	CT2156-ND	3.46	32.20	133.63	241.50	026T332R501B1A4
1K	CT2157-ND	3.46	32.20	133.63	241.50	026T332R102B1A4
5K	CT2158-ND	3.46	32.20	133.63	241.50	026T332R502B1A4
10K	CT2159-ND	3.46	32.20	133.63	241.50	026T332R103B1A4
25K	CT2160-ND	3.46	32.20	133.63	241.50	026T332R253B1A4

CTS Carbon Potentiometers - 1/8 Watt

Series 296

SPECIFICATIONS:
Resistance Range: 500 ohms through 1 megohm.
Resistance tolerance: ±20%.
Power Rating Watts: 0.15 Watts @ 40°C derated to no load @ 85°C.
Voltage Rating: Across End Terminals: 250VDC.
Rotational Torque: 20-144gcm.
Angle of Rotation: Total rotation: 300° ±5°, Effective Rotation: 280° (Approx.)
Stops: 0.57 N-m Minimum Stop Strength.
Shaft Information: Length: 13.72mm Beyond Cover, Style: Knurled, Diameter: 6mm.
Mounting Information: P.C. Board Mounting.

Fig. 1 - Vertical Adjust

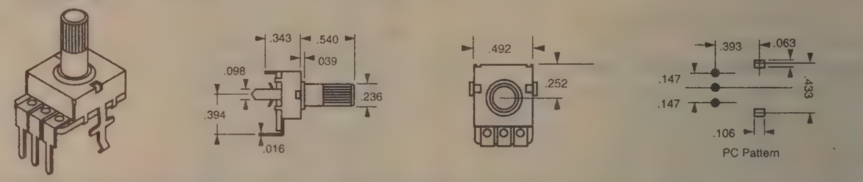


Fig. 2 - Horizontal Adjust

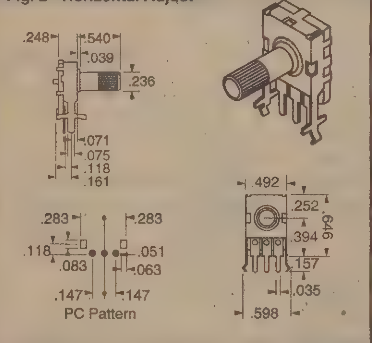
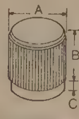


Fig.	Value	Description	Digi-Key Part No.	Pricing 1	10	50	100	CTS Part No.
1	500	Vertical	CT2261-ND	1.44	12.00	50.00	80.00	296UD501B1N
1	1K	Vertical	CT2262-ND	1.44	12.00	50.00	80.00	296UD102B1N
1	2.5K	Vertical	CT2263-ND	1.44	12.00	50.00	80.00	296UD252B1N
1	5K	Vertical	CT2264-ND	1.44	12.00	50.00	80,00	296UD502B1N
1	10K	Vertical	CT2265-ND	1.44	12.00	50.00	80.00	296UD103B1N
1	25K	Vertical	CT2266-ND	1.44	12.00	50.00	80.00	296UD253B1N
1	50K	Vertical	CT2267-ND	1.44	12.00	50.00	80.00	296UD503B1N
1	100K	Vertical	CT2268-ND	1.44	12.00	50.00	80.00	296UD104B1N
1	250K	Vertical	CT2269-ND	1.44	12.00	50.00	80.00	296UD254B1N
1	500K	Vertical	CT2270-ND	1.44	12.00	50.00	80.00	296UD504B1N
1	1MEG	Vertical	CT2271-ND	1.44	12.00	50.00	80.00	296UD105B1N
2	500	Horizontal	CT2250-ND	1.44	12.00	50.00	80.00	296XD501B1N
2	1K	Horizontal	CT2251-ND	1.44	12.00	50.00	80.00	296XD102B1N
2	2.5K	Horizontal	CT2252-ND	1.44	12.00	50.00	80.00	296XD252B1N
2	5K	Horizontal	CT2253-ND	1.44	12.00	50.00	80.00	296XD502B1N
2	10K	Horizontal	CT2254-ND	1.44	12.00	50.00	80 00	296XD103B1N
2	25K	Horizontal	CT2255-ND	1.44	12.00	50.00	80.00	296XD253B1N
2	50K	Horizontal	CT2256-ND	1.44	12.00	50.00	80.00	296XD503B1N
2	100K	Horizontal	CT2257-ND	1.44	12.00	50.00	80.00	296XD104B1N
2	250K	Horizontal	CT2258-ND	1.44	12.00	50.00	80.00	296XD254B1N
2	500K	Horizontal	CT2259-ND	1.44	12.00	50.00	80.00	296XD504B1N
2	1MEG	Horizontal	CT2260-ND	1.44	12.00	50.00	80.00	296XD105B1N

KEYSTONE ELECTRONICS CORP. Instrumentation Knobs

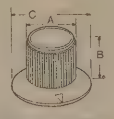
Knobs have a spun aluminum inlay with a clear coat finish.

1



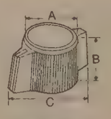
Skirted Round

2



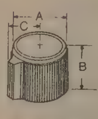
Round with Dial

3



Double Bar

4



Single Bar

Fig. No.	Shaft Dia.	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	10	50	100
1	.125	.500	.510	.150	8554K-ND	3.11	27.60	113.85	207.00
1	.250	.700	.610	.170	8555K-ND	3.24	28.80	118.80	216.00
1	.250	.900	.790	.220	8556K-ND	3.35	29.80	122.93	223.50
2	.125	.500	.550	.900	8558K-ND	3.92	34.80	143.55	261.00
2	.250	.700	.710	1.150	8559K-ND	4.68	41.60	171.60	312.00
2	.250	.900	.870	1.525	8560K-ND	5.33	47.40	195.53	355.50
3	.250	.700	.610	1.150	8565K-ND	3.98	35.40	146.03	265.50
3	.250	.900	.640	1.525	8566K-ND	4.23	37.60	155.10	282.00
4	.125	.500	.510	.350	8567K-ND	4.70	41.80	172.43	313.50
4	.250	.700	.610	.460	8568K-ND	5.40	48.00	198.00	360.00
4	.250	.900	.790	.590	8569K-ND	5.85	52.00	214.50	390.00

CTS® Carbon Slide Potentiometers - 1/5 Watt Series 448

Fig. 1 - Vertical

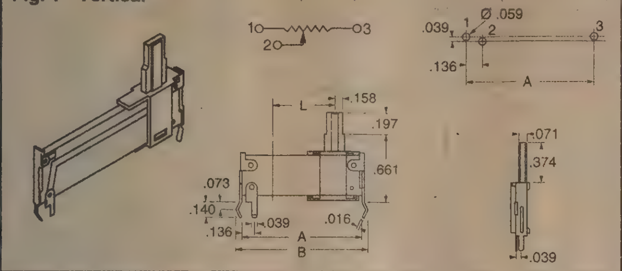


Fig. 2 - Horizontal

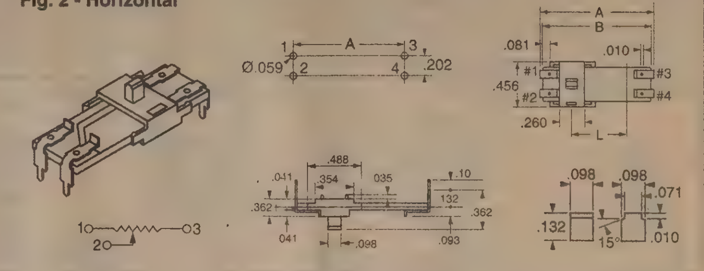


Fig. 1 Vertical Version

Specifications:
Resistance Range: 5K ohms through 1 megohm **Resistance Tolerance:** ±20% **Power Rating Watts:** 0.2 Watts @ 55°C Derated to No Load @ 85°C **Voltage Rating:** Across End Terminals: 300VDC **Operating Life:** 10,000 Cycles **Stop Strength:** Maximum: 3K gf **Resistance Taper:** Linear **Slide Travel:** Mechanical - 20, 30, 45mm. **Terminal Information:** Printed Circuit: Vertical or Horizontal Mounting Available **Mounting Information:** Type "X" - Vertical Mount, See figure 1 for Dimensional Details.

Digi-Key Part No.	Pricing 1	10	50	100	500
CT2301-ND - CT2308-ND	1.40	11.70	48.75	78.00	323.70
CT2309-ND - CT2316-ND	1.44	12.00	50.00	80.00	332.00
CT2317-ND - CT2324-ND	1.51	12.60	52.50	84.00	348.60

Ohms	Dimensions L (Travel)	A	B	Digi-Key Part No.	CTS Part No.	Ohms	Dimensions L (Travel)	A	B	Digi-Key Part No.	CTS Part No.	Ohms	Dimensions L (Travel)	A	B	Digi-Key Part No.	CTS Part No.
5K	.787	1.358	1.440	CT2301-ND	448XC2502BDN	5K	1.18	1.751	1.834	CT2309-ND	448XD2502BDN	5K	1.77	2.3242	2.245	CT2317-ND	448XE2502BDN
10K	.787	1.358	1.440	CT2302-ND	448XC2103BDN	10K	1.18	1.751	1.834	CT2310-ND	448XD2103BDN	10K	1.77	2.3242	2.245	CT2318-ND	448XE2103BDN
25K	.787	1.358	1.440	CT2303-ND	448XC2253BDN	25K	1.18	1.751	1.834	CT2311-ND	448XD2253BDN	25K	1.77	2.3242	2.245	CT2319-ND	448XE2253BDN
50K	.787	1.358	1.440	CT2304-ND	448XC2503BDN	50K	1.18	1.751	1.834	CT2312-ND	448XD2503BDN	50K	1.77	2.3242	2.245	CT2320-ND	448XE2503BDN
100K	.787	1 358	1.440	CT2305-ND	448XC2104BDN	100K	1.18	1.751	1.834	CT2313-ND	448XD2104BDN	100K	1.77	2.3242	2.245	CT2321-ND	448XE2104BDN
250K	.787	1.358	1.440	CT2306-ND	448XC2254BDN	250K	1.18	1.751	1.834	CT2314-ND	448XD2254BDN	250K	1.77	2.3242	2.245	CT2322-ND	448XE2254BDN
500K	.787	1.358	1.440	CT2307-ND	448XC2504BDN	500K	1.18	1.751	1.834	CT2315-ND	448XD2504BDN	500K	1.77	2.3242	2.245	CT2323-ND	448XE2504BDN
1MEG	.787	1.358	1.440	CT2308-ND	448XC2105BDN	1MEG	1.18	1.751	1.834	CT2316-ND	448XD2105BDN	1 MEG	1.77	2.3242	2.245	CT2324-ND	448XE2105BDN

Fig. 2 Horizontal Version

Specifications: **Resistance Range:** 5K ohms through 1 megohm **Resistance Tolerance:** ±20% **Power Rating Watts:** 0.2 Watts @ 55°C Derated to No Load @ 85°C **Voltage Rating:** Across End Terminals: 300VDC **Operating Life:** 10,000 Cycles **Stop Strength:** Maximum: 3K gf **Resistance Taper:** Linear **Slide Travel:** Mechanical - 10, 15mm. **Terminal Information:** Printed Circuit: Vertical or Horizontal Mounting Available **Mounting Information:** Type "V" - Horizontal Mount, See figure Figure 2 for Dimensional Details.

Digi-Key Part No.	Pricing 1	10	50	100	500
CT2326-ND - CT2333-ND	1.51	12.60	52.50	84.00	348.60
CT2334-ND - CT2341-ND	1.51	12.60	52.50	84.00	348.60

Ohms	Dimensions L (Travel)	A	B	Digi-Key Part No.	CTS Part No	Ohms	Dimensions L (Travel)	A	B	Digi-Key Part No.	CTS Part No.
5K	.393	1.188	1.129	CT2326-ND	448VA1502BDN	5K	.590	1.385	1.326	CT2334-ND	448VB1502BDN
10K	.393	1.188	1.129	CT2327-ND	448VA1103BDN	10K	.590	1.385	1.326	CT2335-ND	448VB1103BDN
25K	.393	1.188	1.129	CT2328-ND	448VA1253BDN	25K	.590	1.385	1.326	CT2336-ND	448VB1253BDN
50K	.393	1.188	1.129	CT2329-ND	448VA1503BDN	50K	.590	1.385	1.326	CT2337-ND	448VB1503BDN
100K	.393	1.188	1.129	CT2330-ND	448VA1104BDN	100K	.590	1.385	1.326	CT2338-ND	448VB1104BDN
250K	.393	1.188	1.129	CT2331-ND	448VA1254BDN	250K	.590	1.385	1.326	CT2339-ND	448VB1254BDN
500K	.393	1.188	1.129	CT2332-ND	448VA1504BDN	500K	.590	1.385	1.326	CT2340-ND	448VB1504BDN
1MEG	.393	1.188	1.129	CT2333-ND	448VA1105BDN	1MEG	.590	1.385	1.326	CT2341-ND	448VB1105BDN

CTS® Carbon Potentiometers - 1/4 Watt Series 270

Fig. 1

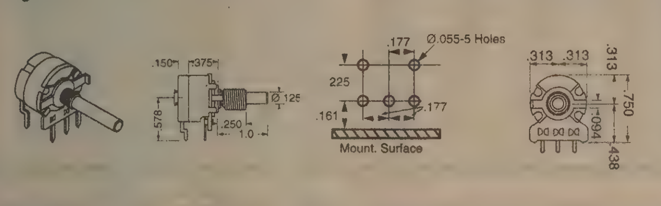
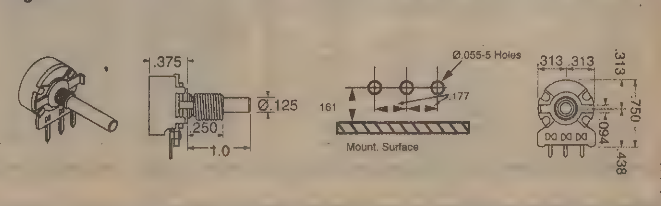


Fig. 2



Specifications:
Resistance Range: 500 ohms through 1 megohm **Resistance Tolerance:** ±20% **Power Rating Watts:** 1/4 Watt through 100K, 1/5 Watt above 100K **Voltage Rating:** Operating Maximum: 500 VDC **Mechanical Rotation:** 300° ±5° **Available Power Switch:** Type: Rotary Rating: 3A @ 125VAC (UL Approved) **Effective Rotation:** Without Switch 300° (Approximate), with **Switch** 290° (Approximate) **Resistance Taper:** Linear, Logarithmic **Locating Lug:** Left Side, Terminals Down **Bushing Information:** Length: 1/4", Thread Size: 1/4"-32, diameter: 1/4" **Shaft Information:** Length: 1" including bushing, Diameter: .125"

Digi-Key Part No.	Pricing 1	10	50	100	250
CT2223-ND - CT2233-ND	3.33	31.00	128.65	232.50	515.38
CT2201-ND - CT2211-ND	2.60	24.20	100.43	181.50	402.33
CT2212-ND - CT2222-ND	3.38	31.40	130.31	235.50	522.03
CT2234-ND - CT2244-ND	2.64	24.60	102.09	184.50	408.98

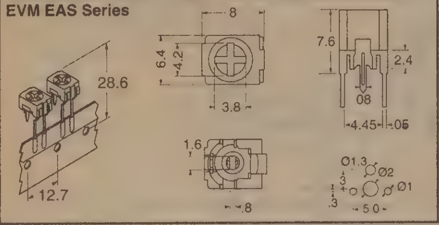
Linear Taper with Switch Fig. 1			LinearTaper without Switch Fig. 2			Logarithmic Taper with Switch Fig. 1			Logarithmic Taper without Switch Fig. 2		
Ohms	Digi-Key Part No.	CTS Part No.	Ohms	Digi-Key Part No.	CTS Part No.	Ohms	Digi-Key Part No.	CTS Part No.	Ohms	Digi-Key Part No.	CTS Part No.
500	CT2223-ND	270-XS8773	500	CT2201-ND	270-XS8784	500	CT2212-ND	270-XS8762	500	CT2234-ND	270-XS8751
1K	CT2224-ND	270-XS8774	1K	CT2202-ND	270-XS8785	1K	CT2213-ND	270-XS8763	1K	CT2235-ND	270-XS8752
2.5K	CT2225-ND	270-XS8775	2.5K	CT2203-ND	270-XS8786	2.5K	CT2214-ND	270-XS8764	2.5K	CT2236-ND	270-XS8753
5K	CT2226-ND	270-XS8776	5K	CT2204-ND	270-XS8787	5K	CT2215-ND	270-XS8765	5K	CT2237-ND	270-XS8754
10K	CT2227-ND	270-XS8777	10K	CT2205-ND	270-XS8788	10K	CT2216-ND	270-XS8766	10K	CT2238-ND	270-XS8755
25K	CT2228-ND	270-XS8778	25K	CT2206-ND	270-XS8789	25K	CT2217-ND	270-XS8767	25K	CT2239-ND	270-XS8756
50K	CT2229-ND	270-XS8779	50K	CT2207-ND	270-XS8790	50K	CT2218-ND	270-XS8768	50K	CT2240-ND	270-XS8757
100K	CT2230-ND	270-XS8780	100K	CT2208-ND	270-XS8791	100K	CT2219-ND	270-XS8769	100K	CT2241-ND	270-XS8758
250K	CT2231-ND	270-XS8781	250K	CT2209-ND	270-XS8792	250K	CT2220-ND	270-XS8770	250K	CT2242-ND	270-XS8759
500K	CT2232-ND	270-XS8782	500K	CT2210-ND	270-XS8793	500K	CT2221-ND	270-XS8771	500K	CT2243-ND	270-XS8760
1MEG	CT2233-ND	270-XS8783	1 MEG	CT2211-ND	270-XS8794	1 MEG	CT2222-ND	270-XS8772	1 MEG	CT2244-ND	270-XS8761

Panasonic® 6mm Square Ceramic Trimmer Potentiometers

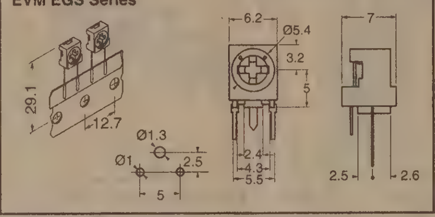
EVM-EAS/EGS Series: Dustproof Type with Knob Protection: Features: • No readjustment needed through knob protected construction • Excellent mounting efficiency due to cubic shape • Automated adjustment available. Face side: Standard cross slot screwdriver suited to automatic adjustment applicable. Back side: Penetrated slot for easy driving. **Applications:** • Audio visual equipment, home appliances. **Specifications:** • Rotation Torque: 20 to 300gf•cm. • Stopper Strength: 500gf•cm. • Rotation Angle: 210°C ±20°C. • TCR: ±200ppm (-30°C - 100°C) • Nominal Total Resistance & Tolerance: ±25% • Power Rating & Max. Operating Voltage: 0.3W, 100V (70°C) • Residual Resistance: 10Ω max. for R≤1kΩ, 1% max. for 1kΩ<R<100kΩ, 5% max. for R≥100kΩ • Soldering Heat: 5s max. 240 to 280°C, 3s max. 280 to 300°C • Rotation Life: 50 turns

EVM-F6S Series: Features: • Higher performance dustproof type. • Excellent reliability for heat and humidity. • High speed radial automatic mounting and excellent mounting performance. **Applications:** • Audio visual equipment, home appliances. **Specifications:** • Rotation Torque: 20 to 300gf•cm. • Stopper Strength: 350gf•cm. • Rotation Angle: 240°C ±20°C. • TCR: ±300ppm (-30°C - 100°C) • Nominal Total Resistance & Tolerance: ±25% • Power Rating & Max. Operating Voltage: 0.3W, 100V (70°C) • Residual Resistance: 10Ω max. for R≤1kΩ, 1% max. for 1kΩ<R<100kΩ, 5% max. for R≥100kΩ • Soldering Heat: 5s max. 240 to 280°C, 3s max. 280 to 300°C • Rotation Life: 50 turns

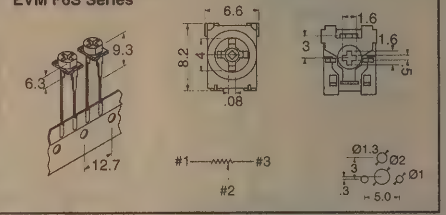
EVM EAS Series



EVM EGS Series



EVM F6S Series



Res. (Ohms)	Digi-Key Part No. Top Adjust	Pricing 1	Pricing 10	Tape & Box Pricing 1,000*	Panasonic Part No. Top Adjust
100	EAS12CT-ND	.66	5.48	337.00	EVM-EASA00B12
200	EAS22CT-ND	.66	5.48	337.00	EVM-EASA00B22
500	EAS52CT-ND	.66	5.48	337.00	EVM-EASA00B52
1K	EAS13CT-ND	.66	5.48	337.00	EVM-EASA00B13
2K	EAS23CT-ND	.66	5.48	337.00	EVM-EASA00B23
5K	EAS53CT-ND	.66	5 48	337.00	EVM-EASA00B53
10K	EAS14CT-ND	.66	5.48	337.00	EVM-EASA00B14
20K	EAS24CT-ND	.66	5.48	337.00	EVM-EASA00B24
50K	EAS54CT-ND	.66	5.48	337.00	EVM-EASA00B54
100K	EAS15CT-ND	.66	5.48	337.00	EVM-EASA00B15
200K	EAS25CT-ND	.66	5.48	337.00	EVM-EASA00B25
500K	EAS55CT-ND	.66	5 48	337.00	EVM-EASA00B55
1M	EAS16CT-ND	.66	5.48	337.00	EVM-EASA00B16

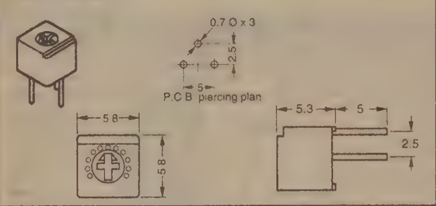
Res. (Ohms)	Digi-Key Part No. Side Adjust	Pricing 1	Pricing 10	Tape & Box Pricing 1,000*	Panasonic Part No. Side Adjust
100	EGS12CT-ND	.70	5.80	357.00	EVM-EGSA00B12
200	EGS22CT-ND	.70	5.80	357.00	EVM-EGSA00B22
500	EGS52CT-ND	70	5.80	357 00	EVM-EGSA00B52
1K	EGS13CT-ND	.70	5.80	357.00	EVM-EGSA00B13
2K	EGS23CT-ND	.70	5.80	357.00	EVM-EGSA00B23
5K	EGS53CT-ND	.70	5.80	357 00	EVM-EGSA00B53
10K	EGS14CT-ND	.70	5.80	357.00	EVM-EGSA00B14
20K	EGS24CT-ND	.70	5.80	357.00	EVM-EGSA00B24
50K	EGS54CT-ND	.70	5.80	357.00	EVM-EGSA00B54
100K	EGS15CT-ND	.70	5.80	357 00	EVM-EGSA00B15
200K	EGS25CT-ND	.70	5.80	357.00	EVM-EGSA00B25
500K	EGS55CT-ND	.70	5.80	357 00	EVM-EGSA00B55
1M	EGS16CT-ND	.70	5.80	357 00	EVM-EGSA00B16

Res. (Ohms)	Digi-Key Part No. Top Adjust	Pricing 1	Pricing 10	Tape & Box Pricing 1,000*	Panasonic Part No. Top Adjust
500	F6SA52CT-ND	.49	4.10	252.00	EVM-F6SA00B52
1K	F6SA13CT-ND	.49	4.10	252.00	EVM-F6SA00B13
2K	F6SA23CT-ND	.49	4.10	252.00	EVM-F6SA00B23
5K	F6SA53CT-ND	.49	4.10	252.00	EVM-F6SA00B53
10K	F6SA14CT-ND	.49	4.10	252.00	EVM-F6SA00B14
20K	F6SA24CT-ND	.49	4.10	252.00	EVM-F6SA00B24
50K	F6SA54CT-ND	.49	4.10	252 00	EVM-F6SA00B54
100K	F6SA15CT-ND	.49	4.10	252.00	EVM-F6SA00B15
200K	F6SA25CT-ND	.49	4 10	252.00	EVM-F6SA00B25
500K	F6SA55CT-ND	.49	4.10	252.00	EVM-F6SA00B55
1M	F6SA16CT-ND	.49	4.10	252.00	EVM-F6SA00B16

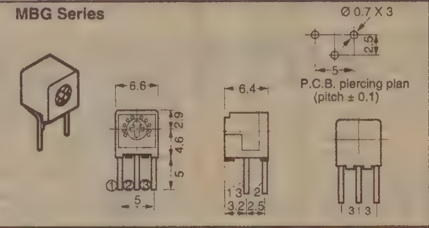
* For Tape and Box Part No. change "CT-ND" to "TB-ND".

Panasonic® 5mm Sq. Single-Turn Cermet Potentiometers

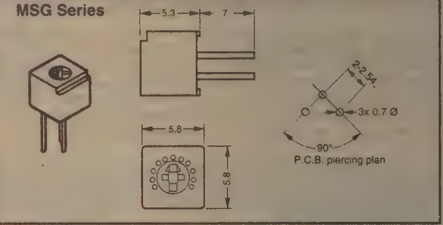
MAG Series



MBG Series



MSG Series



SPECIFICATIONS: • **Mechanical Characteristics:** • Total rotation angle: Adjustment angle 200° nom. • Soldering: Within 5 sec. max. at 300°C. • **Electrical Characteristics:** • Resistance Range: 100Ω 2 Meg Ω. • Tolerance: ±20%. • Power Rating: 0.5W at 70°C. • Max. Voltage: 200V. • Dielectric Withstanding Voltage: 600V AC for one minute. • Temp. Coefficient: ±100ppm/°C. • Insulation Resistance: 100M Ω. • **Environmental Characteristics:** • Operating Temperature Range: –55°C to +125°C. • Vibration: 20G. • Shock: 180G. • Seal: MIL-R-22097 Immersion.

Panasonic/Matsushita Electric has announced a change in the Corporate Trademark. Present trademark: ▲ . New trademark: Ⓜ .

MAG-KIT-ND† 10 each of MAG sizes. **$129.95**
MBG-KIT-ND§ 10 each of MBG sizes. **$129.95**
MSG-KIT-ND‡ 10 each of MSG sizes. **$129.95**
Notebook style storage case and bin storage guide included.

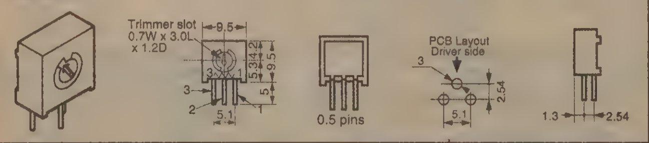
Res. (Ohms)	Digi-Key Part No. Top Adjust †	Digi-Key Part No. Side Adjust §	Digi-Key Part No. Top Adjust ‡	Pricing 1	Pricing 10	Pricing 100	Pricing 1,000	Pricing 5,000	Panasonic Part No. Top Adjust	Panasonic Part No. Side Adjust	Panasonic Part No. Top Adjust
100	MAG12-ND	MBG12-ND	MSG12-ND	1.59	13 23	121.67	814 00	756.00/M	EVM-MAGA01B12	EVM-MBGA01B12	EVM-MSGA01B12
200	MAG22-ND	MBG22-ND	MSG22-ND	1 59	13.23	121.67	814.00	756.00/M	EVM-MAGA01B22	EVM-MBGA01B22	EVM-MSGA01B22
500	MAG52-ND	MBG52-ND	MSG52-ND	1.59	13 23	121.67	814 00	756.00/M	EVM-MAGA01B52	EVM-MBGA01B52	EVM-MSGA01B52
1K	MAG13-ND	MBG13-ND	MSG13-ND	1.59	13.23	121 67	814.00	756.00/M	EVM-MAGA01B13	EVM-MBGA01B13	EVM-MSGA01B13
2K	MAG23-ND	MBG23-ND	MSG23-ND	1.59	13.23	121.67	814 00	756.00/M	EVM-MAGA01B23	EVM-MBGA01B23	EVM-MSGA01B23
5K	MAG53-ND	MBG53-ND	MSG53-ND	1.59	13.23	121.67	814 00	756.00/M	EVM-MAGA01B53	EVM-MBGA01B53	EVM-MSGA01B53
10K	MAG14-ND	MBG14-ND	MSG14-ND	1.59	13.23	121.67	814.00	756.00/M	EVM-MAGA01B14	EVM-MBGA01B14	EVM-MSGA01B14
20K	MAG24-ND	MBG24-ND	MSG24-ND	1.59	13.23	121 67	814.00	756.00/M	EVM-MAGA01B24	EVM-MBGA01B24	EVM-MSGA01B24
50K	MAG54-ND	MBG54-ND	MSG54-ND	1.59	13.23	121 67	814 00	756.00/M	EVM-MAGA01B54	EVM-MBGA01B54	EVM-MSGA01B54
100K	MAG15-ND	MBG15-ND	MSG15-ND	1.59	13.23	121.67	814.00	756.00/M	EVM-MAGA01B15	EVM-MBGA01B15	EVM-MSGA01B15
200K	MAG25-ND	MBG25-ND	MSG25-ND	1.59	13.23	121.67	814.00	756.00/M	EVM-MAGA01B25	EVM-MBGA01B25	EVM-MSGA01B25
500K	MAG55-ND	MBG55-ND	MSG55-ND	1.59	13.23	121.67	814.00	756.00/M	EVM-MAGA01B55	EVM-MBGA01B55	EVM-MSGA01B55
1M	MAG16-ND	MBG16-ND	MSG16-ND	1.59	13.23	121.67	814.00	756.00/M	EVM-MAGA01B16	EVM-MBGA01B16	EVM-MSGA01B16
2M	MAG26-ND	MBG26-ND	MSG26-ND	1.59	13.23	121 67	814.00	756.00/M	EVM-MAGA01B26	EVM-MBGA01B26	EVM-MSGA01B26

Panasonic® 3/8" Square Single Turn Cermet Potentiometers

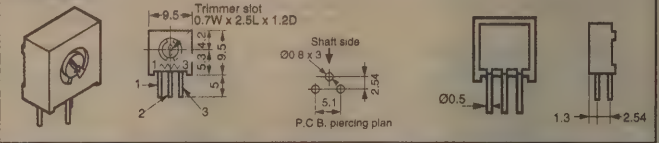
Cross Reference Chart

Series	Bourns	Beckman	Spectrol
1FA	3386H	72	63P
3FA	3386X	72	63P

3FA Series



1FA Series



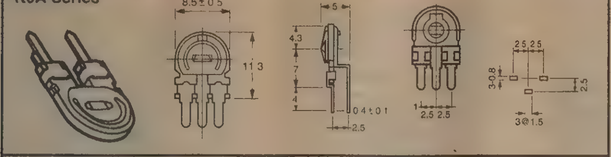
Specifications: • **Resistance Range:** 100Ω to 1MΩ; • **Tolerance:** ±10%; • **Taper:** Linear; • **Residual Resistance:** 3% Max.; • **Wattage Rating:** 0.5W (85°C); • **Voltage Rating:** 200V Max.; • **TCR:** 100ppm/°C; • **CRV:** 1% Max.; • **Rotation Torque:** 360 gf. cm. Max.; • **Stopper Strength:** 500 gh. dm. Min.; • **Rotation** 300° ± –10°; • **Operating Temp.:** –55 to +125°C.Insulation Resistance: 100M Ω.
Insulation Resistance: 1000M Ω min. at DC500V.

Resistance Ohms	Digi-Key Part No. Standup Version Side Adjust	Digi-Key Part No. Standup Version Side Adjust	Pricing 1	Pricing 10	Pricing 100	Pricing 1,000	Pricing 5,000	Pricing 10,000	Panasonic Part No. Standup Version Side Adjust	Panasonic Part No. Standup Version Side Adjust
100	1FA12-ND	3FA12-ND	.74	6.60	59.40	508.00	471.00/M	440.00/M	EVM-M1FA01B12	EVM-M3FA01B12
200	—	3FA22-ND	.74	6.60	59.40	508.00	471.00/M	440.00/M	—	EVM-M3FA01B22
1K	1FA13-ND	3FA13-ND	.74	6.60	59.40	508.00	471.00/M	440.00/M	EVM-M1FA01B13	EVM-M3FA01B13
500K	1FA55-ND	3FA55-ND	.74	6.60	59.40	508.00	471.00/M	440.00/M	EVM-M1FA01B55	EVM-M3FA01B55

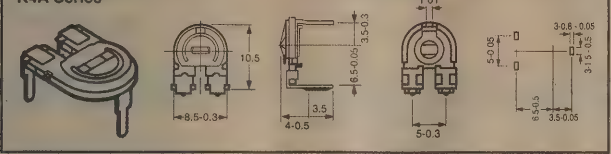
Panasonic. 8mm Trimmer Potentiometers

EVN-SERIES

K0A Series



K4A Series

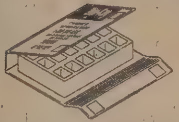


Items	K4A/K0A
Resistance Range	300 to 2MΩ
Taper	Linear
Tolerance	±30%
Working Voltage	200 V max.
Power Rating	0.1 W/50°C
Residual Resistance	Up to 1kΩ: 10Ω max. Over 1kΩ: 5% of total resistance
Rotation Angle	260° ± 20°
Rotation Torque	0.4 to 4.2 in-oz.
Stop Strength	1 in. lb.
Operating Temperature	−25 to 75°C

Panasonic.

TRIMMER POTENTIOMETER KIT

ASSORTMENT OF 18 POPULAR TRIMMERS BOTH LAYDOWN AND STANDUP PANASONIC QUALITY



CAT. NO.
K-KIT-ND
ONLY

$42.95

180 TRIMMER POTENTIOMETERS. Price includes convenient divided notebook style storage case with bin guide for easy storage and quick access.

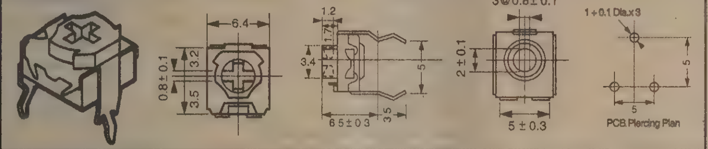
Res. Ohms	Digi-Key Part No. Laydown Version	Digi-Key Part No. Standup Version	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No. Laydown Version	Panasonic Part No. Standup Version
300	K4A32-ND	K0A32-ND	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B32	EVN-64AA00B32
500	K4A52-ND	K0A52-ND	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B52	EVN-64AA00B52
1K	K4A13-ND*	K0A13-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B13	EVN-64AA00B13
2K	K4A23-ND*	K0A23-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B23	EVN-64AA00B23
5K	K4A53-ND*	K0A53-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B53	EVN-64AA00B53
10K	K4A14-ND*	K0A14-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B14	EVN-64AA00B14
20K	K4A24-ND*	K0A24-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B24	EVN-64AA00B24
50K	K4A54-ND*	K0A54-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B54	EVN-64AA00B54
100K	K4A15-ND*	K0A15-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B15	EVN-64AA00B15
200K	K4A25-ND*	K0A25-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B25	EVN-64AA00B25
500K	K4A55-ND*	K0A55-ND*	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B55	EVN-64AA00B55
1M	K4A16-ND	K0A16-ND	.31	2.60	23.89	160.00	148.00/M	138.00/M	EVN-65AA00B16	EVN-64AA00B16
2M	—	K0A26-ND	.31	2.60	23.89	160.00	148.00/M	138.00/M	—	EVN-64AA00B26

* Denotes part included in K-KIT.

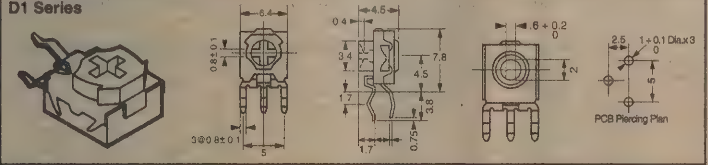
Panasonic. 6mm Carbon Trimmer Potentiometers

Panasonic/Matsushita Electric has announced a change in the Corporate Trademark. Present trademark: ▲. New trademark: M.

D4 Series



D1 Series



Specifications:

Mechanical: • **Rotation angle:** 210° ±20°. • **Rotation torque:** 20 to 250g●cm. • **Stopper Strength:** 1000g●cm min. • **Soldering Heat:** 240°C to 280°C,5 sec. max.; 280°C to 300°C,3 sec. max. • **Rotation life:** ±15%, after 100 turns.

Electrical: • Power rating: 0.1W (when under 50°C). • Max. operating voltage: 50V. • Taper: B (Linear). • Resistance: 200Ω to 1MΩ. • Tolerance: ±30%.

Features:

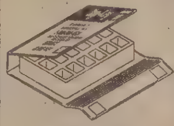
• Miniature size, lightweight – 6.4 x 6.7 MM. • Suitable for automatic insertion as square housing. • Suitable for automatic adjustment as stable rotation torque. • Dust proof and flux proof construction. • Adjustable from both top and bottom sides. • Snap-in mounting terminal.

Applications: • Consumer equipments such as TV, VTR (VCR), stereo, radio.

Panasonic.

6MM CARBON TRIMMER POTENTIOMETER KIT

ASSORTMENT OF 14 6MM CARBON TRIMMER POTENTIOMETERS PANASONIC QUALITY



CAT. NO.
DXA-KIT-ND
ONLY

$29.95

140 6MM CARBON TRIMMER POTENTIOMETERS. Price includes convenient divided notebook style storage case with bin guide for easy storage and quick access. * Included in kit.

Res. Ohms	Digi-Key Part No. Laydown Version	Digi-Key Part No. Standup Version	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No. Laydown Version	Panasonic Part No. Standup Version
200	D4AA22-ND*	D1AA22-ND*	.22	1,83	16.79	112 00	104.00/M	97.00/M	EVN-D8AA03B22	EVN-D2AA03B22
500	D4AA52-ND	D1AA52-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B52	EVN-D2AA03B52
1K	D4AA13-ND*	D1AA13-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B13	EVN-D2AA03B13
2K	D4AA23-ND	D1AA23-ND	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B23	EVN-D2AA03B23
5K	D4AA53-ND*	D1AA53-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B53	EVN-D2AA03B53
10K	D4AA14-ND	D1AA14-ND	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B14	EVN-D2AA03B14
20K	D4AA24-ND	D1AA24-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B24	EVN-D2AA03B24
50K	D4AA54-ND	D1AA54-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B54	EVN-D2AA03B54
100K	D4AA15-ND*	D1AA15-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B15	EVN-D2AA03B15
200K	D4AA25-ND	D1AA25-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B25	EVN-D2AA03B25
500K	D4AA55-ND*	D1AA55-ND*	.22	1.83	16.79	112.00	104.00/M	97.00/M	EVN-D8AA03B55	EVN-D2AA03B55

Panasonic. 3/8" Square Multiturn Cermet Potentiometers

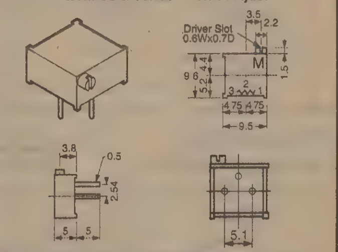
SPECIFICATIONS:

Mechanical Characteristics: Total Adjustment Turns: 20±3 turns; Rotation Torque: 360gf. cm max.; Mechanical Stops: Wiper assembly idles; Terminal Strength: 1kgf. min.; Soldering: Within 3 sec. max. at 350°C.

Electrical Characteristics: Resistance Range: 100Ω ~ 2MΩ; Tolerance: ±10%; Power Rating: 0.5W at 70°C; derated to 0W at 125°C; Max. Voltage: 200V; Residual Resistance: 3% or 1Ω, whichever is greater; Contact Resistance Variation: 1% or 1Ω, whichever is greater; Dielectric Withstand Voltage: 600V AC for one minute; Temperature Coefficient: ±100ppm/°C; Operating Temperature Range: –55°C ~ +125°C; Insulation Resistance: 1000MΩ min. at DC500V.

Environmental Characteristics: Load Life: 0.5W at 70°C 1000 Hrs.; High Temperature: 125°C 250 Hrs.; Low Temperature: –55°C 1.5 Hrs.; Heat Cycles: 5 cycles, 25°C → –65°C → 25°C → 125°C → 25°C; Humidity: 40°C, 90 ~ 95% R.H., 1000 Hrs.; Vibration: 20G; Shock: 100G; Mechanical Life: 200 cycles; Seal: MIL-R-22097 immersion.

EVM-CDG Series — Side Adjust



Ohms	Digi-Key Part No. Side Adjust	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No. Side Adjust
100	CDG12-ND	1.95	16.23	149.27	998.00	927.00/M	865.00/M	EVM-CDGA01B12

Cross Reference Chart

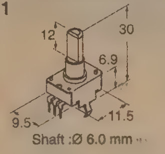
Series	Bourns	Beckman	Spectrol
EVM-CDG	3296P	66X, 68X	64X, 52X

NEW! Panasonic® Audio Potentiometers

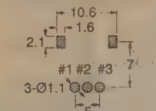
9mm Potentiometers

Specifications: Resistance Range: 5K ohm through 50K ohm • Tolerance: ±20% • Power Rating: .05w @ 50°C • Voltage Rating: E = √PR but E ≤ 50VAC/20VDC • Rotation Angle: 300° ±5° • Life: 10000 turns min. • Application: Audio mixer

1



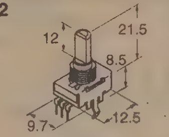
Shaft :Ø 6.0 mm



(View from mtg. side)

Footprint Applies to Figures 1, 2 & 3

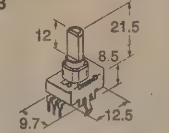
2



Shaft :Ø 6.0 mm

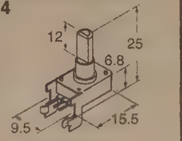
* Hardware Included

3

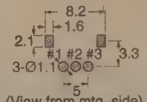


Shaft :Ø 6.0 mm

4



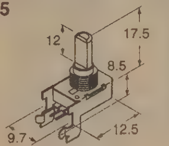
Shaft :Ø 6.0 mm



(View from mtg. side)

Footprint Applies to Figures 4, 5, & 6

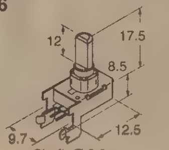
5



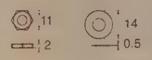
Shaft :Ø 6.0 mm

* Hardware Included

6



Shaft :Ø 6.0 mm

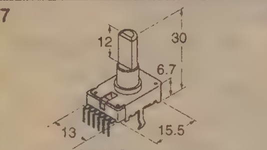


* Hardware for Fig. 2 and Fig. 5

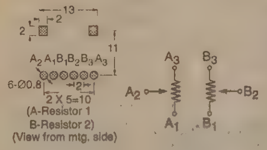
12mm Potentiometers

Specifications: Resistance Range: 5K ohm through 50K ohm • Tolerance: ±20% • Power Rating: .05w @ 50°C • Voltage Rating: E = √PR but E ≤ 50VAC/20VDC (Do not use DC Voltage) • Rotation Angle: 300° ±5° • Life: 15000 turns min. • Application: Audio mixer

7

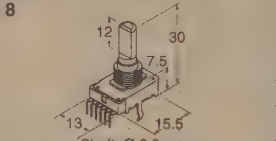


Shaft :Ø 6.0 mm



Footprint Applies to Figures 7, 8, & 9

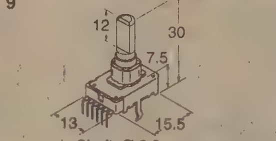
8



Shaft :Ø 6.0 mm

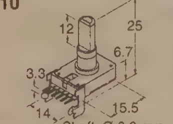
* Hardware Included

9

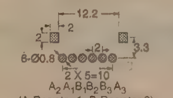


Shaft :Ø 6.0 mm

10

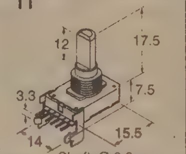


Shaft :Ø 6.0 mm



Footprint Applies to Figures 7, 8, & 9

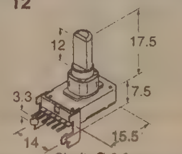
11



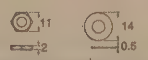
Shaft :Ø 6.0 mm

* Hardware Included

12



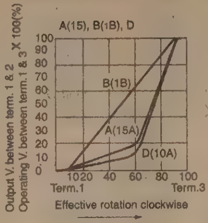
Shaft :Ø 6.0 mm



* Hardware for Fig. 8 and Fig. 11

Resistance Code Chart
Code (Resistance Value)

502 (5K)	203 (20K)
103 (10K)	503 (50K)



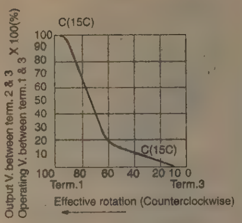


Fig. No.	Taper	Center Detent	Bushing	Digi-Key Part No.	Pricing 1	10	100	1000	Panasonic* Part No.
9MM Audio Potentiometers									
1	B	Y	None	P3A1☐☐☐-ND	1.00	8.37	62.75	462.94	EVU-F3AF30B☐☐
1	D	Y	None	P3B2☐☐☐-ND	1.00	8.37	62.75	462.94	EVU-F3AF30D☐☐
1	B	N	None	P3C3☐☐☐-ND	.94	7.86	58.97	435.05	EVU-F2AF30B☐☐
1	D	N	None	P3D4☐☐☐-ND	.94	7.86	58.97	435.05	EVU-F2AF30D☐☐
2	B	Y	Metal	P3E5☐☐☐-ND	1.82	15.19	113.90	840.36	EVU-F3MFL3B☐☐
2	D	Y	Metal	P3F6☐☐☐-ND	1.82	15.19	113.90	840.36	EVU-F3MFL3D☐☐
2	B	N	Metal	P3G7☐☐☐-ND	1.76	14.65	109.87	810.61	EVU-F2MFL3B☐☐
2	D	N	Metal	P3H8☐☐☐-ND	1.76	14.65	109.87	810.61	EVU-F2MFL3D☐☐
3	B	Y	Plastic	P3I9☐☐☐-ND	1.20	10.01	75.10	554.04	EVU-F3LFL3B☐☐
3	D	Y	Plastic	P3J0☐☐☐-ND	1.20	10.01	75.10	554.04	EVU-F3LFL3D☐☐
3	B	N	Plastic	P3K1☐☐☐-ND	1.14	9.48	71.06	524.29	EVU-F2LFL3B☐☐
3	D	N	Plastic	P3L2☐☐☐-ND	1.14	9.48	71.06	524.29	EVU-F2LFL3D☐☐
4	B	Y	None	P3M3☐☐☐-ND	1.04	8.64	64.76	477.81	EVU-E3AF25B☐☐
4	D	Y	None	P3N4☐☐☐-ND	1.04	8.64	64.76	477.81	EVU-E3AF25D☐☐
4	B	N	None	P3P5☐☐☐-ND	.97	8.10	60.73	448.07	EVU-E2AF25B☐☐
4	D	N	None	P3Q6☐☐☐-ND	.97	8.10	60.73	448.07	EVU-E2AF25D☐☐
5	B	Y	Metal	P3R7☐☐☐-ND	1.85	15.46	115.92	855.23	EVU-E3JFK4B☐☐
5	D	Y	Metal	P3S8☐☐☐-ND	1.85	15.46	115.92	855.23	EVU-E3JFK4D☐☐
5	B	N	Metal	P3T9☐☐☐-ND	1.79	14.92	111.89	825.48	EVU-E2JFK4B☐☐
5	D	N	Metal	P3U0☐☐☐-ND	1.79	14.92	111.89	825.48	EVU-E2JFK4D☐☐
6	B	Y	Plastic	P3W1☐☐☐-ND	1.24	10.32	77.36	570.77	EVU-E3KFK4B☐☐
6	D	Y	Plastic	P3X2☐☐☐-ND	1.24	10.32	77.36	570.77	EVU-E3KFK4D☐☐
6	B	N	Plastic	P3Y3☐☐☐-ND	1.17	9.78	73.33	541.03	EVU-E2KFK4B☐☐
6	D	N	Plastic	P3Z4☐☐☐-ND	1.17	9.78	73.33	541.03	EVU-E2KFK4D☐☐
12MM Audio Potentiometers									
7	B	Y	None	P2A5☐☐☐-ND	2.26	18.85	141.37	1043.01	EVJ-Y81F30B☐☐
7	AC	Y	None	P2B6☐☐☐-ND	2.26	18.85	141.37	1043.01	EVJ-YE1F30☐☐☐
7	A	N	None	P2C7☐☐☐-ND	2.20	18.31	137.34	1013.26	EVJ-Y00F30A☐☐
7	D	N	None	P2D8☐☐☐-ND	2.20	18.31	137.34	1013.26	EVJ-Y00F30D☐☐
8	B	Y	Metal	P2E9☐☐☐-ND	2.58	21.47	161.03	1188.03	EVJ-Y91F03B☐☐
8	AC	Y	Metal	P2F0☐☐☐-ND	2.58	21.47	161 03	1188.03	EVJ-YK1F03☐☐☐
8	A	N	Metal	P2G1☐☐☐-ND	2.51	20.93	157.00	1158.28	EVJ-Y10F03A☐☐
8	D	N	Metal	P2H2☐☐☐-ND	2.51	20.93	157.00	1158.28	EVJ-Y10F03D☐☐
9	B	Y	Plastic	P2I3☐☐☐-ND	2.46	20.46	153.47	1132.25	EVJ-Y96F03B☐☐
9	AC	Y	Plastic	P2J4☐☐☐-ND	2.46	20.46	153.47	1132.25	EVJ-YK6F03☐☐☐
9	A	N	Plastic	P2K5☐☐☐-ND	2.40	19.96	149.69	1104.36	EVJ-Y15F03A☐☐
9	D	N	Plastic	P2L6☐☐☐-ND	2.40	19.96	149.69	1104.36	EVJ-Y15F03D☐☐
10	B	Y	None	P2M7☐☐☐-ND	2.29	19.12	143.39	1057.88	EVJ-C31F25B☐☐
10	AC	Y	None	P2N8☐☐☐-ND	2.29	19.12	143.39	1057.88	EVJ-CV1F25☐☐☐
10	A	N	None	P2P9☐☐☐-ND	2.23	18.55	139.10	1026.28	EVJ-C00F25A☐☐
10	D	N	None	P2Q0☐☐☐-ND	2.23	18.55	139.10	1026.28	EVJ-C00F25D☐☐
11	B	Y	Metal	P2R1☐☐☐-ND	2.61	21.74	163.04	1202.90	EVJ-C51F02B☐☐
11	AC	Y	Metal	P2S2☐☐☐-ND	2.61	21.74	163.04	1202.90	EVJ-CC1F02☐☐☐
11	A	N	Metal	P2T3☐☐☐-ND	2.54	21.17	158.76	1171.30	EVJ-C20F02A☐☐
11	D	N	Metal	P2U4☐☐☐-ND	2.54	21.17	158.76	1171.30	EVJ-C20F02D☐☐
12	B	Y	Plastic	P2W5☐☐☐-ND	2.49	20.73	155.48	1147.13	EVJ-C56F02B☐☐
12	AC	Y	Plastic	P2X6☐☐☐-ND	2.49	20.73	155.48	1147.13	EVJ-CC6F02☐☐☐
12	A	N	Plastic	P2Y7☐☐☐-ND	2.42	20.19	151.45	1117.38	EVJ-C25F02A☐☐
12	D	N	Plastic	P2Z8☐☐☐-ND	2.42	20.19	151.45	1117.38	EVJ-C25F02D☐☐

For complete number, substitute corresponding code (from above chart) for ☐☐☐
* Call Digi-Key for help in assembling manufacturer part number

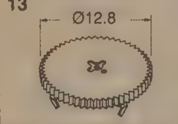
Thumbwheel Potentiometers

Resistance Code Chart
Code (Resistance Value)

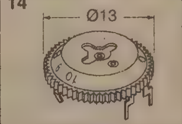
502 (5K)	203 (20K)
103 (10K)	503 (50K)

Resistance Range: 5K ohm through 50K ohm • Tolerance: ±20% • Power Rating: B taper - .03W, All others .01W • Voltage Rating: 50VAC/20VDC • Rotation Angle: 260° ±10° • Life: 10000 turns min.

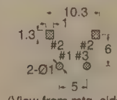
13



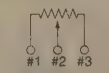
14



Footprint Applies to both Fig. 13 & 14



(View from mtg. side)



Element Circuit Diagram

Fig. No.	Taper	Center Detent	Digi-Key Part No.	Pricing 1	10	100	1000	Panasonic* Part No.
13	A	N	P4A9☐☐☐-ND	2.04	17 04	127.76	942.61	EVL-HFAA01A☐☐
13	B	N	P4B0☐☐☐-ND	2.04	17.04	127.76	942.61	EVL-HFAA01B☐☐
14	A	N	P4C1☐☐☐-ND	2.04	17.04	127.76	942.61	EVL-HFAA06A☐☐
14	B	N	P4D2☐☐☐-ND	2.04	17.04	127.76	942.61	EVL-HFAA06B☐☐
13	A	Y	P4E3☐☐☐-ND	2.29	19.08	143.14	1056.03	EVL-HFKA01A☐☐
13	B	Y	P4F4☐☐☐-ND	2.29	19.08	143.14	1056.03	EVL-HFKA01B☐☐

For complete number, substitute corresponding code (from chart at left) for ☐☐☐
* Call Digi-Key for help in assembling manufacturer part number

NEW! **Panasonic**. Slide Potentiometers for Audio Mixer Applications

Rail Guide Type – Fig. 1

Features:

- Wobbleless, smooth travel with wet slide feel
- High reliability due to exclusive specular glossing resistive elements for low distortion and precise precious metal contacts.
- Precise attenuation characteristics
- Long life 100,000 cycles min.

Recommended Applications:

- Fader controls for audio mixers
- Audio Equipment

Motor Type – Fig. 2

Features:

- Excellent operation feeling, high speed driving and power saving design
- Dustproof mounting possible by 90° off set lever design

Recommended Application

- Automated Audio Mixers (Common/Amateur Type)

Thin Type – Fig. 3

Features:

- Thin and compact design with 8mm body height and 15mm width
- Light sliding force and excellent operation
- Highly accurate attenuation characteristics, maximum attenuation of more than 100dB; and low noise

Recommended Applications:

- Fade control for common type audio mixers

Mono Type – Fig. 4

Features:

- Slim type fader, 9mm width, 8mm height
- Excellent cost performance applicable to audio mixers for amateur use

Recommended Applications:

- Fade control for audio mixers
- Multi-Track Recorders
- Paper position sensors for copiers

Standard Type – Fig. 5

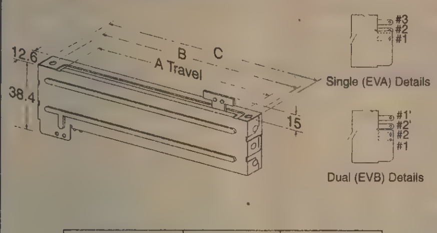
Features:

- Excellent operational feeling
- Low noise, long operational life, highly accurate attenuation

Recommended Applications:

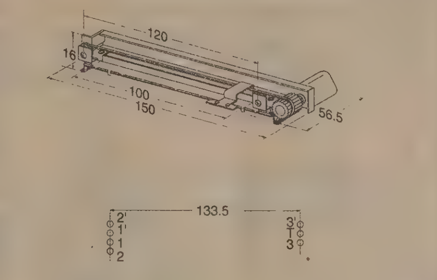
- Fade control for audio mixers and musical key boards
- Heat control or mode switching for car air conditioners
- Measurement instruments

Rail Guide Type – Fig. 1

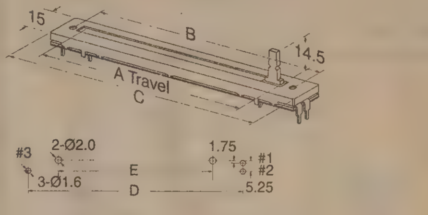


Travel = A	B	C
100	120	129.3
60	80	89.3

Motor Type – Fig. 2

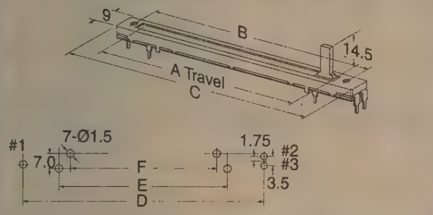


Thin Type – Fig. 3



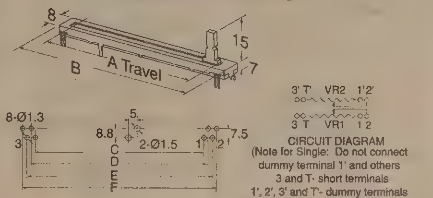
Travel = A	B	C	D	E
100	120	128	127.5	96
60	80	88	87.5	56

Mono Type – Fig. 4



Travel = A	B	C	D	E	F
100	120	128	127.5	92.5	87.5
60	80	88	87.5	52.5	47.5

Standard Type – Fig. 5



CIRCUIT DIAGRAM
(Note for Single: Do not connect dummy terminal 1' and others
3 and T- short terminals
1', 2', 3' and T'- dummy terminals
Note for Dual: 3 and T- short terminals
3' and T'- short terminals)

Travel = A	B	C	D	E	F
60	75	64	67	70	73
45	60	49	52	55	58

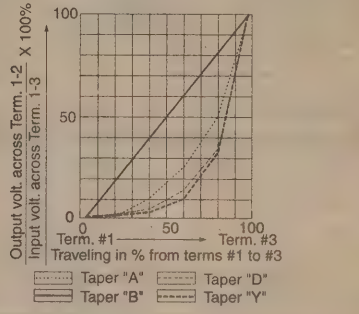


Fig. No.	Resistance (ohms)	Style	Travel (mm)	Single/ Dual	Taper	Digi-Key Part No.	Price Per Piece 1	10	50	100	500	Panasonic Part No.
1	10K	Rail	100	S	Y	PJY100SY-ND	36.05	32.58	30.41	28.89	27.15	EVA-JYBP08Y14
1	10K	Rail	100	S	B	PJY100SB-ND	36.05	32.58	30.41	28.89	27.15	EVA-JYMP08B14
1	10K	Rail	100	D	Y	PJY100DY-ND	45.06	40.72	38.01	36.11	33.94	EVB-JYBP08Y14
1	10K	Rail	60	S	Y	PJX060SY-ND	30.04	27.15	25.34	24.08	22.63	EVA-JXCP08Y14
1	10K	Rail	60	D	Y	PJX060DY-ND	39.05	35.29	32.94	31.30	29.41	EVB-JXCP08Y14
2	10K	Motor	100	S	Y	PNC100SY-ND	45.06	40.72	38.01	36.11	33.94	EVB-NC2P088BL
3	10K	Thin	100	S	Y	PJQ100SY-ND	8.15	6.52	5.41	4.89	4.40	EVA-JQKR15Y14
3	10K	Thin	100	S	A	PJQ100SA-ND	8.15	6.52	5.41	4.89	4.40	EVA-JQKR15A14
3	10K	Thin	100	S	D	PJQ100SD-ND	8.15	6.52	5.41	4.89	4.40	EVA-JQKR15D14
3	10K	Thin	100	S	B	PJQ100SB-ND	8.15	6.52	5.41	4.89	4.40	EVA-JQLR15B14
3	10K	Thin	100	D	Y	PJQ100DY-ND	10.40	8.33	6.91	6.25	5.62	EVB-JQKR15Y14
3	10K	Thin	100	D	A	PJQ100DA-ND	10.40	8.33	6.91	6.25	5.62	EVB-JQKR15A14
3	10K	Thin	100	D	D	PJQ100DD-ND	10.40	8.33	6.91	6.25	5.62	EVB-JQKR15D14
3	10K	Thin	60	S	Y	PNA060SY-ND	7.69	6.16	5.11	4.62	4.16	EVA-NADR15Y14
3	10K	Thin	60	S	A	PNA060SA-ND	7.69	6.16	5.11	4.62	4.16	EVA-NADR15A14
3	10K	Thin	60	S	D	PNA060SD-ND	7.69	6.16	5.11	4.62	4.16	EVA-NADR15D14
3	10K	Thin	60	S	B	PNA060SB-ND	7.69	6.16	5.11	4.62	4.16	EVA-NAHR15B14
3	10K	Thin	60	D	Y	PNA060DY-ND	9.95	7.97	6.61	5.98	5.38	EVB-NADR15Y14
3	10K	Thin	60	D	A	PNA060DA-ND	9.95	7.97	6.61	5.98	5.38	EVB-NADR15A14
3	10K	Thin	60	D	D	PNA060DD-ND	9.95	7.97	6.61	5.98	5.38	EVB-NADR15D14
4	10K	Mono	100	S	Y	PNF100SY-ND	6.79	5.43	4.51	4.08	3.67	EVA-NF4R15Y14
4	10K	Mono	100	S	A	PNF100SA-ND	6.79	5.43	4.51	4.08	3.67	EVA-NF4R15A14
4	10K	Mono	100	S	D	PNF100SD-ND	6.79	5.43	4.51	4.08	3.67	EVA-NF4R15D14
4	10K	Mono	100	S	B	PNF100SB-ND	6.79	5.43	4.51	4.08	3.67	EVA-NF3R15B14
4	10K	Mono	60	S	Y	PNE060SY-ND	5.88	4.71	3.91	3.53	3.18	EVA-NE4R15Y14
4	10K	Mono	60	S	A	PNE060SA-ND	5.88	4.71	3.91	3.53	3.18	EVA-NE4R15A14
4	10K	Mono	60	S	D	PNE060SD-ND	5.88	4.71	3.91	3.53	3.18	EVA-NE4R15D14
4	10K	Mono	60	S	B	PNE060SB-ND	5.88	4.71	3.91	3.53	3.18	EVA-NE3R15B14
5	10K	Standard	60	S	A	PQ1060SA-ND	3.17	2.54	2.11	1.91	1.71	EWA-Q10C15A14
5	10K	Standard	60	S	D	PQ1060SD-ND	3.17	2.54	2.11	1.91	1.71	EWA-Q10C15D14
5	10K	Standard	60	S	B	PQ1060SB-ND	3.17	2.54	2.11	1.91	1.71	EWA-Q12C15B14
5	10K	Standard	60	D	A	PQ3060DA-ND	3.84	3.08	2.56	2.31	2.08	EWA-Q30C15A14
5	10K	Standard	60	D	D	PQ3060DD-ND	3.84	3.08	2.56	2.31	2.08	EWA-Q30C15D14
5	10K	Standard	45	S	A	PP1045SA-ND	2.72	2.18	1.81	1.63	1.47	EWA-P10C15A14
5	10K	Standard	45	S	D	PP1045SD-ND	2.72	2.18	1.81	1.63	1.47	EWA-P10C15D14
5	10K	Standard	45	S	B	PP1045SB-ND	2.72	2.18	1.81	1.63	1.47	EWA-P12C15B14
5	10K	Standard	45	D	A	PP3045DA-ND	3.39	2.72	2.26	2.04	1.84	EWA-P30C15A14
5	10K	Standard	45	D	D	PP3045DD-ND	3.39	2.72	2.26	2.04	1.84	EWA-P30C15D14

Panasonic® Surface Mount Trimmer Potentiometers

Series EVM-7J
- 3mm sealed type for flow and reflow soldering
- Labor cost saving filmless sealed construction

Series EVM-1S
- 3mm open frame type for reflow soldering
- Excellent mounting efficiency

Series EVM-1G
- 4mm open frame type for reflow soldering
- Two terminal construction

Series EVM-1E
- 4mm open frame type for reflow soldering
- Inline terminal construction

Series EVM-1D
- 4mm open frame type for reflow soldering
- Triangle terminal construction.

Series EVN-5E
- 3mm carbon dustproof type for reflow soldering
- Excellent mounting efficiency for pick & place assy.
- Rotation stopper feature.

SPECIFICATIONS:

Resistance Range: EVM-7J: 220-1M OHM, EVM-1S/1G/1E/1D: 100-1M OHM, EVN-5E: 500-1M OHM

Tolerance: EVM-7J/1S/1G/1E/1D: ±25%, EVN-5E: ±30%

Taper: ALL: Linear

Power Rating: EVM-7J: .05W, EVM-1S: .15W, EVM-1G/1E/1D: .2W, EVN-5E: .05W @50C.

Adjustment Angle: ALL: 260 ±20.

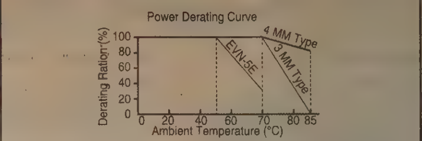
Rotation Torque: EVM-7J/EVN-5E: 10-150 gF, EVM-1S/1G/1E/1D: 20-200 gF.

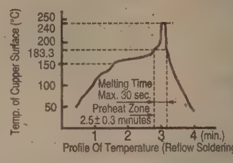
Operating Temperature: EVM-7J/1S/1G/1E/1D: -40° to +100C, EVN-5E: -20 to +70°C.

Temperature Coefficient: EVM-7J/1S/1G/1E/1D: ±250 ppm/C (-20 to +85°C), EVN-5E: ±500 ppm/C(+25 to +70°C) / ±750 ppm/C (-20 to +25°C).

Rotation Life: EVM-7J: 10, EVM-1S/1G/1E/1D/EVN-5E: 20

Soldering Heat: EVM-7J: 250C 10s/260C 5s, EVM-1S/1G/1E/1D: 260C 10s, EVN-5E:280C 3s.



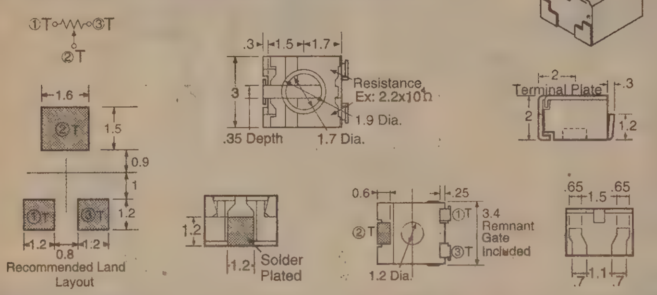


Profile Of Temperature (Reflow Soldering)

Profile for Reflow Soldering
Pre-Heat: 130° - 160°C
Melting Temp.: TM = 183.3°C
Peak Time: Tp ≤ 240° C
Melting Temp.: TM ≤ 30s
Solder: Eutectic
Flux: Rosin Flux

Series P7J

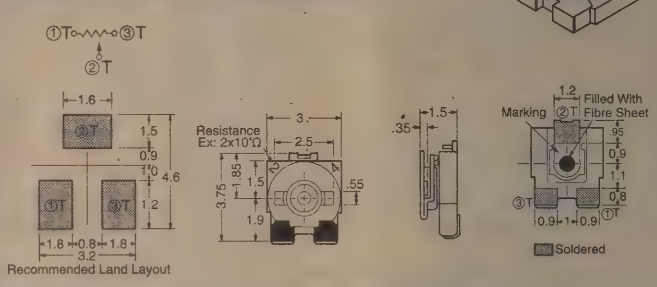
Panasonic Series # EVM-7JSX30BXX


①T ③T
②T
1.6
1.5
0.9
1
1.2
①T ③T
1.2 0.8 1.2
.3 1.5 1.7
3
Resistance
Ex: 2.2x10¹Ω
1.9 Dia.
.35 Depth
1.7 Dia.
2
Terminal Plate
.3
2
1.2
1.2
1.2
Solder Plated
0.6
.25
②T
①T
③T
3.4 Remnant Gate included
1.2 Dia.
.65 1.5 .65
.7 1.1 .7

Recommended Land Layout

Series P1S

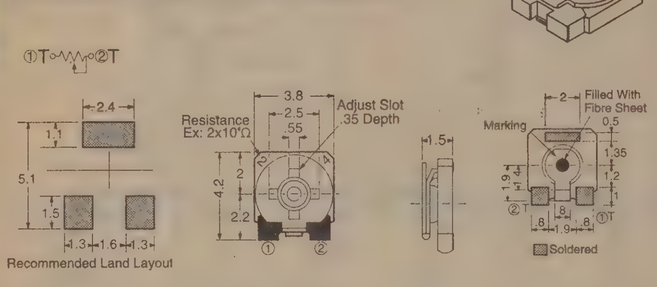
Panasonic Series #EVM-1SSX50BXX


①T ③T
②T
1.6
1.5
0.9
1.0
4.6
1.2
①T ③T
1.8 0.8 1.8
3.2
Resistance
Ex: 2x10¹Ω
3
2.5
3.75
1.85
1.5
1.9
.55
.35
1.5
1.2
Marking
②T
Filled With Fibre Sheet
.95
0.9
1.1
0.8
③T
①T
0.9 1 0.9
Soldered

Recommended Land Layout

Series P1G

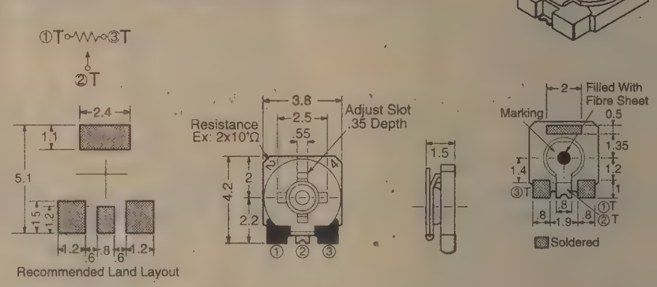
Panasonic Series #EVM-1GSX30BXX


①T ②T
2.4
1.1
5.1
1.5
1.3 1.6 1.3
Resistance
Ex: 2x10¹Ω
3.8
2.5
.55
Adjust Slot .35 Depth
4.2
2
2.2
① ②
1.5
Marking
2
Filled With Fibre Sheet
0.5
1.35
1.2
1
1.9
1.4
②T
①T
.8 .8 .8
1.9
Soldered

Recommended Land Layout

Series P1E

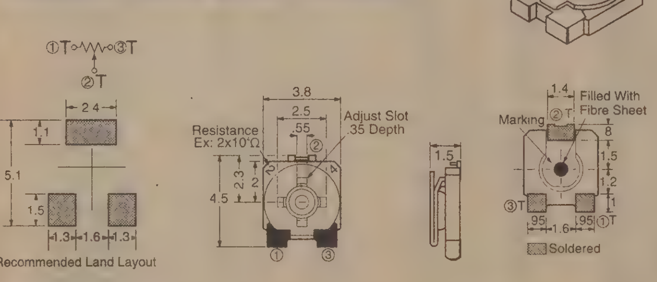
Panasonic Series #EVM-1ESX30BXX


①T ③T
②T
2.4
1.1
5.1
1.5
1.2
1.2 .8 1.2
.6 .6
Resistance
Ex: 2x10¹Ω
3.8
2.5
.55
Adjust Slot .35 Depth
4.2
2
2.2
① ② ③
1.5
Marking
2
Filled With Fibre Sheet
0.5
1.35
1.2
1
1.4
③T
①T
②T
.8 .8 .8
1.9
Soldered

Recommended Land Layout

Series P1D

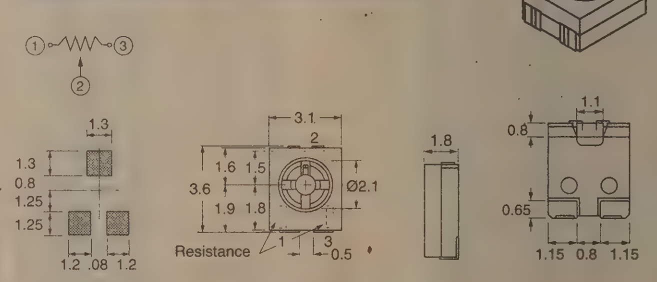
Panasonic Series #EVM-1DSX30BXX


①T ③T
②T
2.4
1.1
5.1
1.5
1.3 1.6 1.3
Resistance
Ex: 2x10¹Ω
3.8
2.5
.55
②
Adjust Slot .35 Depth
2.3
2
4.5
① ③
1.5
1.4
Marking
②T
Filled With Fibre Sheet
.8
1.5
1.2
1
③T
①T
.95 1.6 .95
Soldered

Recommended Land Layout

Series P5E *NEW!*

Panasonic Series #EVN-5ESX50BXX


① ③
②
1.3
1.3
0.8
1.25
1.25
1.2 .08 1.2
3.1
2
1.6 1.5
3.6
1.9 1.8
Ø2.1
Resistance
1
3
0.5
1.8
1.1
0.8
0.65
1.15 0.8 1.15

Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel 1,000	2,000	Panasonic Part No.
P7J☐☐☐CT-ND†	.54	4.50	41.40	P7J☐☐☐TR-ND†	277.00	—	EVM-7JSX30BXX*
P1S☐☐☐CT-ND†	.39	3.28	30.13	P1S☐☐☐TR-ND†	—	202.00/M	EVM-1SSX50BXX*
P1G☐☐☐CT-ND†	.44	3.65	33.58	P1G☐☐☐TR-ND†	225.00	—	EVM-1GSX30BXX*
P1E☐☐☐CT-ND†	.44	3:65	33.58	P1E☐☐☐TR-ND†	225.00	—	EVM-1ESX30BXX*
P1D☐☐☐CT-ND†	.44	3.65	33.58	P1D☐☐☐TR-ND†	225.00	—	EVM-1DSX30BXX*
P5E☐☐☐CT-ND† ***NEW!***	.26	2 18	20.09	P5E☐☐☐TR-ND† ***NEW!***	—	134.00/M	EVN-5ESX50BXX*

* For assistance with Panasonic Part # please call Digi-Key.
† For complete number, substitute corresponding code (from chart) for ☐☐☐.

Code Resistance Value for P7J Series						
221 (220)	331 (330)	471 (470)	102 (1.0K)	222 (2.2K)	332 (3.3K)	472 (4.7K)
103 (10K)	223 (22K)	333 (33K)	473 (47K)	104 (100K)	224 (220K)	334 (330K)
474 (470K)	105 (1.0M)					

Code Resistance Value For P1 Series						
101 (100)	201 (200)	501 (500)	102 (1.0K)	202 (2.0K)	502 (5.0K)	103 (10K)
203 (20K)	503 (50K)	104 (100K)	204 (200K)	504 (500K)	105 (1.0M)	

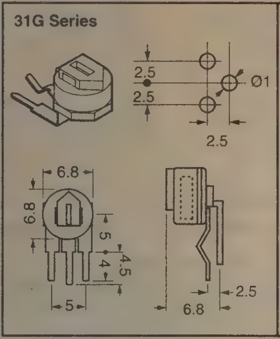
Code Resistance Value For P5E Series						
501 (500)	102 (1K)	202 (2K)	302 (5K)	103 (10K)	203 (20K)	503 (50K)
104 (100K)	254 (200K)	504 (500K)	105(1M)			

P7J-KIT-ND	***NEW!*** 10 each of Series P7J, values 220 - 22K, 47K - 1.0M (150 pieces)	$59.95
P1S-KIT-ND	***NEW!*** 10 each of Series P1S, values 200 - 1.0M (120 pieces)	$43.95
P1G-KIT-ND	***NEW!*** 10 each of Series P1G, values 100 - 1.0M (130 pieces)	$43.95
P1E-KIT-ND	***NEW!*** 10 each of Series P1E, values 100 - 1.0M (130 pieces)	$43.95
P1D-KIT-ND	***NEW!*** 10 each of Series P1D, values 100 - 1.0M (130 pieces)	$43.95

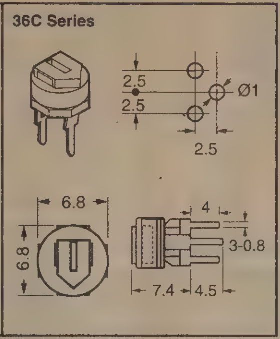
Panasonic®

Cermet Series Trimmer Potentiometers
6MM Dia. Cermet Dust-Proof Type

31G Series



36C Series



Cross Reference Chart	
Series	**Bourns**
31G	3306W
36C	3306P

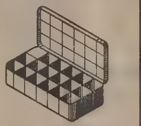
SPECIFICATIONS:

Items: 31G/36C. **Resistance Range:** 100 to 1MΩ. **Tolerance:** +20%. **Taper:** Linear. **Residual Resistance:** .5% max. **Wattage Rating:** 0.3W max. (50°C). **Voltage Rating:** 100V max. **TCR:** +200PPM/°C. **CRV:** 5% max. **Rotation Torque:** 20 to 250g-cm. **Stopper Strength**: 300g-cm min. **Rotation Angle:** 200° + 20°C. **Operating Temperature:** 20°C to 100°C.

Res. Ohms	Digi-Key Part No. Standup Version Both Sides Adjust	Digi-Key Part No. Laydown Version Top/Bottom Adjust	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No. Standup Version Both Sides Adjust	Panasonic Part No. Laydown Version Both Sides Adjust
100	31G12-ND	36C12-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B12	EVN-36CA00B12
200	31G22-ND	36C22-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B22	EVN-36CA00B22
500	31G52-ND	36C52-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B52	EVN-36CA00B52
1K	31G13-ND	36C13-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B13	EVN-36CA00B13
2K	31G23-ND	36C23-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B23	EVN-36CA00B23
5K	31G53-ND	36C53-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B53	EVN-36CA00B53
10K	31G14-ND	36C14-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B14	EVN-36CA00B14
20K	31G24-ND	36C24-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B24	EVN-36CA00B24
50K	31G54-ND	36C54-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B54	EVN-36CA00B54
100K	31G15-ND	36C15-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B15	EVN-36CA00B15
200K	31G25-ND	36C25-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B25	EVN-36CA00B25
500K	31G55-ND	36C55-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B55	EVN-36CA00B55
1M	31G16-ND	36C16-ND	.52	4.35	40.02	268.00	249.00/M	232.00/M	EVM-31GA00B16	EVN-36CA00B16

Panasonic
Cermet Potentiometer Kit

130 Cermet Trimmers. Price includes convenient divided plastic box with bin guide for easy storage and quick access.



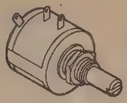
Assortment of 13 Popular Cermet Trimmers Panasonic Quality

31G-KIT-ND **$52.95** 36C-KIT-ND **$52.95**

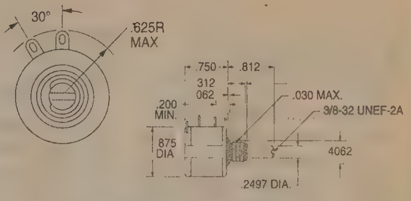
CLAROSTAT

WIREWOUND PRECISION TEN TURN POTENTIOMETERS — 2 WATT

SERIES:
73JA
73JB



73JA: Stainless Steel Shaft
73JB: Nylon Shaft



RESISTANCE CODE CHART
Code (Resistance Value)

101 (100)	202 (2K)	253 (25K)
201 (200)	502 (5K)	503 (50K)
501 (500)	103 (10K)	104 (100K)
102 (1K)	203 (20K)	

SPECIFICATIONS:

Resistance Tolerance: ±5%. **Electrical/Mechanical Rotation:** 3600° +10° .-0°. **Effective Rotation:** 3600° nominal. **Dielectric Strength:** 1000 VAC for 60 seconds at ATM. **Working Voltage:** 500 volts max. **Power Rating:** 2 watt at70°C. **Shaft Length and Size:** 13/16 FMS screwdriver slotted, stainless steel (73JA), nylon shaft (73JB). **Bushing Style:** 5/16 Plain. **Temperature Coefficient of Wire:** ±20 RPM/°C wire.

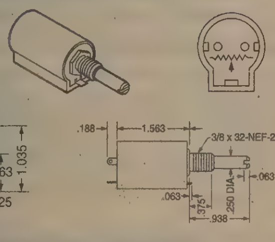
Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	Clarostat Part No.
100-20K	73JA☐☐☐-ND	14.64	120.74	565.58	73JA (Value)
25K-50K	73JA☐☐☐-ND	19.62	161.98	758.35	73JA (Value)
100K	73JA☐☐☐-ND	20.64	170.33	797.23	73JA (Value)
100-20K	73JB☐☐☐-ND	11.61	95.65	447.88	73JB (Value)
25K-50K	73JB☐☐☐-ND	11.83	97.44	456.18	73JB (Value)
100K	73JB☐☐☐-ND	15.80	130.14	609.74	73JB (Value)

* For complete number, substitute corresponding code (from chart above) for ☐☐☐.

CLAROSTAT

WIREWOUND PRECISION TEN TURN POTENTIOMETERS — 2 WATT

SERIES:
62JA



RESISTANCE CODE CHART
Code (Resistance Value)

303 (30K)	203 (20K)

SPECIFICATIONS: Resistance Tolerance: ±5%. **Power Dissipation**:** 2 Watts at 25°C. **Temperature Coefficient of Wire:** ±20 PPM°C. **Dielectric Strength:** 1000 VAC for 60 seconds at ATM. **Effective Rotation:** 3600 Nom. Degrees. **Electrical and Mechanical Rotation:** 3600+ 10° -0°. **Maximum Speed of Rotation:** 60 RPM.

** Derated to zero power at 85°C.

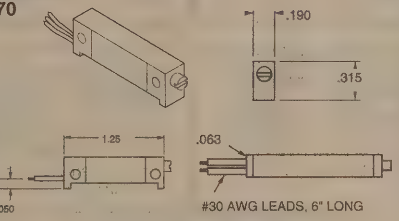
Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	100	Clarostat Part No.
20K	62JA☐☐☐-ND	39.28	358.68	3245.20	62JA (Value)
30K	62JA☐☐☐-ND	41.31	377.16	3412.40	62JA (Value)

* For complete number, substitute corresponding code (from chart above) for ☐☐☐.

CLAROSTAT

HIGH-STABILITY, MULTI-TURN CERMET POTENTIOMETERS — 1 WATT

SERIES:
370



RESISTANCE CODE CHART
Code (Resistance Value)

101 (100)	103 (10K)	504 (500K)
501 (500)	203 (20K)	105 (1 Meg.)
102 (1K)	503 (50K)	
202 (2K)	104 (100K)	
502 (5K)	204 (200K)	

SPECIFICATIONS: Standard Resistance Tolerance: 10%. **Actual Effective Electrical Travel:** 20 turns nominal. **Contact Resistance Variation:** 3% or 3, whichever is greater. **Dielectric Withstanding Voltage:** 1000 VAC at sea level, 350 VAC at 80,000 feet. **Power Rating:**1.0 watt at 85°C derated linearly to zero watts at 1508C (para. 3.5) max. voltage not to exceed 400 volts.

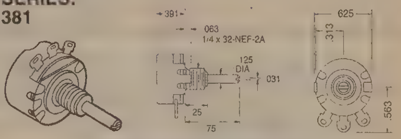
Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	100	Clarostat Part No.
100-1 Meg.	370L☐☐☐-ND	7.75	70.44	569.88	370L (Value)

* For complete number, substitute corresponding code (from chart above) for ☐☐☐.

CLAROSTAT

CONDUCTIVE PLASTIC POTENTIOMETERS – 1 WATT

SERIES:
381



RESISTANCE CODE CHART
Code (Resistance Value — Linear)

101 (100)	502 (5K)	254 (250K)
251 (250)	103 (10K)	504 (500K)
501 (500)	253 (25K)	105 (1 Meg.)
102 (1K)	503 (50K)	255 (2.5 Meg.)
252 (2.5K)	104 (100K)	505 (5 Meg.)

The "Quiet One" with 1% dynamic noise and 5% independent linearity. Manufactured to MIL-R-94D specification. 381N — Bushing, Plain, 1/4" long. Shaft 3/4" FMS screwdriver slotted.

SPECIFICATIONS: Resistance Tolerance: Linear, up to 500K, ±10%, above 500K, ±20%. **Power Rating (Watts):** 1 watt maximum continuous power rating for linear taper, but voltage not to exceed rating. Full rating at 70°C, derated linearly to zero watts at 120°C. **Mechanical and Electrical Rotation:** 300° ±5° without switch. **Working Voltage:** 350 VDC across end terminals, but power not to exceed rating. **Effective Rotation:** 270° +0° -10° **Dielectric Strength:** 1,000 VAC for 60 Sec. ATM.

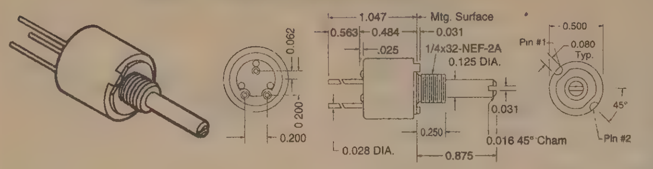
Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	Clarostat Part No.
100-5 Meg.	381N☐☐☐-ND	10.78	94.60	407.00	1381N (Value)

* For complete number, substitute corresponding code (from chart above) for ☐☐☐.

CLAROSTAT

WASHABLE, CONDUCTIVE PLASTIC POTENTIOMETERS – 1/2 WATT

SERIES:
392JA
392JB



Series
392JA: Metal Shaft and Bushing
392JB: Plastic Shaft and Bushing

RESISTANCE CODE CHART
Code (Resistance Value — Linear)

101 (100)	502 (5K)*	254 (250K)
251 (250)	103 (10K)	504 (500K)
501 (500)*	253 (25K)	105 (1 Meg.)
102 (1K)	503 (50K)	255 (2.5 Meg.)
252 (2.5K)*	104 (100K)	505 (5 Meg.)

* Values not available in 392JA Series

SPECIFICATIONS:

Power Rating: .5 Watts at 70 C. voltage not to exceed rating.

Electrical Rotation: 295° ±5°

Effective Rotation: 265° +0°, -10°.

Mechanical Rotation: 295° ±5°.

Resistance Tolerance: ±10% through 500k. ±20% 1 Meg.--5 Meg.

Dielectric Strength: 750 VAC for 60 sec., @ ATM pressure. 350 VAC for 60 sec., in. Hg.

Working Voltage: 350 VDC across terminals, but power not to exceed rating.

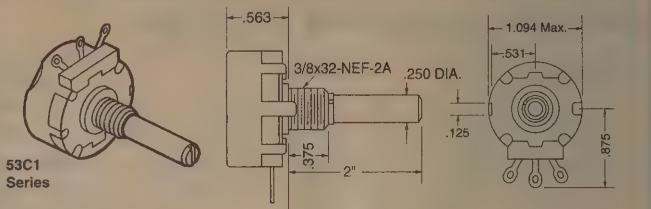
Operational Temperature Range: -40 C. to + 120 C.

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	500	Clarostat Part No.
100-2.5 Meg.	392JA □□□ -ND	9.57	83.70	361.96	478.26	1005.44	1739.13	392JA (Value)
100-5 Meg.	392JB □□□ -ND	7.29	63.12	272.06	359.12	761.77	1305.88	392JB (Value)

* For complete number, substitute corresponding code (from chart above) for □□□.

CONDUCTIVE PLASTIC POTENTIOMETERS – 2 WATT

SERIES:
53C1



53C1
Series

RESISTANCE CODE CHART
Code (Resistance Value — Linear)

050 (50)	102 (1K)	104 (100K)
101 (100)	252 (2.5K)	106 (10 Meg.)
251 (250)	103 (10K)	
501 (500)	253 (25K)	

SPECIFICATIONS:

Resistance Tolerance: Up to 1 megohm ±10%, above 1 megohm ±20%.

Electrical and Mechanical Rotation: 312° ±3°.

Working Voltage: 500 VDC across end terminal, but power not to exceed rating.

Effective Rotation: 270° -0° +10°

Dielectric Strength: 1,000 VAC, 60 Sec. ATM.

Power Rating: 2 watt at 70°C.

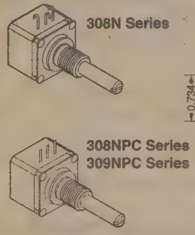
Operating Temperature: -55°C. to +120°C.

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	500	Clarostat Part No.
50-10 Meg.	53C1 □□□ -ND	9.16	80.73	343.64	469.09	981.82	1636.37	53C1 (Value)

* For complete number, substitute corresponding code (from chart above) for □□□.

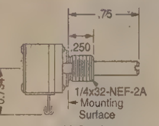
CONDUCTIVE PLASTIC POTENTIOMETERS – 1/2 WATT, 1 WATT

SERIES:
308N
308NPC
309NPC

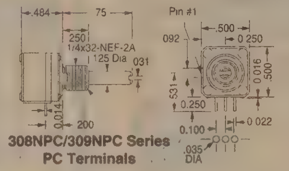


308N Series

308NPC Series
309NPC Series



308N Series
Hook Terminals



308NPC/309NPC Series
PC Terminals

RESISTANCE CODE CHART
Code (Resistance Value — Linear)

101 (100)	502 (5K)	254 (250K)
251 (250)	103 (10K)	504 (500K)
501 (500)	253 (25K)	105 (1 Meg.)
102 (1K)	503 (50K)	255 (2.5 Meg.)
252 (2.5K)	104 (100K)	505 (5 Meg.)

SPECIFICATIONS:

Resistance Tolerance: ±10% up to 500K, ±20% above.

Electrical and Mechanical Rotation: 295° ±5°

Dielectric Strength: 750 VAC (308 Series), 900 VAC (309 Series), for 60 SEC ATM.

Working Voltage: 350 VDC across terminals.

Power Rating: .5 watt at 70°C (308 Series), 1 watt at 150°C (309 Series).

Operating Temperature: -40° to +120°C (308 Series), -40°C to +150°C (309 Series).

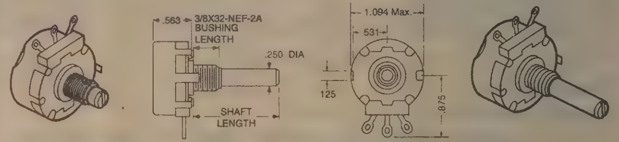
Rotational Life: 50,000 cycles under load (308 Series), 25,000 cycles under load (309 Series).

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	Clarostat Part No.
100-5 Meg.	308N □□□ -ND	9.20	72.29	306.67	492.86	848.81	308N (Value)
100-5 Meg.	308NPC □□□ -ND	9.42	73.38	312.14	460.00	848.81	308NPC (Value)
100-5 Meg.	309NPC □□□ -ND	9.77	76.85	324.03	571.32	1015.26	309NPC (Value)

* For complete number, substitute corresponding code (from chart above) for □□□.
N = Shaft: 1/8 in. (3.18mm) diameter x 3.4 in.

CONDUCTIVE PLASTIC MILITARY POTENTIOMETERS – 2 WATT

SERIES:
RV4L
RV4N



RV4L: Locking Bushing: 1/2" (length).
Shaft: 5/8" (length).

RV4N: Standard Bushing: 3/8" (length).
Shaft: 7/8" (length).

RESISTANCE CODE CHART
Code (Resistance Value — Linear)

500 (50)	252 (2.5K)	104 (100K)
101 (100)	502 (5K)†	254 (250K)
251 (250)	103 (10K)	504 (500K)
501 (500)	253 (25K)	105 (1 Meg.)
102 (1K)	503 (50K)	

SPECIFICATIONS:

Resistance Tolerance: Up to 1 megohm ±10%, above 1 megohm ±20%.

Electrical and Mechanical Rotation: 312° ±3°.

Working Voltage: 500 VDC across end term, but power not to exceed rating.

Effective Rotation: 270° -0° +10°.

Dielectric Strength: 1,000 VAC, 60 SEC. ATM.

Power Rating: 2 watt at 70°C. Derated linearly to 0 watts at 120°C.

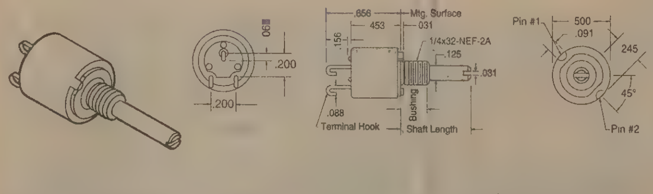
Operating Temperature: -55°C to +120°C.

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	Clarostat Part No.
50-100K	RV4L □□□ -ND	8.77	77.39	330.17	443.68	928.63	RV4LAYSA □□□ A
500K-1 Meg.	RV4L □□□ -ND	8.77	77.39	330.17	443.68	928.63	RV4LAYSA □□□ A
50-1 Meg.	RV4N □□□ -ND	8.02	69.94	303.43	421.71	900.00	RV4NAYSD □□□ A

* For complete number, substitute corresponding code (from chart above) for □□□.
† Available in RV4N series only.

CONDUCTIVE PLASTIC MILITARY POTENTIOMETERS – 1/2 WATT

SERIES:
RV6L
RV6N



RV6L: Locking Bushing: 1/2" (length).
Shaft: 5/8" (length).

RV6N: Standard Bushing: 1/4" (length).
Shaft: 7/8" (length).

RV6L□□□P: "P" suffix denotes sealed version.

RV6N□□□P: "P" suffix denotes sealed version.

RESISTANCE CODE CHART
Code (Resistance Value — Linear)

101 (100)	102 (1K)	103 (10K)	503 (50K)	254 (250K)
251 (250)	252 (2.5K)*	153 (15K)*	104 (100K)	504 (500K)
501 (500)	502 (5K)	253 (25K)	154 (150K)*	105 (1 Meg.)

*Available in RV6L□□□P and RV6N□□□P series only.

SPECIFICATIONS:

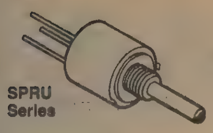
- **Resistance Tolerance:** ±10%.
- **Power Rating:** 0.5 watt at 70°C. Derated to zero power at 120°C.
- **Electrical and Mechanical Rotation:** 295° ±3°
- **Effective Rotation:** 265° +0°, -10°.
- **Dielectric Strength:** 750 VAC for 60 Seconds at ATM. 350 VAC for 60 Seconds 3.44 in H.g.
- **Working Voltage:** 350 VDC maximum, but power not to exceed rating.

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	Clarostat Part No.
250-500, 2.5K-50K, 150K, 500K-1 Meg.	RV6L □□□ -ND	14.73	128.71	550.91	895.86	RV6LAYSA□□□A
100-5K, 15K,	RV6N □□□ -ND	14.07	123.27	529.09	861.82	RV6NAYSD□□□A
50K-150K, 500K-1 Meg.	RV6N □□□ -ND	14.07	123.27	529.09	861.82	RV6NAYSD□□□A
100-1 Meg.	RV6L □□□ P-ND	10.34	90.20	390.50	528.00	RV6LAYSA□□□A-P
100-1 Meg.	RV6N □□□ P-ND	9.57	83.70	358.70	478.26	RV6NAYSD□□□A-P

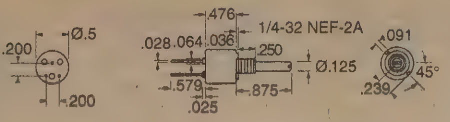
* For complete number, substitute corresponding code (from chart above) for □□□.

PRECISION **Precision Electronic Components Ltd.**

Type SPR Washable, Carbon Potentiometer 1/2 Watt



SPRU Series



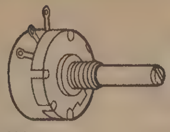
Specifications: • Resistance Tolerance: ±10% through 500K, ±20% from 1 Meg to 5 Meg • Resistance Taper: Linear • Power Rating: .5 Watts @ 70°C • Dielectric Strength: 750V. RMS • Working Voltage: 350VDC Max., but power not to exceed rating • Operating Temperature: -55°C to 120°C • Mechanical Rotation: 295°.

Meets or exceeds MIL R 94 Specifications. Metal housing, stainless steel shaft.

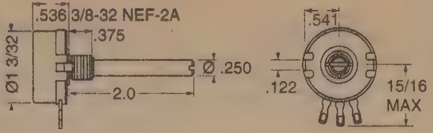
Resistance Code Chart Code (Resistance Value)		
101(100)	502 (5K)	254(250K)
251 (250).	103 (10K)	504 (500K)
501 (500)	253 (25K)	105 (1Meg)
102 (1K)	503 (50K)	255 (2.5Meg)
252 (2.5K)	104 (100K)	505 (5Meg)

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	Precision Part No.
100-5Meg	SPRU ☐☐☐ C-ND	5.90	53.35	227.00	376.82	822.88	SPRU(Value)1S28

MIL Style RV4 - 2 Watt Carbon Potentiometer



RV4NJ Series



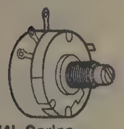
Specifications: • Resistance Tolerance: ±10% through 500K, ±20% for 1 Meg • Resistance Taper: Linear • Power Rating: 2 Watts @ 70°C • Derate to 0 Watt @ 120°C • Dielectric Strength: 900V. RMS • Working Voltage: 500VDC Max., but power not to exceed rating • Operating Temperature: -55°C to 120°C • Mechanical Rotation: 314°

QPL listed under MIL R 94 Specifications. Metal housing, stainless steel shaft

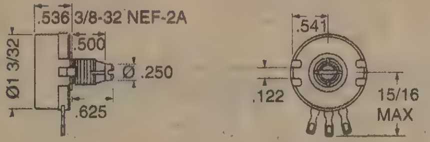
Resistance Code Chart Code (Resistance Value)		
500 (50)	102(1K)	253(25K)
101(100)	252(2.5K)	104(100K)
251(250)	502(5K)	504(500K)
501(500)	103(10K)	105(1Meg)

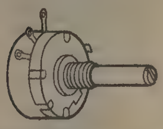
Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	Precision Part No.
50-1Meg	RV4NJ ☐☐☐ C-ND	5.28	47.71	203.00	336.98	735.88	RV4NAYSJ(Value)A

MIL Style RV4 - 2 Watt Carbon Potentiometer

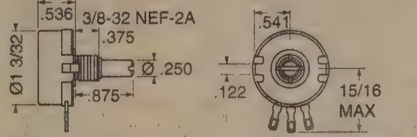


RV4L Series





RV4N Series



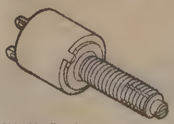
Specifications: • Resistance Tolerance: ±10% through 500K, ±20% from 1 Meg • Resistance Taper: Linear • Power Rating: 2 Watts @ 70°C • Derate to 0 Watt @ 120°C • Dielectric Strength: 900V. RMS • Working Voltage: 500Volts, but power not to exceed rating • Operating Temperature: -55°C to 120°C • Mechanical Rotation: 314°.

QPL listed under MIL R 94 Specifications. Metal housing, stainless steel shaft.

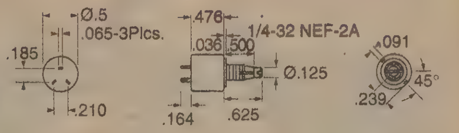
Resistance Code Chart Code (Resistance Value)		
500(50)	252(2.5K)	104(100K)
101(100)	502(5K)	254(250K)
251(250)	103(10K)	504(500K)
501(500)	253(25K)	105(1Meg)
102(1K)	503(50K)	

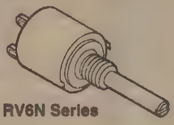
Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	Precision Part No.
50-1Meg	RV4L ☐☐☐ C-ND	5.62	50.76	216.00	358.56	783.00	RV4LAYSA(Value)A
50-1Meg	RV4N ☐☐☐ C-ND	5.17	46.77	199.00	330.34	721.38	RV4NAYSD(Value)A

MIL Style RV6 - 1/2 Watt Carbon Potentiometer

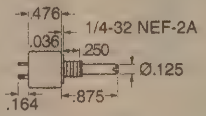


RV6L Series





RV6N Series



Specifications: • Resistance Tolerance: ±10% through 500K, ±20% from 1 Meg • Resistance Taper: Linear • Power Rating: .5 Watts @ 70°C • Dielectric Strength: 750V. RMS • Working Voltage: 350VDC Max. But power not to exceed rating • Operating Temperature: -55°C to 120°C • Mechanical Rotation: 295°.

QPL listed under MIL R 94 Specifications. Metal housing, stainless steel shaft

Resistance Code Chart Code (Resistance Value)		
101(100)	502 (5K)	254(250K)
251 (250)	103 (10K)	504 (500K)
501 (500)	253 (25K)	105 (1Meg)
102 (1K)	503 (50K)	
252 (2.5K)	104 (100K)	

Resistance Range (Ohms)	Digi-Key* Part No.	Pricing 1	10	50	100	250	Precision Part No.
100-1Meg	RV6L ☐☐☐ C-ND	6.14	55.46	236.00	391.76	855.50	RV6LAYSA(Value)A
100-1Meg	RV6N ☐☐☐ C-ND	5.69	51.47	219.00	363.54	793.88	RV6NAYSD(Value)A

KILO INTERNATIONAL

Concentric Scale Dials

SERIES: 400, 500, 600, 3400

Fig. 1

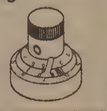


Fig. 2

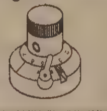


Fig. 3

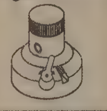
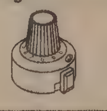


Fig. 4



400 SERIES: 1" Calibrated dials designed for multi-turn potentiometers up to ten turns or other rotary devices. The knob attaches directly to the shaft, and the body of the dial is mounted rigidly to the panel, therefore, accurate readings with a ratio of 1,000 to one for ten turns are provided with zero backlash and reading error.

500 SERIES: 1" Single turn calibrated scale dial.

600 SERIES: 1" Uncalibrated dial.

All models available in black or clear anodized construction. Mounting Requirements: 1/4" shaft with 3/8" x 32-NEF-2A Bushing. Made in the U.S.A.

3400 SERIES: Readout and Operation: Unit shall register a total count of 20 turns. The number in the window (0 thru 19) indicates completed number of turns of the drive sleeve. Graduated circular dial indicates the percent of a partial turn of the drive sleeve. Transfer point: The number in center of window shall change as graduated dial rotates between 94 and 0. Rotation: Readout shall increase with clockwise and decrease with counterclockwise rotation. Brake Lever Operation: Positive Detent. Accuracy: Backlash shall be zero between graduated dial and drive sleeve. Mounting: Install mounting bracket between panel and panel nut. The dials mount directly to shaft with No. 4-40 spline socket set screw, located adjacent to No. 95 on graduated dial. 7/8" Diameter.

Fig. No.	Description	Digi-Key Part No.	Pricing 1	5	10	Kilo Part No.
1	Commercial 10 Turn, Black Anodize, 1/4" Shaft, No Lock	411KL-ND	14.91	69.23	127.80	411
1	Commercial 10 Turn, Black Anodize, 1/4" Shaft, With Lock	412KL-ND	15.75	73.13	135.00	412
1	Commercial 10 Turn, Clear Anodize, 1/4" Shaft, No Lock	461KL-ND	14.91	69.23	127.80	461
1	Commercial 10 Turn, Clear Anodize, 1/4" Shaft, With Lock	462KL-ND	15.75	73.13	135.00	462
2	Commercial Single Turn, Clear Anodize, 1/4" Shaft, No Lock	561KL-ND	10.44	48.72	92.80	561
2	Commercial Single Turn, Clear Anodize, 1/4" Shaft, With Lock	562KL-ND	10.44	48.72	92.80	562
3	Commercial Single Turn, Black Anodize, 1/4" Shaft, With Lock	612KL-ND	9.09	42.42	80.80	612
3	Commercial Single Turn, Clear Anodize,1/4" Shaft, With Lock	662KL-ND	9.09	42.42	80.80	662
4	Commercial 20 Turn, Black Anodize,1/4" Shaft, With Lock	3412KL-ND	11.55	53.63	99.00	3412
4	Commercial 20 Turn, Clear Anodize,1/4" Shaft, With Lock	3462KL-ND	11.55	53.63	99.00	3462

Machined Aluminum Instrumentation Knobs

Fig. 1

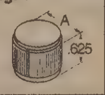


Fig. 2

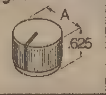


Fig. 3

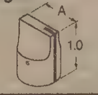
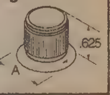


Fig. 4

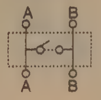


Knobs are black anodized in construction. Made in the USA.

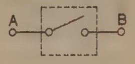
Fig. No.	Dim. Shaft	Dim. A	Digi-Key Part No.	Pricing 1	10	50	Kilo Part No.
1	.125"	.50"	10200-ND	3.40	30.20	124.58	DD-50-2-6
1	.250"	.75"	10201-ND	3.62	32.20	132.83	DD-75-2-5
1	.250"	.925"	10202-ND	3.94	35.00	144.38	DD-90-2-5
1	6mm	.50"	11035-ND ***NEW!***	3.96	35.20	145.20	DD-50-2-6MM
1	6mm	.75"	11036-ND ***NEW!***	4.16	37.00	152.63	DD-75-2-6MM
2	.125"	.50"	10203-ND	3.40	30.20	124.58	JD-50-2-6
2	.250"	.75"	10204-ND	3.62	32.20	132.83	JD-75-2-5
2	.250"	.925"	10205-ND	3.94	35.00	144.38	JD-90-2-5
2	6mm	.50"	11037-ND ***NEW!***	3.96	35.20	145.20	JD-50-2-6MM
2	6mm	.75"	11038-ND ***NEW!***	4.19	37.20	153.45	JD-75-2-6MM
3	.125"	.50"	10206-ND	4.05	36.00	148.50	HD-50-2-6
3	.250"	.75"	10207-ND	4.91	43.60	179.85	HD-75-2-5
3	.250"	.925"	10208-ND	5.51	49.00	202.13	HD-90-2-5
3	6mm	.50"	11041-ND ***NEW!***	4.61	41.00	169.13	HD-50-2-6MM
3	6mm	.75"	11042-ND ***NEW!***	5.47	48.60	200.48	HD-75-2-6MM
4	.125"	.685"	10209-ND	3.94	36.00	144.38	DDS-50-2-6
4	.250"	1.00"	10210-ND	4.68	41.60	171.60	DDS-75-2-5
4	.250"	1.25"	10211-ND	5.09	45.20	186.45	DDS-90-2-5
4	6mm	.50"	11039-ND ***NEW!***	5.06	45.00	185.63	DDS-50-2-6MM
4	6mm	.75"	11040-ND ***NEW!***	5.24	46.60	192.23	DDS-75-2-6MM

Panasonic. Momentary Pushbutton Switches

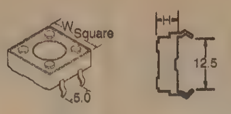
CIRCUIT DIA. 1



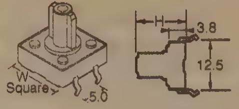
CIRCUIT DIA. 2



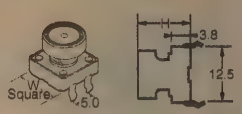
A



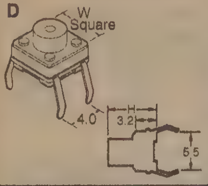
B



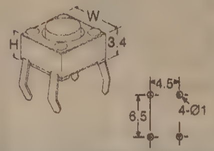
C



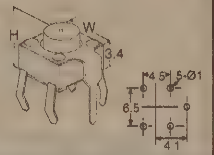
D



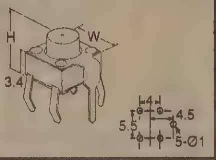
E



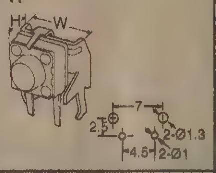
F



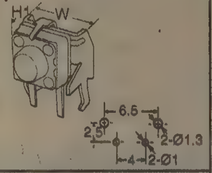
G



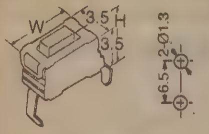
H



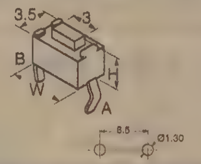
I



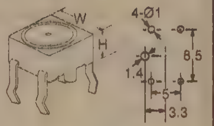
J



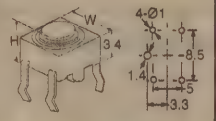
K



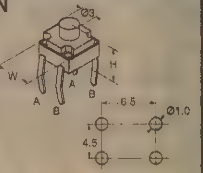
L



M



N



O

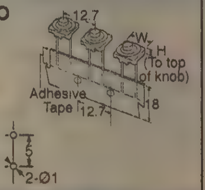


Fig. No.	A, B, C, D	E, F, G, H, I	J, K	L, M	N	O
Power Rating	DC 15V, 20mA	DC 15V, 20mA	DC 12V, 50mA	DC 15V, 20mA	DC 15V, 20mA	DC 12V, 5mA (res. load)
Contact Resis.	100mΩ Max.	100mΩ Max.	100mΩ Max.	50mΩ Max.	50mΩ Max.	200mΩ Max.
Insulation Resis.	50MΩ Min. (DC 100V)	50MΩ Min. (DC 100V)	100MΩ Min. (DC 100V)	50MΩ Min. (DC 100V)	100MΩ Min. (DC 100V)	50MΩ Min. (DC 100V)
Withstand Voltage	AC 250V for 1 min.	AC 250V for 1 min.	AC 250V for 1 min.	AC 250V for 1 min.	AC 100V for 1 min.	AC 100V for 1 min.
Bouncing	2 msec. Max. (on) 10 msec. Max. (off)	3 msec. Max. (on) 10 msec. Max. (off)	10 msec. Max.	3 msec. Max. (on) 10 msec. Max. (off)	10 msec. Max.	10 msec. Max.
Push Stroke	0.25 ± 0.1mm	0.25 ± 0.1mm	$0.25\pm^{0.1}_{0.2}$mm	0.25 ± 0.1mm	1.3 ± 0.3mm	1mm
Operating Life	100,000 Min.	100,000 Min.	50,000 Min.	100,000 Min.	100,000 Min.	1 million Min.
Operating Temp.	– 20°C to +70°C	– 20°C to +70°C	–20°C to +70°C	– 20°C to +70°C	– 20°C to +85°C	– 20°C to +70°C

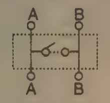
Fig.	Description	Circuit Dia.	Dim. (mm)* H	W	Operating Force	Digi-Key Part No.	Pricing 1	10	100	1,000	5,000	10,000	Panasonic Part No.
	12MM Type												
A	Light Touch Switch Super Thin Flat Knob	1	4.5	12.0	130gf	P8034S-ND	.48	4.16	33.60	246.00	229.00/M	213.00/M	EVQ-PXR04K
B	Light Touch Switch Post Type Knob	1	12.0	12.0	130gf	P8035S-ND	.48	4.16	33.60	246.00	229.00/M	213.00/M	EVQ-PYR12K
C	Light Touch Switch 12mm Square	1	11.0	12.0	130gf	P8036S-ND	.97	8.44	68.15	499.00	464.00/M	433.00/M	EVQ-PT411K
	6MM Type												
D	Light Touch Switch Square	1	5	6	130gf	P8037S-ND	.21	1.85	14.91	109.00	101.00/M	95.00/M	EVQ-QS205K
E	Light Touch Switch Standard w/o Ground Terminal	1	4.3	6	100gf	P8006S-ND	.21	1.85	14.91	109.00	101.00/M	95.00/M	EVQ-PAC04M
E	Light Touch Switch Standard w/o Ground Terminal	1	4.3	6	130gf	P8007S-ND	.20	1.72	13.86	102.00	94.00/M	88.00/M	EVQ-PAD04M
E	Light Touch Switch Standard w/o Ground Terminal	1	4.3	6	160gf	P8008S-ND	.20	1.72	13.86	102.00	94.00/M	88.00/M	EVQ-PAE04M
E	Light Touch Switch Standard w/o Ground Terminal	1	4.3	6	250gf	P8009S-ND	.20	1.72	13.86	102.00	94.00/M	88.00/M	EVQ-PAG04K
E	Light Touch Switch Standard w/o Ground Terminal	1	5	6	100gf	P8010S-ND	.21	1.85	14.91	109.00	101.00/M	95.00/M	EVQ-PAC05R
E	Light Touch Switch Standard w/o Ground Terminal	1	7	6	100gf	P8011S-ND	.21	1.85	14.91	109.00	101.00/M	95.00/M	EVQ-PAC07K
E	Light Touch Switch Standard w/o Ground Terminal	1	9.5	6	100gf	P8012S-ND	.21	1.85	14.91	109.00	101.00/M	95.00/M	EVQ-PAC09K
F	Light Touch Switch Standard w/Ground Terminal	1	4.3	6	100gf	P8013S-ND	.22	1.92	15.54	114.00	106.00/M	99.00/M	EVQ-PBC04M
F	Light Touch Switch Standard w/Ground Terminal	1	5	6	100gf	P8014S-ND	.22	1.92	15.54	114.00	106.00/M	99.00/M	EVQ-PBC05R
F	Light Touch Switch Standard w/Ground Terminal	1	7	6	100gf	P8015S-ND	.22	1.92	15.54	114.00	106.00/M	99.00/M	EVQ-PBC07K
F	Light Touch Switch Standard w/Ground Terminal	1	9.5	6	100gf	P8016S-ND	.22	1.92	15.54	114.00	106.00/M	99.00/M	EVQ-PBC09K
G	Light Touch Switch Standard w/Ground Terminal	1	5	6	130gf	P8017S-ND	.23	2.00	16.17	118.00	110.00/M	103.00/M	EVQ-QS405K
G	Light Touch Switch Standard w/Ground Terminal (Long Post)	1	7	6	130gf	P8018S-ND	.27	2.35	18.94	139.00	129.00/M	120.00/M	EVQ-QS507K
H	Light Touch Switch Right Angle	2	4.3	7.6	130gf	P8019S-ND	.30	2.60	21.00	154.00	143.00/M	133.00/M	EVQ-PFC03M
H	Light Touch Switch Right Angle	2	5	7.6	130gf	P8020S-ND	.30	2.60	21.00	154.00	143.00/M	133.00/M	EVQ-PFC04R
H	Light Touch Switch Right Angle	2	7	7.6	130gf	P8021S-ND	.30	2.60	21.00	154.00	143.00/M	133.00/M	EVQ-PFC06K
H	Light Touch Switch Right Angle (Long Post)	2	9.5	7.6	130gf	P8022S-ND	.30	2.60	21.00	154.00	143.00/M	133.00/M	EVQ-PFC08K
I	Light Touch Switch Right Angle	2	4.3	7.6	130gf	P8023S-ND	.30	2.57	20.79	152.00	141.00/M	132.00/M	EVQ-QEJ04K
I	Light Touch Switch Right Angle (Long Post)	2	5	7.6	130gf	P8024S-ND	.30	2.57	20.79	152.00	141.00/M	132.00/M	EVQ-QEJ06K
N	Light Touch Switch Long Travel	1	5	6.2	350gf	P8065S-ND	1.32	9.87	85.51	592.00	493.00/M	—	EVQ-PMC05K
N	Light Touch Switch Long Travel (Aluminum Cap)	1	5	6.2	250gf	P8066S-ND	1.58	11.87	102.86	712.00	593.00/M	—	EVQ-PML05Q
	6 x 3.5 MM Type												
J	Light Touch Switch	2	4.3	6	100gf	P8025S-ND	.50	4.38	35.34	259.00	240.00/M	224.00/M	EVQ-QED04K
J	Light Touch Switch (Long Post)	2	5	6	100gf	P8026S-ND	.50	4.38	35.34	259.00	240.00/M	224.00/M	EVQ-QED05K
J	Light Touch Switch (Long Post)	2	5	6	160gf	P8028S-ND	.47	4.03	32.57	239.00	222.00/M	207.00/M	EVQ-QEC05K
K	Light Touch Switch	2	4.3	6	100gf	P8056S-ND	.72	5.38	46.64	323.00	269.00/M	—	EVQ-PJA04Q
K	Light Touch Switch (Long Post)	2	5	6	100gf	P8057S-ND	.72	5.38	46.64	323.00	269.00/M	—	EVQ-PJA05Q
K	Light Touch Switch	2	4.3	6	160gf	P8058S-ND	.72	5.38	46.64	323.00	269.00/M	—	EVQ-PJB04K
K	Light Touch Switch (Long Post)	2	5	6	160gf	P8059S-ND	.72	5.38	46.64	323.00	269.00/M	—	EVQ-PJB05K
K	Light Touch Switch	2	4.3	6	240gf	P8060S-ND	.74	5.55	48.14	333.00	278.00/M	—	EVQ-PJC04T
K	Light Touch Switch (Long Post)	2	5	6	240gf	P8061S-ND	.74	5.55	48.14	333.00	278.00/M	—	EVQ-PJC05T
	8MM Type												
L	Light Touch Switch Square Thin w/Recessed Button	1	3.3	8	180gf	P8030S-ND	.41	3.58	28.88	212.00	196.00/M	183.00/M	EVQ-QJR02K
M	Light Touch Switch Square Thin w/Knob	1	4	8	130gf	P8031S-ND	.41	3.55	28.64	210.00	195.00/M	182.00/M	EVQ-QJ104K

Fig.	Description	Circuit Dia.	Dim. (mm)* H	W	Operating Force	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape and Box Pricing 1,000	5,000	Panasonic Part No.
O	Light Touch Switch Long Travel-Tape Pkg	2	5	8	80gf	P8029SCT-ND	.77	5.81	50.34	P8029STB-ND	298.00	277.00/M	EVQ-QJJ05Q

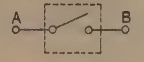
* H = Height; W = Width

Panasonic. Surface Mount Momentary Pushbutton Switches

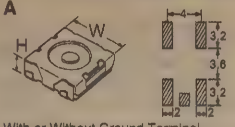
CIRCUIT DIA. 1



CIRCUIT DIA. 2

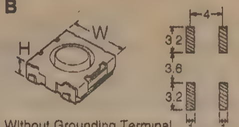


A



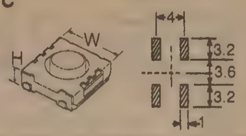
With or Without Ground Terminal

B

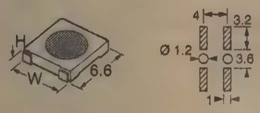


Without Grounding Terminal

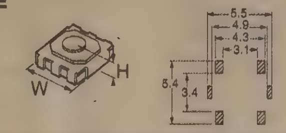
C



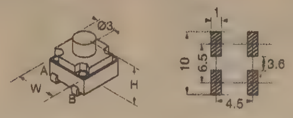
D



E



F



G

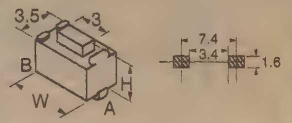


Fig. No.	A, B, C	D	E	F	G
Power Rating	DC 15V, 20mA	DC 15V, 20mA	DC 12V, 50mA	DC 15V, 20mA	DC 12V, 50mA
Contact Resis.	100mΩ Max.	50mΩ Max.	100mΩ Max.	50mΩ Max.	100mΩ Max.
Insulation Resis.	50MΩ Min. (DC 100V)	50MΩ Min. (DC 100V)	50MΩ Min. (DC 100V)	100MΩ Min. (DC 100V)	100MΩ Min. (DC 100V)
Withstand Voltage	AC 250V for 1 min.	AC 250V for 1 min.	AC 250V for 1 min.	AC 100V for 1 min.	AC 250V for 1 min.
Bouncing	3 msec. Max. (on) 10 msec. Max. (off)	3 msec. Max. (on) 10 msec. Max. (off)	3 msec. Max. (on) 10 msec. Max. (off)	10 msec. Max.	10 msec. Max.
Push Stroke	0.25 ± 0.1mm	$0.25 \pm ^{0.2}_{0.1}$mm	$0.25 \pm ^{0.1}_{0.2}$mm	1.3 ± 0.3mm	$0.25 \pm ^{0.1}_{0.2}$mm
Operating Life	100,000 Min.	100,000 Min.	500,000 Min.	100,000 Min.	50,000 Min.
Operating Temp.	–20°C to +70°C	–10°C to +70°C	–10°C to +70°C	-20°C to +85°C	–20°C to +70°C

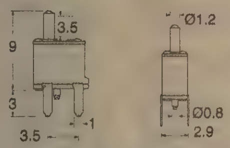
Fig.	Description	Circuit Dia.	Dim. (mm)* H	Dim. (mm)* W	Oper. Force	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel Pricing 1,000	1,500	2,000	2,500	4,000	5,000	Panasonic Part No.
	Surface Mount Light Touch Switch																
A	Light Touch Switch Standard	1	2	6.3	130gf	P8000SCT-ND	1.08	8.07	69.94	P8000STR-ND	414.00	—	—	—	—	—	EVQ-QFA02K
A	Light Touch Switch Standard w/Ground Terminal	1	2	6.3	130gf	P8001SCT-ND	1.00	7.53	65.23	P8001STR-ND	386.00	—	—	—	—	—	EVQ-QFD02K
B	Light Touch Switch Standard w/Actuator/Solvent Washable	1	3.1	6.4	130gf	P8002SCT-ND	.88	6.63	57.46	P8002STR-ND	340.00	—	—	—	—	—	EVQ-PHP03T
C	Light Touch Switch Standard w/Actuator, Not Washable	1	2	6.2	130gf	P8003SCT-ND	.70	5.22	45.24	P8003STR-ND	—	—	—	—	249.00/M	—	EVQ-QHC01W
C	Light Touch Switch Standard w/Actuator, Not Washable	1	2.5	6.2	160gf	P8004SCT-ND	.70	5.22	45.24	P8004STR-ND	—	—	268.00/M	—	—	—	EVQ-QHF02W
C	Light Touch Switch Standard w/Actuator, Not Washable	1	3.1	6.2	250gf	P8005SCT-ND	.70	5.22	45.24	P8005STR-ND	268.00	—	—	—	—	—	EVQ-QHQ03W
D	Light Touch Switch Super Thin 1mm Not Washable	1	1	6	160gf	P8044SCT-ND	.86	6.42	55.64	P8044STR-ND	—	—	—	—	—	306.00/M	EVQ-PA101K
E	Light Touch Switch Rugged Design, Low Profile	1	1.5	5	100gf	P8045SCT-ND	.97	7.25	62.79	P8045STR-ND	—	—	—	—	—	345.00/M	EVQ-PLDA15
E	Light Touch Switch Rugged Design, Low Profile	1	1.5	5	160gf	P8046SCT-ND	.97	7.25	62.79	P8046STR-ND	—	—	—	—	—	345.00/M	EVQ-PLHA15
E	Light Touch Switch Rugged Design, Low Profile	1	1.5	5	260gf	P8047SCT-ND	1.16	8.69	75.35	P8047STR-ND	—	—	—	—	—	414.00/M	EVQ-PLMA15
	6 MM Type																
F	Light Touch Switch Long Travel	1	4.3	6	350gf	P8054SCT-ND	1.48	11.11	96.28	P8054STR-ND	—	555.00/M	—	—	—	—	EVQ-PMY05K
F	Light Touch Switch Long Travel (Aluminum Cap)	1	4.3	6	250gf	P8055SCT-ND	1.74	13 08	113.32	P8055STR-ND	—	654.00/M	—	—	—	—	EVQ-PME05Q
	6 x 3.5 MM Type																
G	Light Touch Switch	2	4.3	6	100gf	P8048SCT-ND	1.09	8.18	70.86	P8048STR-ND	—	—	—	409.00/M	—	—	EVQ-PJS04K
G	Light Touch Switch (Long Post)	2	5.0	6	100gf	P8049SCT-ND	1.09	8.18	70.86	P8049STR-ND	—	—	409.00/M	—	—	—	EVQ-PJS05K
G	Light Touch Switch	2	4.3	6	160gf	P8050SCT-ND	1.09	8.18	70.86	P8050STR-ND	—	—	—	409.00/M	—	—	EVQ-PJX04M
G	Light Touch Switch (Long Post)	2	5.0	6	160gf	P8051SCT-ND	1.09	8.18	70.86	P8051STR-ND	—	—	409.00/M	—	—	—	EVQ-PJX05M
G	Light Touch Switch	2	4.3	6	240gf	P8052SCT-ND	1.11	8.35	72.36	P8052STR-ND	—	—	—	417.00/M	—	—	EVQ-PJU04K
G	Light Touch Switch (Long Post)	2	5.0	6	240gf	P8053SCT-ND	1.11	8.35	72.36	P8053STR-ND	—	—	417.00/M	—	—		EVQ-PJU05K

* H = Height; W = Width

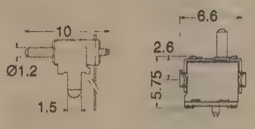
Panasonic. 5mm Detector Switches

SPECIFICATIONS: • Operating Force: 35gf max. • Rating: 5VDC, 10mA • Contact Resistance: 1Ω max. • Operating Temperature Range: -10 ~ +60°C. • Dimensions in "mm".

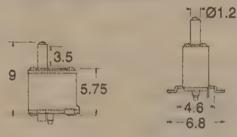
A



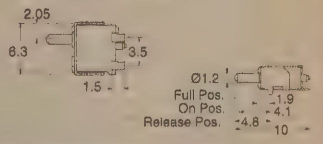
B



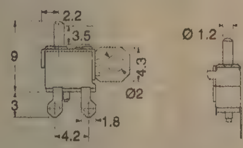
C — Surface Mount



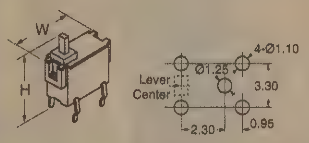
D — Surface Mount



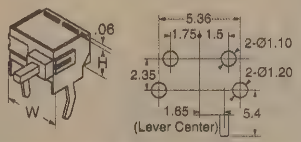
E



F



G



H

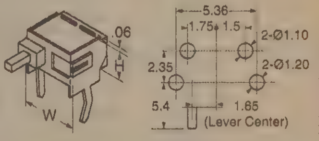


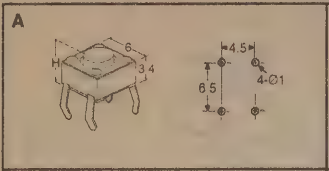
Fig.	Description	Digi-Key Part No.	Pricing 1	10	100	500	1000	5000	Panasonic Part No.
A	PC Vertical Mount	P8039S-ND	.74	6.41	51.74	—	379.00	352.00/M	ESE-105SV1
B	PC Horizontal Mount	P8040S-ND	.84	7.28	58.80	—	431.00	400.00/M	ESE-105SH1
C	Surface Mount, Vertical Mount	P8042S-ND	.91	7.70	70.00	—	431.00	400.00/M	ESE-105MV1
D	Surface Mount, Horizontal Mount	P8043S-ND	.91	7.70	70.00	—	431.00	400.00/M	ESE-105MH1
E	Panel Mount With Mounting Hole	P8041S-ND	.77	6.70	54.10	—	396.00	368.00/M	ESE-105HS1
F	5mm Detector, Vertical	P8062S-ND	.67	5.04	43.65	176.30	302.00	252.00/M	ESE-11SV1
G	5mm Detector Horizontal	P8063S-ND	.67	5.04	43.65	176.30	302.00	252.00/M	ESE-11SH1
H	5mm Detector Horizontal	P8064S-ND	.67	5.04	43.65	176.30	302.00	252.00/M	ESE-11SH2

OMRON. Momentary Tact Switches

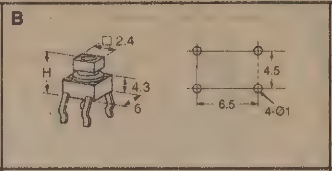
Characteristics:

• **Switching Capacity:** 50 mA 24 VDC(resistive load) • **Contact Resistance:** 100 mΩ max. • **Bounce Time:** 5 ms max. • **Vibration:** Malfunction durability:10 to 55 Hz, 1.5 mm double amplitude • **Shock:** Mechanical durability: 1,000 m/s² (approx. 100G) Malfunction durability: 100 m/s² (approx. 10G) • **Ambient Temperature:** Operating: -25° to 70°C • **Service Life:** B3F-1 Series - B3F-3 Series — Mechanical/electrical: 1 x 10^5 (0.3 x 10^6) operations min. B3F-4 Series — Mechanical/electrical: 3 x 10^6 (0.3 x 10^6) operations min. B3S-1 Series — Mechanical/electrical: General-purpose type: 500,000 operations min. High-load type: 300,000 operations min. B3W-1 Series — Mechanical/electrical: General-purpose type: 1,000,000 operations min. High-load type: 300,000 operations min. B3W-4 Series — Mechanical/electrical: General-purpose type: 3,000,000 operations min. High-load type: 1,000,000 operations min.

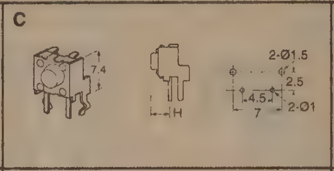
A



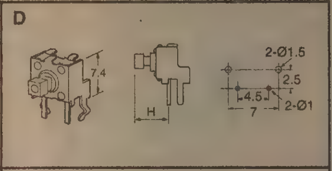
B



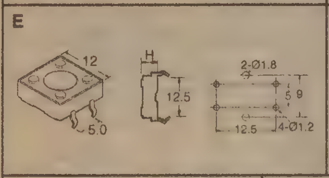
C



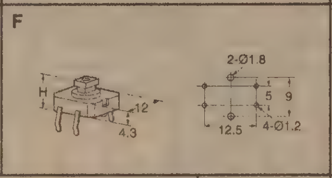
D



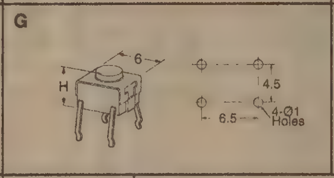
E



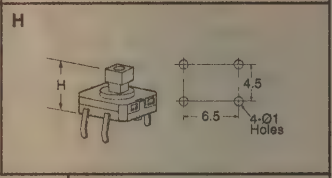
F



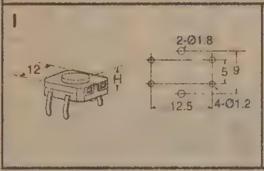
G



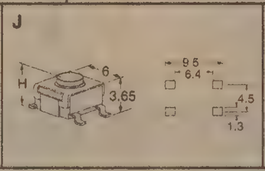
H



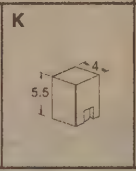
I



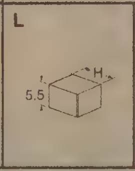
J



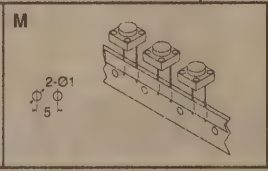
K



L



M



N

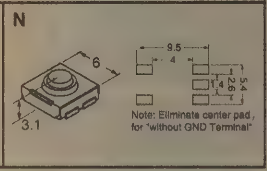


Fig.	Description	Dim. H (mm)	Digi-Key Part No.	Pricing 1	25	50	100	250	500	Omron Part No.
	6MM									
A	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 100gf	4.3	SW400-ND	.28	6.32	11.47	20.12	45.63	81.90	B3F-1000
A	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 150gf	4.3	SW401-ND	.32	7.29	13.23	23.22	52.65	94.50	B3F-1002
A	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 100gf	5.0	SW402-ND	.32	7.29	13.23	23.22	52.65	94.50	B3F-1020
A	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 150gf	5.0	SW403-ND	.32	7.29	13.23	23.22	52.65	94.50	B3F-1022
A	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 100gf	9.5	SW406-ND	.36	8.02	14.55	25.54	57.92	103.95	B3F-1070
B	Tact Switch Standard, Projected Actuator w/o Ground Terminal — 100gf	7.3	SW404-ND	.32	7.29	13.23	23.22	52.65	94.50	B3F-1050
B	Tact Switch Standard, Projected Actuator w/o Ground Terminal — 150gf	7.3	SW405-ND	.32	7.29	13.23	23.22	52.65	94.50	B3F-1052
C	Tact Switch Rt. Angle, Flat Actuator — 100gf	3.85	SW407-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-3120
C	Tact Switch Rt. Angle, Flat Actuator — 150gf	3.85	SW408-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-3122
D	Tact Switch Rt. Angle, Projected Actuator — 100gf	6.15	SW409-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-3150
D	Tact Switch Rt. Angle, Projected Actuator — 150gf	6.15	SW410-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-3152
	12MM									
E	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 130gf	4.3	SW411-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-4000
E	Tact Switch Standard, Flat Actuator w/o Ground Terminal — 260gf	4.3	SW412-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-4005
F	Tact Switch Standard, Projected Actuator w/o Ground Terminal — 130gf	7.3	SW413-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-4050
F	Tact Switch Standard, Projected Actuator w/o Ground Terminal — 260gf	7.3	SW414-ND	.45	10.21	18.52	32.51	73.71	132.30	B3F-4055
	6MM Process Sealed (not water washable)									
J	SMT Flat Actuator w/o Ground Terminal — 160gf	4.3	SW415-ND	.64	14.34	26.02	45.67	103.55	185.85	B3S-1000
J	SMT Flat Actuator w/o Ground Terminal — 230gf	4.3	SW416-ND	.64	14.34	26.02	45.67	103.55	185.85	B3S-1002
G	Tact Switch Flat Actuator w/o Ground Terminal — 160gf	4.3	SW417-ND	.53	11.91	21.61	37.93	86.00	154.35	B3W-1000
G	Tact Switch Flat Actuator w/o Ground Terminal — 230gf	4.3	SW418-ND	.53	11.91	21.61	37.93	86.00	154.35	B3W-1002
H	Tact Switch Projected Actuator w/o Ground Terminal — 160gf	7.3	SW419-ND	.53	11.91	21.61	37.93	86.00	154.35	B3W-1050
H	Tact Switch Projected Actuator w/o Ground Terminal — 230gf	7.3	SW420-ND	.53	11.91	21.61	37.93	86.00	154.35	B3W-1052
	12MM Process Sealed (not water washable)									
I	Tact Switch Flat w/o Ground Terminal — 200gf	4.3	SW421-ND	.62	13.85	25.14	44.12	100.04	179.55	B3W-4000
F	Tact Switch Projected w/o Ground Terminal — 200gf	7.3	SW422-ND	.62	13.85	25.14	44.12	100.04	179.55	B3W-4050
	Key Caps									
K	Key Cap 4 x 4 mm Light Grey, Fits 6mm Projected Actuator Types	4	SW450-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1000
K	Key Cap 4 x 4 mm Black, Fits 6mm Projected Actuator Types	4	SW451-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1010
K	Key Cap 4 x 4 mm Yellow, Fits 6mm Projected Actuator Types	4	SW249-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1030
K	Key Cap 4 x 4 mm Blue, Fits 6mm Projected Actuator Types	4	SW250-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1040
K	Key Cap 4 x 4 mm White, Fits 6mm Projected Actuator Types	4	SW251-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1060
K	Key Cap 4 x 4 mm Red, Fits 6mm Projected Actuator Types	4	SW252-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1080
L	Key Cap 9 x 9 mm Light Grey, Fits 12mm Projected Actuator Types	9	SW452-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1200
L	Key Cap 9 x 9 mm Black, Fits 12mm Projected Actuator Types	9	SW453-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1210
L	Key Cap 9 x 9 mm Yellow, Fits 12mm Projected Actuator Types	9	SW253-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1230
L	Key Cap 9 x 9 mm Blue, Fits 12mm Projected Actuator Types	9	SW254-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1240
L	Key Cap 9 x 9 mm White, Fits 12mm Projected Actuator Types	9	SW255-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1260
L	Key Cap 9 x 9 mm Red, Fits 12mm Projected Actuator Types	9	SW256-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1280
L	Key Cap 12 x 12 mm Light Grey, Fits 12mm Projected Actuator Types	12	SW454-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1300
L	Key Cap 12 x 12 mm Black, Fits 12mm Projected Actuator Types	12	SW455-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1310
L	Key Cap 12 x 12 mm Yellow, Fits 12mm Projected Actuator Types	12	SW257-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1330
L	Key Cap 12 x 12 mm Blue, Fits 12mm Projected Actuator Types	12	SW258-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1340
L	Key Cap 12 x 12 mm White, Fits 12mm Projected Actuator Types	12	SW259-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1360
L	Key Cap 12 x 12 mm Red, Fits 12mm Projected Actuator Types	12	SW260-ND	.27	6.08	11.03	19.35	43.88	78.75	B32-1380

Fig.	Description	Dim. H (mm)	Digi-Key Part No.	Pricing 1	25	50	100	Digi-Key Part No.	Tape & Reel Pricing 1,000	3,000	Omron Part No.
	6MM										
M	Tact Switch Auto-Placement 6mm Sq. — 100gf	4.3	SW263CT-ND	.38	8.51	15.44	27.09	SW263TR-ND	158.00	—	B3F-6000
M	Tact Switch Auto-Placement 6mm Sq. — 150gf	4.3	SW264CT-ND	.40	8.99	16.32	28.64	SW264TR-ND	167.00	—	B3F-6002
	6MM Process Sealed (not water washable)										
N	SMT Flat Actuator w/o Ground Terminal — 160gf	3.1	SW261CT-ND	.96	21.63	39.25	68.89	SW261TR-ND	—	401.00/M	B3SN-3012P
N	SMT Flat Actuator w/ Ground Terminal — 160gf	3.1	SW262CT-ND	.96	21.63	39.25	68.89	SW262TR-ND	—	401.00/M	B3SN-3112P

C&K COMPONENTS, INC.

Toggle Switches

Circuit	Switching Function	Options (see diagrams)			Cont. Mat'l.	Dimensions (In.) L x W x H	Digi-Key Part No.	Pricing			C & K Part No.
		Actuator	Bushing	Termination				1	25	100	
Fig. 1 — Vertical											
SPDT	On-On	M	D	C	Q	.500 x .270 x .350	CKN1000-ND	5.37	107.40	340.10	7101MDCQE
	On-On	P3	Y	C	Q	.500 x .270 x .350	CKN1001-ND	7.26	145.20	459.80	7101P3YCQE
	On-On	S	D9	C	Q	.500 x .270 x .350	CKN1002-ND	5.37	107.40	340.10	7101SD9CQE
	On-On	S	Y	C	B	.500 x .270 x .350	CKN1003-ND	4.17	83.40	264.10	7101SYCBE
	On-On	S	Y	C	Q	.500 x .270 x .350	CKN1004-ND	3.90	78.00	247.00	7101SYCQE
	On-On	K	–	Z	Q	.500 x .270 x .350	CKN1015-ND	5.94	118.80	376.20	7101KZQE
	On-On	M	D	Z	Q	.500 x .270 x .350	CKN1016-ND	5.25	105.00	332.50	7101MDZQE
	On-On	M	Y	Z	Q	.500 x .270 x .350	CKN1017-ND	5.25	105.00	332.50	7101MYZQE
	On-On	P3	Y	Z	B	.500 x .270 x .350	CKN1018-ND	7.14	142.80	452.20	7101P3YZBE
	On-On	P3	Y	Z	Q	.500 x .270 x .350	CKN1019-ND	4.62	92.40	292.60	7101P3YZQE
	On-On	S	H3	Z	Q	.500 x .270 x .350	CKN1020-ND	5.94	118.80	376.20	7101SH3ZQE
	On-On	S	Y	Z	B	.500 x .270 x .350	CKN1021-ND	3.75	75.00	237.50	7101SYZBE
	On-On	S	Y	Z	G	.500 x .270 x .350	CKN1022-ND	4.32	86.40	273.60	7101SYZGE
	On-On	S	Y	Z	Q	.500 x .270 x .350	CKN1023-ND	3.75	75.00	237.50	7101SYZQE
	On-On	S	Y	C	Q	.500 x .270 x .350	CKN1014-ND†	5.37	107.40	340.10	U11SYCQE
	On-On	K	–	Z	Q	.500 x .270 x .350	CKN1039-ND†	9.00	180.00	570.00	U11KZQE
	On-On	S	Y	Z	Q	.500 x .270 x .350	CKN1040-ND†	5.25	105.00	332.50	U11SYZQE
	On-Off-On	S	Y	C	Q	.500 x .270 x .350	CKN1005-ND	4.47	89.40	283.10	7103SYCQE
	On-Off-On	P3	Y	Z	Q	.500 x .270 x .350	CKN1024-ND	7.68	153.60	486.40	7103P3YZQE
	On-Off-On	S	Y	Z	B	.500 x .270 x .350	CKN1025-ND	4.26	85.20	269.80	7103SYZBE
	On-Off-On	S	Y	Z	Q	.500 x .270 x .350	CKN1026-ND	4.26	85.20	269.80	7103SYZQE
	Mom-Off-Mom	P3	Y	C	Q	.500 x .270 x .350	CKN1006-ND	7.92	158.40	501.60	7105P3YCQE
	Mom-Off-Mom	S	Y	C	Q	.500 x .270 x .350	CKN1007-ND	4.35	87.00	275.50	7105SYCQE
	Mom-Off-Mom	S	Y	Z	Q	.500 x .270 x .350	CKN1027-ND	5.91	118.20	374.30	7105SYZQE
	On-Off-Mom	S	Y	C	Q	.500 x .270 x .350	CKN1008-ND	6.03	120.60	381.90	7107SYCQE
	On-Off-Mom	S	Y	Z	Q	.500 x .270 x .350	CKN1028-ND	4.35	87.00	275.50	7107SYZQE
	On-Mom	S	Y	Z	Q	.500 x .270 x .350	CKN1029-ND	5.91	118.20	374.30	7108SYZQE
SPDT	On-On	S	D1	C	B	.500 x .219 x .350	CKN1074-ND*	5.46	109.20	345.80	E101SD1CBE
	On-Off-On	S	D1	C	B	.500 x .219 x .350	CKN1075-ND*	6.57	131.40	416.10	E103SD1CBE
	Mom-Off-Mom	S	D1	C	B	.500 x .219 x .350	CKN1076-ND*	6.57	131.40	416.10	E105SD1CBE
	On-Off-On	S	H	Z	Q	.320 x .200 x .340	CKN1087-ND*	6.78	135.60	429.40	T103SHZQE
	Mom-Off-Mom	S	H	Z	Q	.320 x .200 x .340	CKN1088-ND*	6.78	135.60	429.40	T105SHZQE
	On-On	S	H	C	Q	.320 x .200 x .340	CKN1091-ND*	5.46	109.20	345.80	T101SHCQE
	On-Off-On	S	H	C	Q	.320 x .200 x .340	CKN1092-ND*	6.57	131.40	416.10	T103SHCQE
DPDT	On-On	K	–	C	Q	.500 x .450 x .350	CKN1009-ND	7.71	154.20	488.30	7201KCQE
	On-On	S	Y	C	B	.500 x .450 x .350	CKN1010-ND	8.01	160.20	507.30	7201SYCBE
	On-On	S	Y	C	Q	.500 x .450 x .350	CKN1011-ND	5.55	111.00	351.50	7201SYCQE
	On-On	K	–	Z	Q	.500 x .450 x .350	CKN1030-ND	7.41	148.20	469.30	7201KZQE
	On-On	M	D	Z	Q	.500 x .450 x .350	CKN1031-ND	7.77	155.40	492.10	7201MDZQE
	On-On	P3	Y	Z	B	.500 x .450 x .350	CKN1032-ND	9.66	193.20	611.80	7201P3YZBE
	On-On	P3	Y	Z	Q	.500 x .450 x .350	CKN1033-ND	6.09	121.80	385.70	7201P3YZQE
	On-On	S	Y	Z	B	.500 x .450 x .350	CKN1034-ND	7.77	155.40	492.10	7201SYZBE
	On-On	S	Y	Z	Q	.500 x .450 x .350	CKN1035-ND	5.25	105.00	332.50	7201SYZQE
	On-Off-On	S	Y	C	Q	.500 x .450 x .350	CKN1012-ND	6.36	127.20	402.80	7203SYCQE
	On-Off-On	S	Y	Z	Q	.500 x .450 x .350	CKN1036-ND	6.21	124.20	393.30	7203SYZQE
DPDT	On-On	S	D1	C	B	.500 x .450 x .350	CKN1077-ND*	8.46	169.20	535.80	E201SD1CBE
	On-On	S	H	Z	Q	.320 x .360 x .340	CKN1089-ND*	8.94	178.80	566.20	T201SHZQE
	On-Off-On	S	H	Z	Q	320 x .360 x .340	CKN1090-ND*	10.11	202.20	640.30	T203SHZQE
3PDT	On-On	S	Y	C	Q	.500 x .650 x .415	CKN1013-ND	8.94	178.80	566.20	7301SYCQE
	On-On	S	Y	Z	Q	.500 x .650 x .415	CKN1037-ND	9.12	182.40	577.60	7301SYZQE
4PDT	On-On	S	Y	Z	Q	.500 x .850 x .415	CKN1038-ND	12.60	252.00	798.00	7401SYZQE
SPDT	On-On	S	D9	V30	B	.500 x .270 x .350	CKN1043-ND	5.91	118.20	374.30	7101SD9V30BE
SPDT	On-On	S	H	Z	Q	.320 x .200 x .340	CKN1066-ND†*	5.67	113.40	359.10	T101SHZQE
SPDT	On-On	S	D1	C	B	.320 x .200 x .350	CKN1071-ND†*	6.03	120.60	381.90	ET01SD1CBE
	On-On	M	D1	V3	B	.320 x .200 x .350	CKN1072-ND†*	6.57	131.40	416.10	ET01MD1V3BE
	On-Off-On	S	D1	C	B	.320 x .200 x .350	CKN1080-ND†*	6.81	136.20	431.30	ET03SD1CBE
	On-Mom	S	D1	C	B	.320 x .200 x .350	CKN1081-ND†*	6.81	136.20	431.30	ET08SD1CBE
DPDT	On-On	S	D1	C	B	.320 x .200 x .350	CKN1082-ND†*	9.06	181.20	573.80	ET21SD1CBE
	On-Off-On	S	D1	C	B	.320 x .200 x .350	CKN1083-ND†*	10.23	204.60	647.90	ET23SD1CBE
	On-On	M	D1	A	B	.320 x .200 x .350	CKN1086-ND†*	10.14	202.80	642.20	ET21MD1ABE
Fig. 2 — Right Angle											
SPDT	On-On	M	D	R	B	.500 x .284 x .365	CKN1044-ND	10.71	214.20	678.30	7101MDRBE
SPDT	On-On	M	D9	A	B	.500 x .270 x .500	CKN1045-ND	4.44	88.80	281.20	7101MD9ABE
	On-On	M	D9	A	G	.500 x .270 x .500	CKN1046-ND	6.63	132.60	419.90	7101MD9AGE
	On-On	M	D9	A	Q	.500 x .270 x .500	CKN1047-ND	5.91	118.20	374.30	7101MD9AQE
	On-On	P3	D9	A	B	.500 x .270 x .500	CKN1048-ND	7.80	156.00	494.00	7101P3D9ABE
	On-On	S	D9	A	B	.500 x .270 x .500	CKN1049-ND	4.44	88.80	281.20	7101SD9ABE
	On-Off-On	M	D9	A	B	.500 x .270 x .500	CKN1050-ND	5.01	100.20	317.30	7103MD9ABE
	On-Off-On	S	D9	A	B	.500 x .270 x .500	CKN1051-ND	6.45	129.00	408.50	7103SD9ABE
	On-Off-Mom	M	D9	A	B	.500 x .270 x .500	CKN1053-ND	6.57	131.40	416.10	7107MD9ABE
DPDT	On-On	M	D9	A	B	.500 x .450 x .500	CKN1055-ND	6.60	132.00	418.00	7201MD9ABE
	On-On	M	D9	A	Q	.500 x .450 x .500	CKN1056-ND	9.09	181.80	575.70	7201MD9AQE
SPDT	On-On	M	D1	A	B	.500 x .260 x .500	CKN1060-ND†*	6.00	120.00	380.00	E101MD1ABE
	On-On	S	D1	A	B	.500 x .260 x .500	CKN1061-ND†*	6.00	120.00	380.00	E101SD1ABE
	Mom-Off-Mom	M	D1	A	B	.500 x .260 x .500	CKN1062-ND†*	7.11	142.20	450.30	E105MD1ABE
SPDT	On-On	M	H9	A	B	.320 x .200 x 352	CKN1067-ND†	6.00	120.00	380.00	T101MH9ABE
	On-Off-On	M	H9	A	B	.320 x .200 x .352	CKN1068-ND†	7.11	142.20	450.30	T103MH9ABE
DPDT	On-On	M	H9	A	B	.320 x .360 x .352	CKN1069-ND†	9.54	190.80	604.20	T201MH9ABE
SPDT	On-On	M	D1	A	B	.320 x .200 x .365	CKN1073-ND†*	6.57	131.40	416.10	ET01MD1ABE
	On-Off-On	M	D1	A	B	.320 x .200 x .350	CKN1084-ND†*	7.35	147.00	465.50	ET03MD1ABE
	On-Mom	M	D1	A	B	.320 x .200 x .350	CKN1085-ND†*	7.35	147.00	465.50	ET08MD1ABE
Fig. 3 — Vertical Right Angle											
SPDT	On-On	M	D9	AV2	B	.500 x .270 x .500	CKN1059-ND†	4.44	88.80	281.20	7101MD9AV2BE
SPDT	On-On	M	D1	AV2	B	.500 x .260 x .500	CKN1065-ND†*	6.00	120.00	380.00	E101MD1AV2BE
SPDT	On-On	M	H9	AV	B	.320 x .200 x .352	CKN1070-ND†	6.00	120.00	380.00	T101MH9AVBE
	On-Off-On	M	D1	AV2	B	.500 x .260 x .500	CKN1078-ND*	7.11	142.20	450.30	E103MD1AV2BE
	Mom-Off-Mom	M	D1	AV2	B	.500 x .260 x .500	CKN1079-ND*	7.11	142.20	450.30	E105MD1AV2BE

Circuit	Switching Function	Options (see diagrams)		Cont. Mat'l.	Fig. No.	Dimensions (In.) L x W x H	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing 300	C & K Part No.
		Actuator	Bushing					1	25	100			
Surface Mount (washable)													
SPDT	On-On	M	D1	B	4	.462 x .320 x .200	CKN1093CT-ND*	8.16	175.70	564.75	CKN1093TR-ND*	1355.40	ET01MD1SAKE
	On-Off-On	M	D1	B	4	.462 x .320 x .200	CKN1094CT-ND*	9.00	193.90	623.25	CKN1094TR-ND*	1495.80	ET03MD1SAKE
	Mom-Off-Mom	M	D1	B	4	.462 x .320 x .200	CKN1095CT-ND*	9.00	193.90	623.25	CKN1095TR-ND*	1495.80	ET05MD1SAKE
SPDT	On-On	M	None	B	5	.340 x .276 x .215	CKN1096CT-ND*	6.83	147.00	472.50	CKN1096TR-ND*	1134.00	GT11MSAKE
SPST	Off-On	M	None	B	5	.340 x .276 x .215	CKN1097CT-ND*	7.28	156.80	504.00	CKN1097TR-ND*	1209.60	GT12MSAKE
SPDT	On-Off-On	M	None	B	5	.340 x .276 x .215	CKN1098CT-ND*	7.83	168.70	542.25	CKN1098TR-ND*	1301.40	GT13MSAKE
SPDT	On-On	M	None	B	6	340 x .215 x .276	CKN1099-ND*	6.40	137.90	443.25	—	—	GT11MSCKE
SPST	Off-On	M	None	B	6	.340 x .215 x .276	CKN1100-ND*	7.41	159.60	513.00	—	—	GT12MSCKE
SPDT	On-Off-On	M	None	B	6	.340 x .215 x .276	CKN1101-ND*	7.41	159.60	513.00	—	—	GT13MSCKE
DPDT	On-On	M	None	B	6	.340 x .215 x .276	CKN1102-ND*	8.55	184.10	591.75	—	—	GT21MSCKE

*Process Sealed; † UL Approved

9138B-ND C&K Switch Data Book **$2.95**

Fig. 1

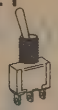


Fig. 2

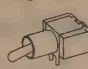


Fig. 3

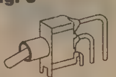
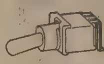
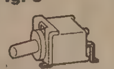


Fig. 4



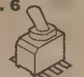
Mini SMT

Fig. 5



Ultra-Mini SMT

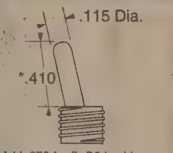
Fig. 6



Ultra-Mini SMT

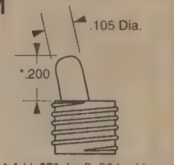
Actuator Options

S



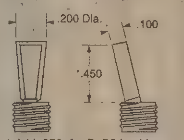
* Add .070 for D, D9 bushings.
* Subtract .020 for H3 bushings.

M



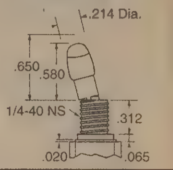
* Add .070 for D, D9 bushings.

P3 with Antirotation



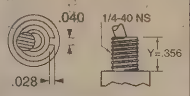
* Add .070 for D, D9 bushings.

K Locking Lever

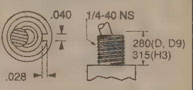


Bushings Options

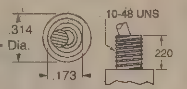
Y



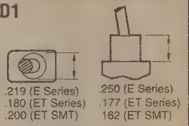
D,H3 (Threaded)
D9 (Unthreaded)



H 10-48 UNS
H9 (Unthreaded)

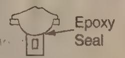


D1



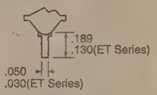
Termination Options

Z

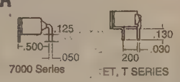


Solder Eyelet

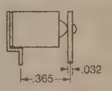
C



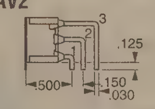
A



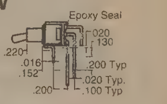
R



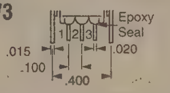
AV2



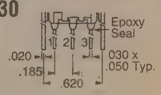
AV



V3



V30



Contact Material Options

B	Contacts and Terminals: Copper alloy, with gold plate over nickel plate. Rating: 0.4 VA max. @ 20 VAC or DC max.
Q	End Contacts: Coin silver, silver plated. Center Contact & All Terminals: Copper alloy, silver plated. Rating: 7000 Series — 5A @ 120 VAC or 2A @ 250 VAC; E-Series — 7.5A @ 125 VAC or 3A @ 250 VAC; T-Series — 3A @ 120 VAC.
G	End Contacts: Coin silver, with gold plate over nickel plate. Center Contact & All Terminals: Copper alloy, with gold plate over nickel plate. Rating: 0.4 VA max. @ 20 VAC or DC max. or 5 amps @ 120 VAC or 28 VDC; 2 amps @ 250 VAC.

C&K® COMPONENTS, INC. Pushbutton Switches

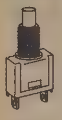


Fig. 1

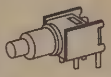


Fig. 2

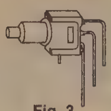


Fig. 3

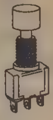


Fig. 4

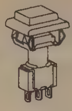


Fig. 5

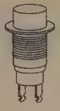


Fig. 6

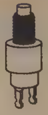


Fig. 7

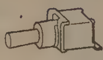


Fig. 8

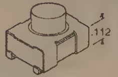


Fig. 9

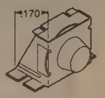


Fig. 10

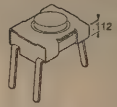


Fig. 11

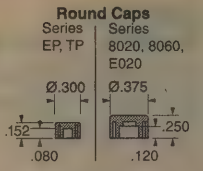


Fig. 12

Fig.	Circuit	Switching Function	Options (see diagrams)			Dim. (in.) L x W x D	Digi-Key Part No.	Pricing			C & K Part No.
			Termination	Bushing	Cont. Mat'l.			1	25	100	
Tiny Pushbutton Switches											
1	SPST	Off-Mom	C	H9	B	.320 x .200 x .340	CKN4000-ND	4.29	85.80	271.70	TP11SH9CBE
1	SPST	Off-Mom	Z	H7	Q	.320 x .200 x .340	CKN4001-ND	4.17	83.40	264.10	TP11SHZQE
2	SPST	Off-Mom	A	H8	B	.320 x .200 x .352	CKN4002-ND	4.83	96.60	305.90	TP11SH8ABE
2	SPST	Off-Mom	A	H9	B	.320 x .200 x .352	CKN4003-ND	4.83	96.60	305.90	TP11SH9ABE
2	SPDT	On-Mom	A	H8	Q	.320 x .200 x .352	CKN4004-ND	6.36	127.20	402.80	TP12SH8AQE
3	SPDT	On-Mom	AV	H8	B	.320 x .200 x .352	CKN4005-ND	6.36	127.20	402.80	TP12SH8AVBE
1	SPST	Off-Mom	C	D1	B	.320 x .200 x .350	CKN4006-ND*	4.50	90.00	285.00	EP11SD1CBE
2	SPST	Off-Mom	A	D1	B	.320 x .200 x .365	CKN4007-ND*	5.04	100.80	319.20	EP11SD1ABE
3	SPST	Off-Mom	AV	D1	B	.320 x .200 x .365	CKN4009-ND*	5.28	105.60	334.40	EP11SD1AVBE
2	SPDT	On-Mom	A	D1	B	.320 x .200 x .365	CKN4008-ND*	6.60	132.00	418.00	EP12SD1ABE
1	SPDT	On-Mom	C	D1	B	.320 x .200 x .365	CKN4043-ND	6.06	121.20	383.80	EP12SD1CBE
1	DPST	Off-Mom	C	D1	B	.320 x .200 x .365	CKN4044-ND	7.95	159.00	503.50	EP21SD1CBE
1	DPST	Off-Mom	A	D1	B	.320 x .200 x .365	CKN4045-ND	9.03	180.60	571.90	EP21SD1ABE
3	DPST	Off-Mom	AV	D1	B	.320 x .200 x .365	CKN4046-ND	9.27	185.40	587.10	EP21SD1AVBE
1	SPDT	On-Mom	Z	H	Q	.340 x .360 x .340	CKN4053-ND	5.70	114.00	361.00	TP12SHZQE
1	DPST	Off-Mom	Z	H	Q	.340 x .360 x .340	CKN4054-ND	8.64	172.80	547.20	TP21SHZQE
Snap-Acting Momentary Pushbutton Switches											
1	SPDT	On-Mom	C	H	G	.500 x .270 x .410	CKN4010-ND	9.03	180.60	571.90	8121SHCGE
1	SPDT	On-Mom	Z	H	G	.500 x .270 x .410	CKN4011-ND	8.91	178.20	564.30	8121SHZGE
2	SPDT	On-Mom	A	D9	G	.500 x .270 x .410	CKN4013-ND	9.57	191.40	606.10	8121SD9AGE
2	SPDT	On-Mom	A	D9	B	.500 x .270 x .410	CKN4014-ND	6.30	126.00	399.00	8125SD9ABE
3	SPDT	On-Mom	AV2	D9	G	.500 x .270 x .410	CKN4015-ND	9.57	191.40	606.10	8121SD9AV2GE
1	SPDT	On-Mom	V3	D3	B	.500 x .270 x .410	CKN4012-ND	6.30	126.00	399.00	8125SD3V3BE
1	SPDT	On-Mom	Z	H	B	.500 x .270 x .410	CKN4022-ND	5.64	112.80	357.20	8125SHZBE
1	DPDT	On-Mom	Z	H	G	.500 x .450 x .410	CKN4023-ND	13.29	265.80	841.70	8221SHZGE
1	DPDT	On-Mom	Z	H	B	.500 x .450 x .410	CKN4024-ND	7.98	159.60	505.40	8225SHZBE
5	SPDT	On-Mom	Z	—	G	.500 x .270 x .410	CKN4025-ND	10.11	202.20	640.30	8121J81ZGE22
5	SPDT	On-Mom	Z	—	B	.500 x .270 x .410	CKN4026-ND	6.84	136.80	433.20	8125J81ZBE22
5	DPDT	On-Mom	Z	—	G	.500 x .450 x .410	CKN4027-ND	14.49	289.80	917.70	8221J81ZGE22
5	DPDT	On-Mom	Z	—	B	.500 x .450 x .410	CKN4028-ND	9.18	183.60	581.40	8225J81ZBE22
5	SPDT	On-On	Z	—	G	.500 x .450 x .410	CKN4033-ND	7.83	156.60	495.90	8161J81ZGE22
5	SPDT	On-Mom	Z	—	G	.500 x .450 x .410	CKN4034-ND	7.83	156.60	495.90	8168J81ZGE22
5	DPDT	On-On	Z	—	G	.500 x .450 x .410	CKN4035-ND	13.38	267.60	847.40	8261J81ZGE22
1	SPDT	On-Mom	C	H	B	500 x 450 x .410	CKN4029-ND	5.76	115.20	364.80	8125SHCBE
3	SPDT	On-Mom	AV2	D9	B	.500 x .450 x .410	CKN4030-ND	6.30	126.00	399.00	8125SD9AV2BE
1	SPDT	On-Mom	C	D1	G	.500 x .219 x .350	CKN4041-ND	10.41	208.20	659.30	E121SD1CGE
1	DPDT	On-Mom	C	D1	G	.500 x .450 x .350	CKN4042-ND	15.48	309.60	980.40	E221SD1CGE
Alternate-Action & Momentary Pushbutton Switches											
4	SPDT	On-On	Z	H	Q	.500 x .270 x .450	CKN4016-ND	5.91	118.20	374.30	8161SHZQE2
4	SPDT	On-Mom	Z	H	Q	.500 x .270 x .450	CKN4018-ND	5 91	118.20	374.30	8168LHZQE2
5	SPDT	On-Mom	Z	—	Q	.500 x .270 x .450	CKN4017-ND	7.11	142.20	450.30	8168J81ZQE22
4	SPDT	On-Mom	Z	H	G	.500 x .270 x .450	CKN4031-ND	6.63	132.60	419.90	8168SHZGE2
4	DPDT	On-On	Z	H	G	.500 x .270 x .450	CKN4032-ND	12.18	243.60	771.40	8261SHZGE2
6	SPST	Off-Mom	—	—	Q	.620 x .469 Dia.	CKN1121-ND ***NEW!***	5.97	119.40	378.10	8532T1ZQE2
6	SPST	Off-Mom	—	—	B	.620 x .469 Dia.	CKN1122-ND ***NEW!***	5.97	119.40	378.10	8532T1ZBE2
Subminiature Pushbutton Switches											
7	SPST	Off-Mom	C	H	Q	.427 x .375 Dia.	CKN4036-ND	4.35	87.00	275.50	8531MCQE2
7	SPST	On-Mom	C	H	Q	.427 x .375 Dia.	CKN4037-ND	4.86	97.20	307.80	8533MCQE2
7	SPST	Off-Mom	—	8-40 uns	Q	.248 x .250 Dia.	CKN4038-ND	5.43	108.60	343.90	8631ZQD2
7	SPST	Off-Mom	—	8-40 uns	B	.248 x .250 Dia.	CKN4039-ND	5.43	108.60	343.90	8631ZBD2
7	SPST	Off-Mom	C	8-40 uns	B	.248 x .250 Dia.	CKN4040-ND	5.55	111.00	351.50	8631CBD2
7	SPST	Off-Mom	C	H	Q	.427 x .375 Dia.	CKN4019-ND	4.35	87.00	275.50	8531SCQE2
7	SPST	Off-Mom	—	H	Q	.427 x .375 Dia.	CKN4020-ND	4.23	84.60	267.90	8531MZQE2
7	SPST	Off-Mom	—	H	Q	.427 x .375 Dia.	CKN4021-ND	4.23	84.60	267.90	8532MZQE2
Momentary Tact Switches (washable)											
11	SPST	Off-Mom	—	—	G	.245 x .251 x .112	CKN4050-ND*	1.17	23.40	74.10	KT11B0CM
11	SPST	Off-Mom	—	—	G	.245 x .251 x .205	CKN4051-ND*	1.35	27.00	85.50	KT11P2CM
11	SPST	Off-Mom	—	—	G	.245 x .251 x 156	CKN4052-ND*	1 35	27 00	85.50	KT11P3CM
Ultra-miniature Pushbutton Switches (washable)											
—	SPDT	Off-Mom	—	D1	G	.260 x .276 x .215	CKN4048-ND*	5.16	103.20	326.80	GP11MCKE
—	SPDT	On-Mom	—	D1	G	.260 x .276 x .215	CKN4049-ND*	5.82	116.40	368.60	GP11MAKE
Pushbutton Caps for 8200, 8060, E010/020											
12	White Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1103-ND ***NEW!***	.45	9.00	28.50	75270-1000
12	Black Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1104-ND ***NEW!***	.45	9.00	28.50	75270-2000
12	Red Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1105-ND ***NEW!***	.45	9.00	28.50	75270-3000
12	Orange Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1106-ND ***NEW!***	.45	9.00	28.50	75270-4000
12	Yellow Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1107-ND ***NEW!***	.45	9.00	28.50	75270-5000
12	Green Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1108-ND ***NEW!***	.45	9.00	28.50	75270-6000
12	Blue Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1109-ND ***NEW!***	.45	9.00	28.50	75270-7000
12	Brown Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1110-ND ***NEW!***	.45	9.00	28.50	75270-8000
12	Gray Gloss Cap for .122" Diameter Plungers, .375" Diameter						CKN1111-ND ***NEW!***	.45	9.00	28.50	75270-9000
Pushbutton Caps EP, TP Series											
12	White Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1112-ND ***NEW!***	.84	16.80	53.20	46580-1000
12	Black Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1113-ND ***NEW!***	.48	9.60	30.40	46580-2000
12	Red Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1114-ND ***NEW!***	.84	16.80	53.20	46580-3000
12	Orange Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1115-ND ***NEW!***	.84	16.80	53.20	46580-4000
12	Yellow Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1116-ND ***NEW!***	.84	16.80	53.20	46580-5000
12	Green Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1117-ND ***NEW!***	.84	16.80	53.20	46580-6000
12	Blue Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1118-ND ***NEW!***	.84	16.80	53.20	46580-7000
12	Brown Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1119-ND ***NEW!***	.84	16.80	53.20	46580-8000
12	Gray Gloss Cap for .100" Diameter Plungers, .3" Diameter						CKN1120-ND ***NEW!***	.84	16.80	53.20	46580-9000

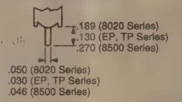
Fig.	Circuit	Switching Function	Actuator Height	Terminals	Digi-Key Part No.	Pricing			Digi-Key Part No.	Tape & Reel Pricing	C & K Part No.
						1	25	100		300	
Surface Mount (washable)											
8	SPDT	Off-Mom	.215	Gull Lead	CKN4055CT-ND*	6.50	140.00	450.00	CKN4055TR-ND*	1080.00	EP11SD1SAKE
8	SPDT	On-Mom	.215	Gull Lead	CKN4056CT-ND*	8.19	176.40	567.00	CKN4056TR-ND*	1360.80	EP12SD1SAKE
9	SPST	Off-Mom	Flush	J-Lead	CKN9001CT-ND*	1.27	27.30	87.75	CKN9001TR-ND*	210.60	KT11B0JM
9	SPST	Off-Mom	.089	J-Lead	CKN9002CT-ND*	1.46	31.50	101.25	CKN9002TR-ND*	243 00	KT11P2JM
9	SPST	Off-Mom	.044	J-Lead	CKN9003CT-ND*	1.46	31.50	101.25	CKN9003TR-ND*	243.00	KT11P3JM
9	SPST	Off-Mom	.093	Gull Lead	CKN9004CT-ND*	1.46	31.50	101.25	CKN9004TR-ND*	243.00	KT11P2SM
9	SPST	Off-Mom	.044	Gull Lead	CKN9005CT-ND*	1.46	31.50	101.25	CKN9005TR-ND*	243.00	KT11P3SM
10	SPST	Off-Mom	Flush	Gull Lead	CKN9006CT-ND*	1.27	27.30	87.75	CKN9006TR-ND*	210.60	KT11B0SAM
10	SPST	Off-Mom	.025	Gull Lead	CKN9007CT-ND*	1.33	28.70	92.25	CKN9007TR-ND*	221.40	KT11B1SAM
10	SPST	Off-Mom	.088	Gull Lead	CKN9008CT-ND*	1.40	30.10	96.75	CKN9008TR-ND*	232.20	KT11B2SAM

* Process Sealed

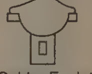
9138B-ND C&K Switch Data Book **$2.95**

Termination Options

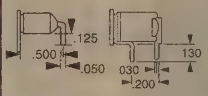
C 8020 Series



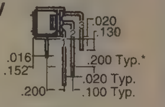
Z


Solder Eyelet

A — 8020 Series



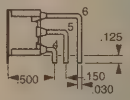
AV



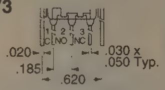
(EP Series)

• Middle terminal missing on CKN4009-ND

AV2

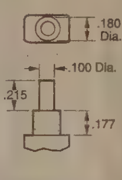


V3

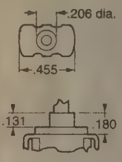


Bushing Options

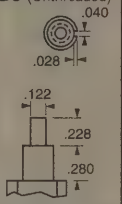
D1 (Unthreaded)



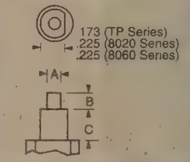
D3 (Unthreaded)



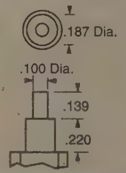
D9 (Unthreaded)



H 1/4-40 NS
H9 (Unthreaded)
H7 10-48UNS-2A



H8 (Unthreaded)



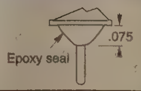
Bushing Option	C & K Series	Dimensions		
		A	B	C
H, H9	TP	.100	.139	.220
H	8020	.122	.218	.250
H	8060	.122	.280	.300

Contact Materials Options

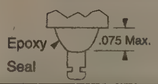
B	Contacts & Terminals: Copper alloy, with gold plate over nickel plate. Rating: 0.4 VA max. @ 20 VAC or DC max.
Q	Contacts: Coin silver, silver plated. Terminals: Copper alloy, silver plated. Rating: 1A @ 120 VAC; 8060 Series — 6A @ 120 VAC or 3A @ 250 VAC; 8500 Series — 1A @ 120 VAC.
G	Contacts: Coin silver, with gold plate over nickel plate. Terminals: Copper alloy, with gold plate over nickel plate. Rating: 0.4 VA max. @ 20 VAC or DC max. or 1 amp @ 120 VAC or 28 VDC.

Sealing Options — 8500

C



Z



C&K COMPONENTS, INC. Slide Switches

9138B-ND C&K Switch Data Book..**$2.95**
Data book includes information on Fig. 1-7, 12.

Fig. 1

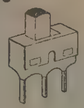


Fig. 2

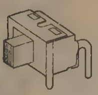


Fig. 3

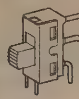


Fig. 4

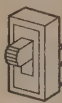


Fig. 5

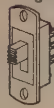


Fig. 6

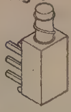


Fig. 7

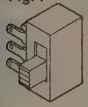


Fig. 8

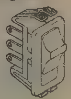


Fig. 9

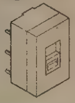


Fig. 10

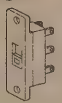


Fig. 11 ***NEW!***

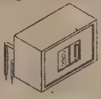
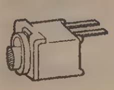
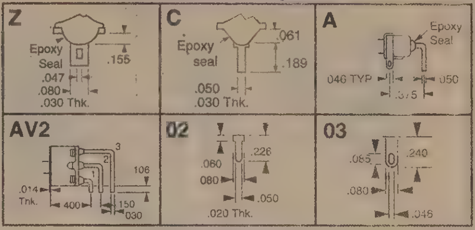


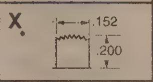
Fig. 12



Termination Options



Actuator



Contact Material Options

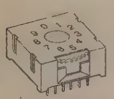
- **B** Contacts & Terminals: Copper alloy, with gold plate over nickel plate. Rating: 0.4 VA max. @ 20 VAC or DC max. (For 1100, 1200, L200 Series).
- **Q** 1100, 1200: End Contacts: Coin silver, silver plated. Center Contact and All Terminals: Copper alloy, silver plated. Rating: 6 amps @ 120 VAC or 28 V DC; 3 amps @ 250 VAC (UL/CSA).

  L200 Series: Contacts and Terminals: Copper, silver plated. (Std. with all termination options.) Rating: 4 amps @ 125 VAC or 28 VDC; 2 amps @ 250 VAC; 0.5 amp @ 125 VDC (UL/CSA).
- **L** Contact Rating: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS. Electrical Life: 10,000 make-and-break cycles at full load. Mechanical Life: 100,000 cycles min. Contact Resistance: Below 10 milliohms
- **S** Contact Rating. 15 AMPS @ 125 V AC or 28 V DC. Electrical Life: 10,000 make-and-break cycles at full load. Mechanical Life: 100,000 cycles min. Contact Resistance: Below 10 milliohms
- **V** Contact Rating: 10.1 AMPS @ 125 V AC or 28 V DC; 5 AMPS @ 250 V AC. Electrical Life: 10,000 make-and-break cycles. Mechanical Life: 100,000 cycles min. Contact Resistance: Below 10 milliohms

Fig.	Circuit	Switching Function	Actuator	Options (see diag.) Termination	Cont. Mat'l.	Dimensions (in.) L x W x D	Digi-Key Part No.	Pricing 1	25	100	C & K Part No.
1	SPDT	On-On	X	C	B	.500 x 260 x 250	CKN5000-ND	3.93	78.60	248.90	1101M2S3CBE2
1	SPDT	On-On	X	C	Q	.500 x .260 x .250	CKN5001-ND	3.93	78.60	248.90	1101M2S3CQE2
1	DPDT	On-On	X	C	B	.500 x .260 x .250	CKN5002-ND	7.41	148.20	469.30	1201M2S3CBE2
1	DPDT	On-On	X	C	Q	.500 x .260 x .250	CKN5003-ND	7.41	148.20	469.30	1201M2S3CQE2
1	SPDT	On-On	X	Z	Q	.500 x .260 x .250	CKN5004-ND	3.81	76.20	241.30	1101M1S3ZQE2
2	SPDT	On-On	X	A	B	.500 x .260 x .250	CKN5005-ND	4.47	89.40	283.10	1101M2S3ABE2
2	SPDT	On-On	X	A	Q	.500 x .260 x .250	CKN5006-ND	4.47	89.40	283.10	1101M2S3AQE2
3	SPDT	On-On	X	AV2	B	.500 x .260 x .250	CKN5007-ND	4.47	89.40	283.10	1101M2S3AV2BE2
3	SPDT	On-On	X	AV2	Q	500 y .260 x 250	CKN5008-ND	4.47	89 40	283.10	1101M2S3AV2QE2
4	DPDT	On-Off	X	02	Q	.760 x .425 x .358	CKC5100-ND	1.87	40.38	136.00	L202011MS02Q
5	DPST	On-Off	X	03	Q	.760 x .425 x .358	CKC5101-ND	1.65	35.63	120.00	L201011SS03Q
6	DPDT	Off-Mom.	—	02	L	.760 x .425 x .330	CKC5104-ND	2.85	57.00	180.50	L212132MV02Q
7	SPDT	On-On	—	02	L	.760 x .425 x .330	CKC5102-ND	1.50	30.00	95.00	L102021ML04Q
7	DPDT	On-On	—	02	S	.760 x .425 x .330	CKC5103-ND	3.15	63.00	199.50	L202021MA04Q
8	DPDT	On-On	—	03	V	1.24 x 680 x 680	CKC5105-ND	3.45	69.00	218.50	S802C21S207Q
12	SPDT	On-On	—	C	B	.276 x .160 x .278	CKN5009-ND	5.43	108.60	343.90	GS01MCKE
12	SPST	Off-On	—	C	B	.276 x .160 x 278	CKN5010-ND	5.94	118.80	376 20	GS02MCKE
115V/230V Volt Select											
9	DPDT	On-On	—	C	V	1.03 x .650 x .495	CKC3001-ND	3.75	75.00	237.50	V80212MS02Q
10	DPDT	On-On	—	03	V	1.614 x .650 x .495	CKC3002-ND	3.75	75.00	237.50	V80212SS05Q
—	DPDT	On-On	—	03	V	1.300 x .750 x .540	CKC3003-ND	3.60	72.00	228.00	V20212S205Q
11	DPDT	On-On	—	C	V	1.030 x .650 x .630	CKC3004-ND ***NEW!***	3.30	71.25	240.00	V802-12MA08Q

C&K COMPONENTS, INC.

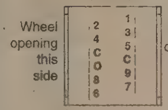
Mini-thumbwheel Switches



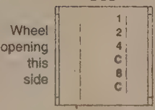
Specifications: Contact Rating: Carry—1 amp continuous @ 28 V DC. Switch—100mA max. @ 28 V DC. Electrical Life: 10^5 detent operations @ 25°C. Contact Resistance: Below 100 milliohms typ. initial @ 2-4 VDC, 100mA. Insulation Resistance: 10^8 ohms min. (dry). Dielectric Strength: 250 V RMS min. @ sea level. Operating Temperature: –10°C to 65°C

Materials: Cover: Thermoplastic polyester. Base: Glass filled nylon Thumbwheel: Nylon. Rotor Contacts: Hard gold over nickel over copper on epoxy fiberglass. Stator Contacts: Copper alloy with gold over nickel. Terminals: Solder clad over copper alloy, insert molded.

Bottom View
Common

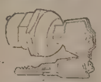


Bottom View
BCD

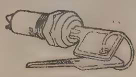


Function Code	Digi-Key Part No.	Pricing 1	25	100	C & K Part No.
Common	CKN6000-ND	8.40	168.00	532.00	3M120
BCD	CKN6001-ND	9.09	181.80	575.70	3M223

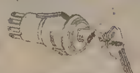
C&K COMPONENTS, INC. Switchlocks



Y Series



YM Series



P Series ***NEW!***

Lock Configuration
90° Indexing
Pos. 1
└ - 2

Fig. 1

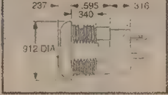
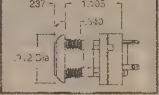


Fig. 2



UL/CSA Approved

TERM. OP.

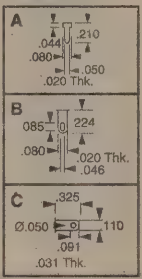


Fig. No.	Keypull Possible	Amp Rty. @ 125 VAC	No. Poles	Connected Terminals Pos. 1	Pos. 2	Digi-Key Part No.	Pricing 1	10	100	C & K Part No.
1B	1 & 2	4	SP	8-1	1-3	CKC8000-ND	8.47	73.15	616.00	Y1011U2C203NQ
1B	1 & 2	4	DP	8-1, 4-5, 1-3, 5-7		CKC8001-ND	9.90	85.50	720.00	Y2011U2C203NQ
1A	1 & 2	4	SP	8-1	1-3	CKC8002-ND	8.47	73.15	616.00	Y1011U2C202NQ
1A	1 & 2	4	DP	8-1, 4-5, 1-3, 5-7		CKC8003-ND	9.90	85.50	720.00	Y2011U2C202NQ
2C	1 & 2	12	SP	7-8	8-2	CKC8004-ND	11.55	99.75	840.00	H1011U2C205NO
2C	1 & 2	12	DP	7-8, 3-4, 8-2, 4-6		CKC8005-ND	13.20	114.00	960.00	H2011U2C205NO
1B	1 & 2	4	SP	8-1	1-3	CKC8006-ND	10.34	89.30	752.00	Y1011U2V203NQ
1B	1 & 2	4	DP	8-1, 4-5, 1-3, 5-7		CKC8007-ND	11.77	101.65	856.00	Y2011U2V203NQ
—	1 & 2	4	SP	1-2		CKC8008-ND	9.02	77.90	656.00	YM061U2C205NQ
—	1 & 2	4	SP	1-2		CKC8009-ND ***NEW!***	10.12	87.40	736.00	YM061U2C2WCNQ
—	1 only	4	SP	1-2		CKC8010-ND ***NEW!***	9.02	77.90	656.00	YM06132C205NQ
—	1 only	4	SP	1-2		CKC8011-ND ***NEW!***	10.12	87.40	736.00	YM06132C2WCNQ
—	1 only	4	SP	1-8		CKC8012-ND ***NEW!***	8.25	71.25	600.00	P10113TCM03Q22
—	1 only	4	DP	1-8, 4-5		CKC8013-ND ***NEW!***	9.68	83.60	704.00	P20113TCM03Q22
—	1 & 2	4	SP	1-8		CKC8014-ND ***NEW!***	8.25	71.25	600.00	P1011UTCM03Q22
—	1 & 2	4	DP	1-8, 4-5		CKC8015-ND ***NEW!***	9.68	83.60	704.00	P2011UTCM03Q22

C&K COMPONENTS, INC. Rocker Switches

9138B-ND C&K Switch Data Book..**$2.95**
Data book includes information on Fig. 1-4

Fig. 1

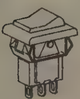


Fig. 2

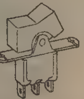


Fig. 3

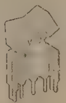


Fig. 4

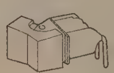


Fig. 5

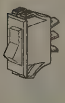


Fig. 6

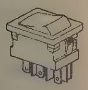
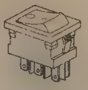
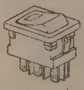


Fig. 7



Vert. White Marking

Fig. 8



Illuminated

Contact Materials

- **B** Contacts & Terminals: Copper alloy, with gold plate over nickel plate. Rating: 0.4 VA max. @ 20 VAC or DC max.
- **Q** Contacts: Coin silver, silver plated. Center Contact & All Terminals: Copper alloy, silver plated. Rating: 5 amps @ 120 VAC or 28 VDC; 2 amps @ 250 VAC; C Series — 15A @ 125 VAC or 10A @ 250 VAC (UL/CSA); DM Series — 10A @ 125 VAC or 5A @ 250 VAC (UL/CSA).

Termination Options

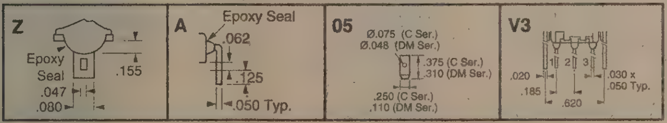


Fig.	Circuit	Switching Function	Options (see above) Termination	Cont. Mat'l.	Digi-Key Part No.	Pricing 1	25	100	C & K Part No.
Rocker Switches									
1	SPDT	On-On	Z	Q	CKN2002-ND	7.32	146.40	463.60	U11J51ZQE22
2	SPDT	On-On	Z	Q	CKN2007-ND	6.33	126.60	400.90	7101J1ZQE2
2	SPDT	On-Off-On	Z	Q	CKN2008-ND	6.87	137.40	435.10	7103J1ZQE2
2	4PDT	On-On	Z	Q	CKN2001-ND	19.38	387.60	1227.40	7401J1ZQE2
2	DPDT	On-On	Z	Q	CKN2000-ND	8.85	177.00	560.50	7201J1ZQE2
3	SPDT	On-Off-On	V3	B	CKN2003-ND	7.53	150.60	476.90	7103J1V3BE2
4	DPDT	On-On	A	Q	CKN2006-ND	6.72	134.40	425.60	7201J1AQE2
4	SPDT	On-On	A	B	CKN2004-ND	6.99	139.80	442.70	7101J1ABE2
4	SPDT	On-On	A	Q	CKN2005-ND	4.80	96.00	304.00	7101J1AQE2
—	SPDT	On-On	A	Q	CKC2021-ND	3.75	75.00	237.50	JA01J12AQ
Power Rocker Switches									
5	SPDT	On-On	05	Q	CKC2008-ND	3.96	57.00	192.00	C121J12S205QF
6	SPDT	On-Off-On	05	Q	CKC2012-ND	3.06	61.20	193.80	D503J12S205QA
6	SPDT	On-Mom	05	Q	CKC2013-ND	3.06	61.20	193.80	D508J12S205QA
6	SPDT	Mom-Off-Mom	05	Q	CKC2022-ND	4.05	81.00	256.50	D105J12S205QA
6	DPDT	On-On	05	Q	CKC2009-ND	3.30	71.25	240.00	DM61J12S205Q
6	DPDT	On-Mom	05	Q	CKC2015-ND	5.25	105.00	332.50	D608J12S205QA
7	SPDT	On-On	A	Q	CKC2010-ND	4.95	99.00	313.50	D501J12S2APQF
7	SPST	On-Off	05	Q	CKC2011-ND	3.60	72.00	228.00	D502J12S215PQF
7	DPST	On-Off	05	Q	CKC2014-ND	5.19	103.80	328.70	D602J12S215PQF
7	DPDT	On-On	05	Q	CKC2018-ND	4.89	97.80	309.70	DM61J12S205PQ
7	DPST	On-Off	05	Q	CKC2019-ND	4.74	94.80	300.20	DM62J12S205PQ
8	SPST	On-On	05	Q	CKC2017-ND	4.68	93.60	296.40	DM54J72S205Q3
8	DPST	On-On	05	Q	CKC2020-ND	5.25	105.00	332.50	DM64J72S205Q3
—	DPST	On-Off	05	Q	CKC2016-ND	4.14	82.80	262.20	DF62J12S215PQF

E-SWITCH® Slide Switches

A Division of Electronic Components Groupe

9157B-ND E-Switch Data Book **$2.95**

Fig. 1

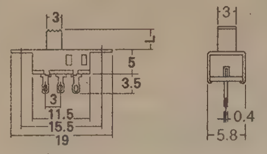

3
L
5
3.5
3
11.5
15.5
19
3
0.4
5.8

Fig. 2

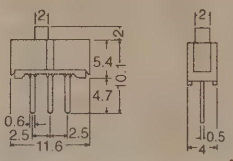

2
2
5.4
10.1
4.7
0.6
2.5
11.6
2.5
2
0.5
4

Fig. 3

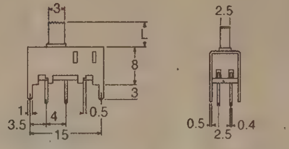

3
L
8
3
1
4
0.5
3.5
15
2.5
0.5
0.4
2.5

Fig. 4

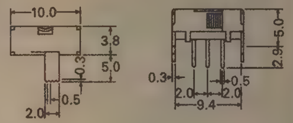

10.0
3.8
5.0
0.3
0.5
2.0
5.0
2.9
0.3
0.5
2.0
2.0
9.4

Fig. 5

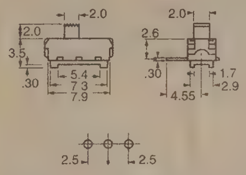

2.0
2.0
3.5
.30
5.4
7.3
7.9
2.0
2.6
.30
1.7
2.9
4.55
2.5
2.5

Fig. 6

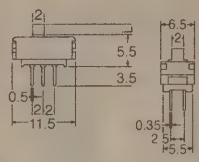

2
5.5
3.5
0.5
2
2
11.5
6.5
2
0.35
2.5
5.5

Fig. 7

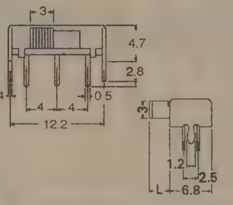

3
4.7
2.8
0.4
4
4
0.5
12.2
3
1.2
2.5
L
6.8

Fig. 8

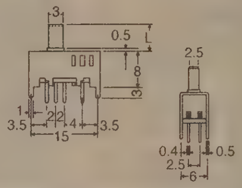

3
0.5
L
8
3
1
2
2
4
3.5
3.5
15
2.5
0.4
0.5
2.5
6

Fig. 9

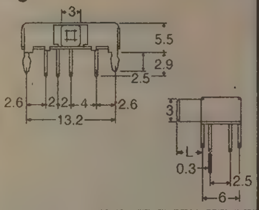

3
5.5
2.9
2.5
2.6
2
2
4
2.6
13.2
3
L
0.3
2.5
6

Fig. 10

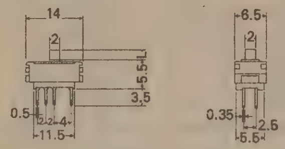

14
2
5.5
L
3.5
0.5
2
2
4
11.5
6.5
2
0.35
2.5
5.5

Fig. 11

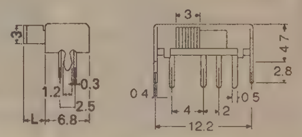

3
1.2
0.3
2.5
L
6.8
3
4.7
2.8
0.4
4
2
0.5
12.2

Fig. 12

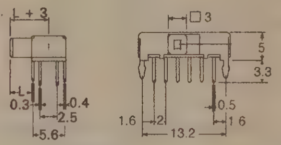

L + 3
L
0.3
0.4
2.5
5.6
3
5
3.3
0.5
1.6
2
1.6
13.2

Fig. 13

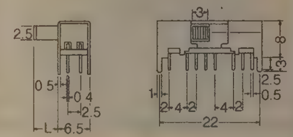
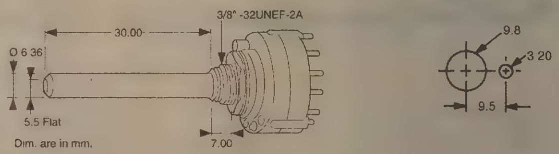

2.5
0.5
0.4
2.5
L
6.5
3
8
2.5
0.5
1
2
4
2
4
2
22

Fig.	Description	Rating	Circuit	"L" Dim.	Switching Function	Terminal	Digi-Key Part No.	Pricing 1	10	100	250	E-Switch Part No.
							EG Series					
1	Straight	0.2A @ 30VDC	SPDT	4	On-On	Solder Lugs	EG1901-ND	.61	5.51	46.92	96.90	EG1201
1	Straight	0.2A @ 30VDC	SPDT	5.5	On-On	Solder Lugs	EG1902-ND	.61	5.51	46.92	96.90	EG1201A
2	Straight	0.2A @ 30VDC	SPDT	—	On-On	PC Board	EG1903-ND	.61	5.51	46.92	96.90	EG1218
3	Straight	0.2A @ 30VDC	DPDT	3	On-On	PC Board	EG1904-ND	.76	6.83	58.19	120.18	EG2201
3	Straight	0.2A @ 30VDC	DPDT	6	On-On	PC Board	EG1905-ND	.86	7.72	65.78	135.85	EG2201A
4	Right Angle	0.2A @ 30VDC	SPDT	—	On-On	PC Board	EG1906-ND	.67	5.99	51.06	105.45	EG1213
5	Right Angle	0.2A @ 30VDC	SPDT	2	On-On	PC Board	EG1847-ND	.96	7.65	68.85	146.63	EG1270
6	Straight	0.2A @ 30VDC	DPDT	2	On-On	PC Board	EG1907-ND	.86	7.72	65.78	135.85	EG2209
6	Straight	0.2A @ 30VDC	DPDT	4	On-On	PC Board	EG1908-ND	.92	8.32	70.84	146.30	EG2209A
7	Right Angle	0.2A @ 30VDC	DPDT	3.5	On-On	PC Board	EG1909-ND	.77	6.89	58.65	121.13	EG2215
8	Straight	0.2A @ 30VDC	DP3T	3	On-On-On	PC Board	EG1910-ND	.77	6.97	59.34	122.55	EG2301
9	Right Angle	0.2A @ 30VDC	DP3T	4	On-On-On	PC Board	EG1911-ND	.80	7.24	61.64	127.30	EG2308
10	Straight	0.2A @ 30VDC	DP3T	2	On-On-On	PC Board	EG1912-ND	.84	7.59	64.63	133.48	EG2309
11	Right Angle	0.2A @ 30VDC	DP3T	3.5	On-On	PC Board	EG1913-ND	.84	7.59	64.63	133.48	EG2315
12	Right Angle	0.2A @ 30VDC	4PDT	4	On-On	PC Board	EG1914-ND	1.39	12.47	106.26	219.45	EG4208
13	Right Angle	0.2A @ 30VDC	4P3T	5	On-On-On	PC Board	EG1915-ND	1.53	13.77	117.30	242.25	EG4319

E-SWITCH® Rotary Switches

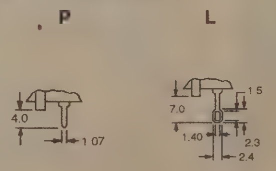
A Division of Electronic Components Groupe

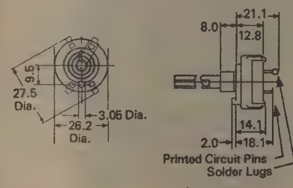
• With applications ranging for test & measurment equipment to telephone base stations to hospital controls. These rotary switches have performed exceptionally well. Contacts (Non-Shorting). • Available with solder lugs or printed circuit boards pins with adjustable stops to select any number of positions.**Operating Force:** 570 Grams. **Indexing:** 30° Index. **Contact Rating (Switching):** 150mA 250V AC/DC; 350mA 110V AC/DC. **Contact Rating (Non-Switching):** 5 Amps. **Initial Contact Resistance:** Silver = 50 milliohms max. **Operating Temperature:** –30C to +85C. **Moving and Fixed Contact:** Silver plated brass.


3/8" -32UNEF-2A
30.00
Ø 6 36
5.5 Flat
Dim. are in mm.
7.00
9.8
3 20
9.5

No. of Pole	No. of Positions	Termination	Digi-Key Part No.	Pricing 1	10	100	250	E-Switch Part No.
			KC Series					
1	12	P	EG1951-ND	4.16	37.42	318.78	658.35	KC-52-A-01-N-P-S
1	12	L	EG1952-ND	4.16	37.42	318.78	658.35	KC-52-A-01-N-L-S
2	6	P	EG1953-ND	4.16	37.42	318.78	658.35	KC-26-A-01-N-P-S
2	6	L	EG1954-ND	4.16	37.42	318.78	658.35	KC-26-A-01-N-L-S
3	4	P	EG1955-ND	4.16	37.42	318.78	658.35	KC-34-A-01-N-P-S
3	4	L	EG1956-ND	4.16	37.42	318.78	658.35	KC-34-A-01-N-L-S
4	3	P	EG1957-ND	4.16	37.42	318.78	658.35	KC-43-A-01-N-P-S
4	3	L	EG1958-ND	4.16	37.42	318.78	658.35	KC-43-A-01-N-L-S

Terminations


P
L
4.0
1 07
1 5
7.0
1.40
2.3
2.4


9.5
27.5
Dia.
26.2
Dia.
3.05 Dia.
8.0
21.1
12.8
14.1
2.0
18.1
Printed Circuit Pins
Solder Lugs

E-SWITCH® Pushbutton Switches

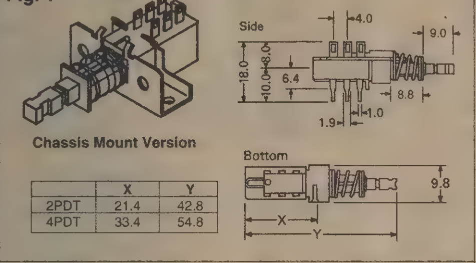
A Division of Electronic Components Groupe

9157B-ND	E-Switch Data Book	$2.95

TA/JN SERIES

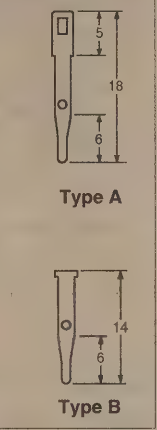
The industry standard used in applications such as audio, instrumentation, telecommunications, and test equipment. Featuring momentary or alternate action switching. P.C. lugs available with or without solder lugs for hand wiring. **Contacts:** Gold or Tin Plated 15µi. **Contact Resistance:** Initial – 5 milliohms max.; Current and Voltage Ratings – 0.5A @ 100 VAC, 0.2A @ 250 VAC, 1A @ 25 VDC. ; Test – 100,000 cycles min.

Fig. 1



	X	Y
2PDT	21.4	42.8
4PDT	33.4	54.8

Terminal Types



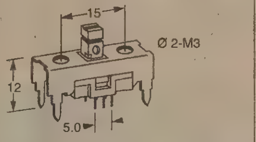
Type A

Type B

Fig. 1E

JN Series:

Stand-up version of the TA Series. Has the same ratings as TA Series and uses the same caps.



POWER SWITCH

Rating 125VAC @ 7A/ 250VAC @ 4A. DPDT Alternate Action Panel Mount. Approvals: UL, CSA, Demko, Semko, SEV, Femko, Nemko

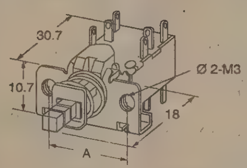


Fig. 1A

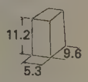


Fig. 1B

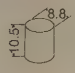


Fig. 1C

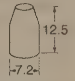
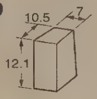


Fig. 1D



MTH SERIES

Miniature switches that feature an ultra light feel with a short stroke. Ideal for telecommunications and test equipmment, and wherever miniaturization is required. **Contact Material:** Silver Plated. **Contact Resistance:** <0.1 ohm. **Voltage Rating:** 30V DC. **Switching Current Max:** 100mA. **Life:** ≥ 1 x 10^5 cycles. **Moving Contacts:** Phosphor bronze – 1 micron silver. **Force:** 170 ± 100g. **Travel To Lock:** 2mm. **Operating Temperature Range:** -10° to 60°C.

Fig. 2A

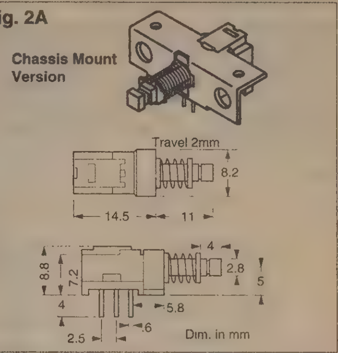


Fig. 2B

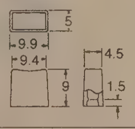
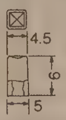


Fig. 2C



320 SERIES

320 Series switches are being used in a variety of applications in a great number of industries such as; Instrumentation, Test Equipment, Telecommunications, Audio Visual, and Computers. **Travel:** .7mm (.028"). **Operating Force:** 120 grams. **Type Of Contact:** SPST. **Contact Rating:** 25mA/50V (DC). **Initial Resistance:** 50m ohms. **Life:** 1 X 10^6 switching cycles.

Fig. 3A

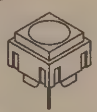


Fig. 3B

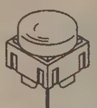


Fig. 3C

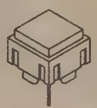
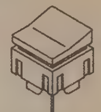


Fig. 3D



520 SERIES

SPST pushbutton switches designed for digital electronics, offer a smooth, tactile feel. They feature built-in square or round buttons and are available in seven colors. **Travel:** .8mm. **Operating Force:** 130 grams. **Type of Contact:** SPST n/o. **Contact Rating:** 10mA, 35 V DC; 100mA, 100 V AC. **Initial Contact Resistance:** < 20mΩ. **Life:** 500,000 cycles. **Operating Temperature Range:** –20°C - +85°C.

Fig. 4A

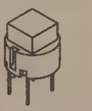


Fig. 4B

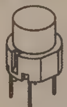


Fig. 4C

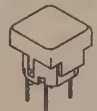
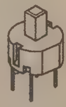


Fig. 4D



Description	Fig.	Digi-Key Part No.	Pricing 1	10	100	E-Switch Part No.
TA Series – Caps Sold Separately Below						
Alternate Action, DPDT, Terminal A, Gold Plating	1	EG1001-ND	2.43	19.47	175.23	TA2UEEAAU
Momentary, DPDT, Terminal A, Gold Plating	1	EG1002-ND	2.43	19.47	175.23	TA2UOAAAU
Alternate Action, DPDT, Terminal B, Gold Plating	1	EG1003-ND	2.43	19.47	175.23	TA2UEECAU
Alternate Action, 4PDT, Terminal A, Gold Plating	1	EG1004-ND	3.94	31.50	283.50	TA4UEEAAU
Momentary Action, 4PDT, Terminal A, Gold Plating	1	EG1005-ND	3.80	30.36	273.24	TA4UDAAAU
Chassis Mt, Alternate Action DPDT Terminal A, Silver Plating	1	EG1010-ND	1.65	14.85	126.50	1XTA0003-02/2UEEAAG
Chassis Mt, Alternate Action 4PDT Terminal A, Silver Plating	1	EG1011-ND	1.89	17.01	144.90	1XTA0003-02/4UEEAAG
Alt. Action, DPDT, Terminal A, Silver Plating	1	EG1000-ND	1.52	12.18	109.62	TA2UEEAAGPN
Momentary, DPDT, Terminal A, Silver Plating	1	EG1006-ND	1.40	11.22	100.98	TA2UOAAGPN
Alt. Action, DPDT, Terminal B, Silver Plating	1	EG1007-ND	1.52	12.18	109.62	TA2UEECAGPN
Alt. Action, 4PDT, Terminal A, Silver Plating	1	EG1008-ND	1.88	15.00	135.00	TA4UEEAAGPN
Momentary, 4PDT, Terminal A, Silver Plating	1	EG1009-ND	1.76	14.07	126.63	TA4UOAAGPN
JN Series — Caps Sold Separately Below						
Chassis Mt, Stand Up, Alternate Action DPDT	1E	EG1016-ND	1.38	12.39	105.57	1XJN002UEE
Chassis Mt, Stand Up, Momentary Action DPDT	1E	EG1017-ND	1.38	12.39	105.57	1XJN002U0A
Power Switch — Caps Sold Separately Below						
Push Button, DPDT, Alt. Act. Dim. A = 20mm	—	EG1018-ND	2.44	21.98	187.22	P227EEB20
Push Button, DPDT, Alt. Act. Dim. A = 18mm	—	EG1020-ND	2.44	21.98	187.22	P227EEB18
TA/JN Series — Power Switch Caps						
Rectangle Cap, White	1A	EG1088-ND	.26	2.38	20.24	TAC WHITE
Rectangle Cap, Black	1A	EG1081-ND	.26	2.38	20.24	TAC BLACK
Rectangle Cap, Red	1A	EG1085-ND	.26	2.38	20.24	TAC RED
Rectangle Cap, Gray	1A	EG1082-ND	.26	2.38	20.24	TAC GRAY
Round Cap, White	1B	EG1098-ND	.26	2.38	20.24	TAG WHITE
Round Cap, Black	1B	EG1091-ND	.26	2.38	20.24	TAG BLACK
Round Cap, Gray	1B	EG1092-ND	.26	2.38	20.24	TAG GRAY
Round Cap, Red	1B	EG1095-ND	.26	2.38	20.24	TAG RED
Round Cap, Chrome	1B	EG1099-ND	.46	4.16	35.42	TAG CHROME
Bullet Shaped Cap, Black	1C	EG1012-ND	.26	2.38	20.24	TAM BLACK
Bullet Shaped Cap, White	1C	EG1013-ND	.26	2.38	20.24	TAM WHITE
Bullet Shaped Cap, Grey	1C	EG1014-ND	.26	2.38	20.24	TAM GREY
Rectangular Cap, Red	1D	EG1019-ND	.26	2.38	20.24	TAD RED
MTH Series – Caps Sold Separately Below						
Right Angle Momentary, DPDT	2A	EG1101-ND	.95	8.59	73.14	MTH2UOA
Right Angle Alternate Action DPDT	2A	EG1102-ND	1.06	9.50	80.96	MTH2UEE
Chassis Mt, Rt Angle, Alternate Action DPDT	2A	EG1015-ND	1.16	10.40	88.55	1XMTH002UEE
MTH Series Caps						
Rectangle Cap, Red	2B	EG1185-ND	.20	1.78	15.18	1C101
Rectangle Cap, Black	2B	EG1181-ND	.20	1.78	15.18	1C911
Rectangle Cap, Gray	2B	EG1182-ND	.20	1.78	15.18	1C951
Long Square Cap, Red	2C	EG1195-ND	.20	1.78	15.18	1D101
Long Square Cap, Black	2C	EG1191-ND	.20	1.78	15.18	1D911
Long Square Cap, Gray	2C	EG1192-ND	..20	1.78	15.18	1D951
320 Series – Sold With Caps						
Momentary, Square, Recessed SPST, Black	3A	EG1301-ND	1.78	16.04	136.62	320E1-1-1
Momentary, Square, Recessed SPST, Gray	3A	EG1302-ND	1.78	16.04	136.62	320E1-1-2
Momentary, Square, Recessed SPST, Red	3A	EG1305-ND	1.78	16.04	136.62	320E1-1-5
Momentary, Square, Recessed SPST, White	3A	EG1308-ND	1.78	16.04	136.62	320E1-1-8
Momentary, Round, SPST, Black	3B	EG1311-ND	2.02	17.33	149.11	320.02E1-1.08-1
Momentary, Round, SPST, Gray	3B	EG1312-ND	2.02	17.33	149.11	320.02E1-1.08-2
Momentary, Round, SPST, Red	3B	EG1315-ND	2.02	17.33	149.11	320.02E1-1.08-5
Momentary, Round, SPST, White	3B	EG1318-ND	2.02	17.33	149.11	320.02E1-1.08-8
Momentary, Flat Square, SPST, Black	3C	EG1321-ND	1.78	16.04	136.62	320.01E1-1-1
Momentary, Flat Square. SPST, Gray	3C	EG1322-ND	1.78	16.04	136.62	320.01E1-1-2
Momentary, Flat Square, SPST, Red	3C	EG1325-ND	1.78	16.04	136.62	320.01E1-1-5
Momentary, Flat Square, SPST, White	3C	EG1328-ND	1.78	16.04	136.62	320.01E1-1-8
Momentary, Tilted Square, SPST, Black	3D	EG1341-ND	1.88	16.93	144.21	320.22E1-1-1
Momentary, Tilted Square, SPST, Gray	3D	EG1342-ND	1.88	16.93	144.21	320.22E1-1-2
Momentary, Tilted Square, SPST, Red	3D	EG1345-ND	1.88	16.93	144.21	320.22E1-1-5
Momentary, Tilted Square, SPST, White	3D	EG1348-ND	1.88	16.93	144.21	320.22E1-1-8
520 Series – Sold With Caps						
Momentary, Square, SPST, Black	4A	EG1401-ND	.79	7.13	60.72	520-01-1
Momentary, Square, SPST, Yellow	4A	EG1403-ND	.79	7.13	60.72	520-01-2
Momentary, Square, SPST, White	4A	EG1408-ND	.79	7.13	60.72	520-01-3
Momentary, Square, SPST, Blue	4A	EG1404-ND	.79	7.13	60.72	520-01-4
Momentary, Square, SPST, Red	4A	EG1405-ND	.79	7.13	60.72	520-01-5
Momentary, Square, SPST, Green	4A	EG1407-ND	.79	7.13	60.72	520-01-6
Momentary, Square, SPST, Gray	4A	EG1402-ND	.79	7.13	60.72	520-01-7
Momentary, Round, SPST, Black	4B	EG1411-ND	.79	7.13	60.72	520-02-1
Momentary, Round, SPST, Yellow	4B	EG1413-ND	.79	7.13	60.72	520-02-2
Momentary, Round, SPST, White	4B	EG1418-ND	.79	7.13	60.72	520-02-3
Momentary, Round, SPST, Blue	4B	EG1414-ND	.79	7.13	60.72	520-02-4
Momentary, Round, SPST, Red	4B	EG1415-ND	.79	7.13	60.72	520-02-5
Momentary, Round, SPST, Green	4B	EG1417-ND	.79	7.13	60.72	520-02-6
Momentary, Round, SPST, Gray	4B	EG1412-ND	.79	7.13	60.72	520-02-7
Momentary, Square, SPST, Black	4C	EG1419-ND	1.12	10.10	86.02	520-03-1
Momentary, Square, SPST, Gray	4C	EG1420-ND	1.12	10.10	86.02	520-03-7
Momentary, Square, SPST, Red	4C	EG1421-ND	1.12	10.10	86.02	520-03-5
Momentary, Square, SPST, White	4C	EG1422-ND	1.12	10.10	86.02	520-03-3
Momentary, Square, SPST, Blue	4C	EG1423-ND	1.12	10.10	86.02	520-03-4
Momentary, Square, SPST, Yellow	4C	EG1424-ND	1.12	10.10	86.02	520-03-2
Momentary, Square, SPST. Green	4C	EG1425-ND	1.12	10.10	86.02	520-03-6
Momentary SPST (Use TA/JN Caps)	4D	EG1426-ND	.79	7.13	60.72	520-04

E-SWITCH® Pushbutton Switches and Rocker Switches

A Division of Electronic Components Groupe

| 9157B-ND | E-Switch Data Book ....2.95 |

5500 SERIES With LED

Miniature, momentary function input switches designed for use with dual-in-line package circuits. They feature crisp tactile feel and are available in a wide color range. Meet ESD protection requirements. Available with or without LED. **Operating Travel:** 1.8mm. **Function:** Momentary SPDT. **Contact Bounce:** <5m sec. **Operating Life:** 5 x 10^5 Cycles. **Operating Force:** <200 gf. **Voltage Rating:** 24V. **Current Rating:** 12mA. **Contact Resistance:** <50mΩ.

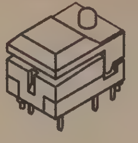


Fig. 1A, 1B

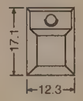
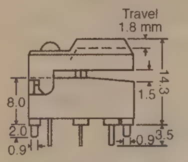
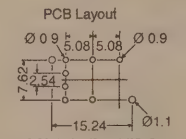


Fig. 1

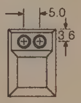


Side View



(Above PCB is for Two LED Series)

Fig. 1C



PS SERIES

Fig. 2A

Circuit: A-SPST (Momentary On).
Rating: 3A 125V AC.
Initial Contact Resistance: ≤ 50mΩ.
Hole Cutout: 12.4mm.
Hardware Included

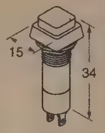


Fig. 2B

Circuit: A-SPST (Momentary On).
Rating: 3A 125V AC.
Initial Contact Resistance: ≤ 50mΩ.
Hole Cutout: 7.2mm.
Hardware Included

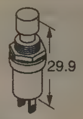


Fig. 2C

Circuit: A-SPST (Momentary On).
Rating: 3A 125V AC.
Initial Contact Resistance: ≤ 50mΩ.
Hole Cutout: 12.4mm.
Hardware Included

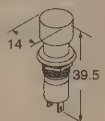
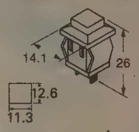


Fig. 2D

Circuit: A-SPST (Momentary On).
Rating: 1A 125V AC.
Initial Contact Resistance: ≤ 20mΩ.

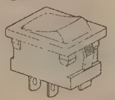


Panel Cutout

RA/RC/R1966 SERIES

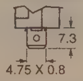
RATINGS: RA Series - 125VAC, 10A. RC Series 125VAC, 12A. R1966 Series 125VAC, 15A. Contact Resistance 100mΩ max. Life Expectancy: Electrical/10,000 Cycle. Terminals - .187 Fast on or Solder Term. Approvals: UL, CSA, VDE, NEMKO, SEMKO, FEMKO, DEMKO

Fig. 3

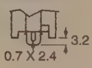


Termination Options

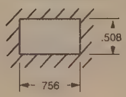
.187 Faston



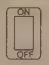
Solder Lug



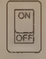
Panel Cutout



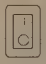
3A



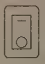
3B



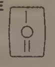
3C



3D



3E



Description	Fig.	Digi-Key Part No.	Pricing 1	10	100	E-Switch Part No.
5500 SERIES						
Momentary, SPDT, Cap, Black, no LED	1A	EG1701-ND	3.49	31.40	267.49	5501M1X
Momentary, SPDT, Cap, Gray, no LED	1A	EG1702-ND	3.49	31.40	267.49	5501M2X
Momentary, SPDT, Cap, Red, no LED	1A	EG1704-ND	3.49	31.40	267.49	5501M5X
Momentary, SPDT, Cap, White, no LED	1A	EG1708-ND	3.49	31.40	267.49	5501M8X
Momentary, Red LED, SPDT, Cap, Black	1B	EG17151-ND	4.50	40.50	345.00	5501M11
Momentary, Green LED, SPDT, Cap, Black	1B	EG17171-ND	4.49	40.39	344.08	5501M12
Momentary, Red LED, SPDT, Cap, Gray	1B	EG17152-ND	4.50	40.50	345.00	5501M21
Momentary, Green LED, SPDT, Cap, Gray	1B	EG17172-ND	4.49	40.39	344.08	5501M22
Momentary, Red LED, SPDT, Cap, Red	1B	EG17155-ND	4.50	40.50	345.00	5501M51
Momentary, Green LED. SPDT, Cap, Red	1B	EG17175-ND	4.49	40.39	344.08	5501M52
Momentary, Red LED, SPDT, Cap, White	1B	EG17158-ND	4.49	40.39	344.08	5501M81
Momentary, Green LED, SPDT, Cap, White	1B	EG17178-ND	4.49	40.39	344.08	5501M82
Momentary, Red and Green LED, SPDT, Cap, Black	1C	EG171571-ND	5.01	45.09	384.10	5501M11/2
Momentary, Red and Green LED, SPDT, Cap, Gray	1C	EG171572-ND	5.01	45.09	384.10	5501M21/2
PS SERIES						
Momentary, SPST, Red, Cap 15mm Sq.	2A	EG2005-ND	1.76	15.85	135.01	PS1023AT-RED
Momentary, SPST, Black, Cap 15mm Sq.	2A	EG2001-ND	1.45	13.07	111.32	PS1023AT-BLK
Momentary, SPST, Red. Cap 6mm Dia.	2B	EG2015-ND	1.42	12.74	108.56	PS1024AT-RED
Momentary, SPST, Black, Cap 6mm Dia.	2B	EG2011-ND	1.42	12.74	108.56	PS1024AT-BLK
Momentary, SPST, Red, Cap 10mm Dia.	2B	EG2025-ND	1.34	12.04	102.58	PS1024AL-RED
Momentary, SPST, Black, Cap 10mm Dia.	2B	EG2021-ND	1.34	12.04	102.58	PS1024AL-BLK
Momentary, SPST, Red, Cap 14mm Dia.	2C	EG2035-ND	1.99	17.90	152.49	PS1040A-RED
Momentary, SPST, Black, Cap 14mm Dia.	2C	EG2031-ND	1.99	17.90	152.49	PS1040A-BLK
Momentary, SPST, Red, Cap 14mm Sq.	2D	EG2045-ND	1.46	13.10	111.55	PS1057A-RED
Momentary, SPST, Black, Cap 14mm Sq.	2D	EG2041-ND	1.46	13.10	111.55	PS1057A-BLK

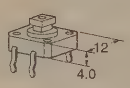
Description	Fig.	Digi-Key Part No.	Pricing 1	10	100	E-Switch Part No.
RA/RC SERIES (Black Matte Finish)						
Rocker Switch, SPST, 10A W/ Marking	3A	EG1500-ND	1.40	12.56	106.95	RA1066AFC
Rocker Switch, SPST, 10A W/ Marking	3B	EG1501-ND	1.40	12.56	106.95	RA1066AFF
Rocker Switch, SPST, 10A W/ Marking	3C	EG1502-ND	1.40	12.56	106.95	RA1066AFK
Rocker Switch, SPST, 10A W/ Marking	3D	EG1503-ND	1.40	12.56	106.95	RA1066AFH
Rocker Switch, SPST, 10A Black No Marking	3	EG1504-ND	1.40	12.56	106.95	RA1066AFX
Rocker Switch, DPST, 12A W/ Marking	3C	EG1505-ND	2.28	20.49	174.57	RC1073K
Rocker Switch, DPST, 12A W/ Marking	3D	EG1506-ND	2.28	20.49	174.57	RC1073H
Rocker Switch, DPST, 12A Black No Marking	3	EG1507-ND	2.28	20.49	174.57	RC1073X
R1966 SERIES (Black Semi-Gloss Finish)						
Rocker Switch, SPST, 15A Black No Marking .187 QC	3	EG1508-ND	1.22	10.99	93.61	R1966AKKEF
Rocker Switch, SPST, 15A Black No Marking Solder	3	EG1843-ND	1.65	13.20	118.80	R1966AKKES
Rocker Switch, SPST, 15A w/ Marking .187 QC Term.	3B	EG1509-ND	1.22	10.99	93.61	R1966AKKIF
Rocker Switch, SPST, 15A w/ Marking Solder Term.	3B	EG1844-ND	1.65	13.20	118.80	R1966AKKIS
Rocker Switch, SPST, 15A w/ Marking .187 QC Term.	3C	EG1510-ND	1.22	10.99	93.61	R1966AKKFF
Rocker Switch, SPST, 15A w/ Marking Solder Term.	3C	EG1845-ND	1.65	13.20	118.80	R1966AKKFS
Rocker Switch, SPST, 15A w/ Marking .187 QC Term.	3D	EG1511-ND	1.22	10.99	93.61	R1966AKKGF
Rocker Switch, SPST, 15A w/ Marking Solder Term.	3D	EG1846-ND	1.65	13.20	118.80	R1966AKKGS
Rocker Switch, SPDT, 15A On-Off-On, .187 QC Term.	3E	EG1841-ND	2.66	21.30	191.70	R1966DKKCF
Rocker Switch, SPST, 15A OFF-Mom .187 QC Term.	3	EG1512-ND	1.75	15.74	134.09	R1966FKKEF
Rocker Switch, SPDT, 15A Mom-OFF-Mom .187 QC	3	EG1513-ND	2.01	18.12	154.33	R1966IKKEF
Rocker Switch, SPST, 15A, Red LED Illumination	3	EG1514-ND	2.38	21.38	182.16	R1966AKKEFR
Rocker Switch, SPST, 15A, Green LED Illumination	3	EG1515-ND	2.38	21.38	182.16	R1966AKKEFM
Rocker Switch, SPST, 15A, Yellow LED Illumination	3	EG1842-ND	3.11	24.90	224.10	R1966AKKEFY

E-SWITCH® Momentary Tact Switches

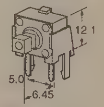
A Division of Electronic Components Groupe

| 9157B-ND | E-Switch Data Book ....$2.95 |

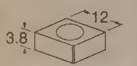
A



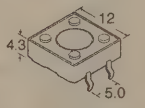
B



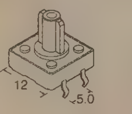
C



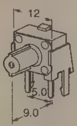
D



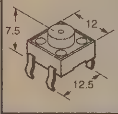
E



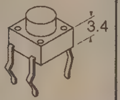
F



G



H



I

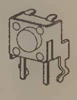
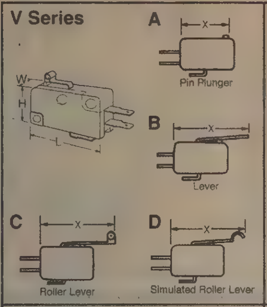


Fig.	Description	Digi-Key Part No.	Pricing 1	10	100	E-Switch Part No.
A	Tact Switch 12mm Square Extended Actuator, Actuator Length = 7.3	EG1821-ND	.38	3.03	27.27	TL1100
B	Tact Switch Right Angle 12mm Square Extended Actuator, Actuator Length = 7.3	EG1822-ND	.38	3.03	27.27	TL1100C
C	Key Cap 12 x 12mm Black, Fits 12mm Extended Actuator Types	EG1080-ND	.19	1.53	13.77	4J BLACK
C	Key Cap 12 x 12mm Grey, Fits 12mm Extended Actuator Types	EG1079-ND	.19	1.53	13.77	4J GREY
C	Key Cap 12 x 12mm Red, Fits 12mm Extended Actuator Types	EG1078-ND	.19	1.53	13.77	4J RED
C	Key Cap 12 x 12mm White, Fits 12mm Extended Actuator Types	EG1077-ND	.19	1.53	13.77	4J WHITE
D	Tact Switch 12mm Square Flat Actuator	EG1023-ND	.33	2.64	23.76	TL1103
E	Tact Switch 12mm Square Post Actuator, Actuator Length = 12.0	EG1024-ND	.29	2.34	21.06	TL1104
F	Tact Switch 12mm Square Right Angle Post Actuator, Actuator Length = 9.0	EG1025-ND	.55	4.38	39.42	TL1104C
—	Key Cap Rectangular Black, Fits 12mm Post Actuator Types	EG1076-ND	.41	3.30	29.70	TAA BLACK
—	Key Cap Rectangular White, Fits 12mm Post Actuator Types	EG1075-ND	.41	3.30	29.70	TAA WHITE
—	Key Cap Rectangular Grey, Fits 12mm Post Actuator Types	EG1074-ND	.41	3.30	29.70	TAA GREY
—	Key Cap Rectangular Red, Fits 12mm Post Actuator Types	EG1073-ND	.33	2.64	23.76	TAA RED
G	Tact Switch 12mm Square Long Flat Actuator	EG1826-ND	.33	2.64	23.76	TL1104B
H	Tact Switch 6mm Square 4.3mm Actuator 160gf	EG1827-ND	.18	1.47	13.23	TL1105F160
H	Tact Switch 6mm Square 4.3mm Actuator 250gf	EG1828-ND	.18	1.47	13.23	TL1105F250
H	Tact Switch 6mm Square 5mm Actuator 160gf	EG1829-ND	.18	1.47	13.23	TL1105AF160
H	Tact Switch 6mm Square 5mm Actuator 250gf	EG1830-ND	.18	1.47	13.23	TL1105AF250
H	Tact Switch 6mm Square 7mm Actuator 160gf	EG1831-ND	.18	1.47	13.23	TL1105EF160
H	Tact Switch 6mm Square 7mm Actuator 250gf	EG1832-ND	.18	1.47	13.23	TL1105EF250
H	Tact Switch 6mm Square 9.5mm Actuator 160gf	EG1833-ND	.18	1.47	13.23	TL1105BF160
H	Tact Switch 6mm Square 9.5mm Actuator 250gf	EG1834-ND	.18	1.47	13.23	TL1105BF250
I	Tact Switch 6mm Right Angle 3.15mm Actuator 160gf	EG1835-ND	.29	2.34	21.06	TL1105WF160
I	Tact Switch 6mm Right Angle 3.15mm Actuator 250gf	EG1836-ND	.29	2.34	21.06	TL1105WF250
I	Tact Switch 6mm Right Angle 6.15mm Actuator 160gf	EG1837-ND	.37	2.94	26.46	TL1105RF160
I	Tact Switch 6mm Right Angle 6.15mm Actuator 250gf	EG1838-ND	.37	2.94	26.46	TL1105RF250
I	Tact Switch 6mm Right Angle 8.35mm Actuator 160gf	EG1839-ND	.25	1.98	17.82	TL1105SF160
I	Tact Swicth 6mm Right Angle 8.35mm Actuator 250gf	EG1840-ND	.25	1.98	17.82	TL1105SF250

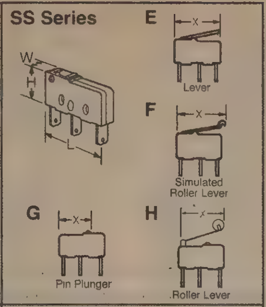
OMRON® Basic Lever Type Switches

9247B-ND Omron Switch Databook $2.00

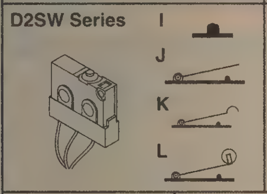
V Series



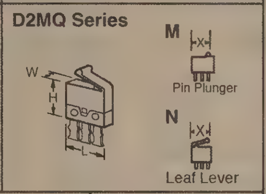
SS Series

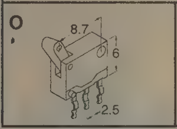


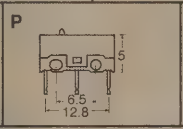
D2SW Series

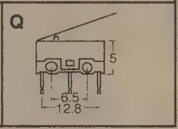


D2MQ Series









V Series: **Features:** • Operating Frequency: Mechanical: 600 operations/min./ Electrical: 60 operations/min. • Contact Resistance: 15mΩ max. • Ambient Operating Temperature: -25°C to +80°C • Humidity: 85% RH max. • Service Life: Mechanical: 50,000,000 operations min. Electrical: 100,000 operations min.

SS Series: **Features:** • Economical, subminiature basic switch offers long service life (30 million operations minimum) • All models are free from overtravel restrictions, permit easy setting • Wide switching capacity range from microvoltage/current loads (1mA at 5 VDC) to high-capacity loads 10.1A at 250VAC) **Characteristics:** • Operating Frequency: Mechanical: 400 operations per minute. Electrical: 60 operations per minute • Ambient Operating Temperature: -25°C to +85°C • Humidity: 85% RH max. • Service Life: Mechanical: 30 million operations minimum (10 million operations minimum for the SS-10 series) Electrical 200,000 operations minimum

Watertight Miniature Basic Switch: **Features:** • High-quality watertight miniature basic switch - meets IP67 requirements • A wide operating temperature range of -40°C to 85°C is ideal for any operating environment • Ideal for the automobile, agricultural machinery, automatic vending machine, refrigerator, ice-manufacturing, bath equipment, hot-water supply, air conditioner, and factory machine industries **Characteristics:** • Operating Frequency: Mechanical: 300 operations/min Electrical: 60 operations/min • Contact Resistance: 50mΩ max. • Life Expectancy: Mechanical: 5,000,000 operations min. Electrical: 200,000 operations min. • Ambient Operating Humidity: 95% max. • Enclosure Rating: Reference to IP67

D3C Series: **Features:** • Built-in slide mechanism selects shorting or non-shorting switch timing • 3 mm long stroke • PCB mount switch with 100 milliamp capacity • Ideal for household appliances, sound equipment, office equipment, communications equipment, etc. • Compact size (8W x 6H x 4.2D mm) **Characteristics:** • Operating Frequency: Mechanical: 200 operations per min. Electrical: 30 operations per min. • Contact Resistance: 50mΩ max. • Ambient Operating Temperature: -20°C to 80°C • Operating Humidity: 65% max. at 5° to 35°C • Service Life: 50,000 operations minimum at the rated switch frequency

D2F Series: **Features:** • Super compact, ideal for PCB mounting • Long life span assured by high-precision dual spring revers-action mechanism • Flux penetration prevented by using an insert terminal and allowing a height difference at the case bottom • Ideal for a wide variety of applications, from household appliances and office equipment to audio equipment and communications equipment

Fig. No.	Contact Style	Contact Rating	Terminal Size	"X" Dim. (in.)	Actuation Force	Digi-Key Part No.	Pricing			Omron Part No.
							1	25	50	
					V Switches					
A	SPDT	10 amps	.187 QC	0.960	200gf	SW126-ND	1.88	42.29	75.19	V-10G-1C24-K
B	SPDT	10 amps	.187 QC	1.51	125gf	SW127-ND	2.11	47.43	84.32	V-10G2-1C25-K
C	SPDT	10 amps	.187 QC	0.960	240gf	SW128-ND	2.36	53.18	94.54	V-10G5-1C25-K
A	SPDT	15 amps	.187 QC	0.960	125gf	SW129-ND	1.93	43.53	77.38	V-15G-1C25-K
A	SPDT	15 amps	.187 QC	0.960	200gf	SW130-ND	1.93	43.53	77.38	V-15G-1C26-K
B	SPDT	15 amps	.187 QC	1.51	125gf	SW132-ND	2.11	47.43	84.32	V-15G2-1C26-K
B	SPDT	15 amps	.187 QC	2.45	125gf	SW133-ND	2.17	48.86	86.87	V-15G3-1C25-K
B	SPDT	15 amps	.187 QC	2.45	200gf	SW134-ND	2.17	48.86	86.87	V-15G3-1C26-K
D	SPDT	15 amps	.187 QC	1.53	125gf	SW135-ND	2.11	47.43	84.32	V-15G4-1C25-K
C	SPDT	15 amps	.187 QC	0.960	240gf	SW136-ND	2.11	47.43	84.32	V-15G5-1C26-K
C	SPDT	15 amps	.187 QC	1.34	125gf	SW151-ND	2.36	53.18	94.54	V-15G6-1C26-K
					SS Switches					
G	SPDT Gold	.1 amps	.110 QC	0.53	150gf	SW138-ND	2.38	53.59	95.27	SS-01FT
E	SPDT Gold	.1 amps	.110 QC	0.775	50gf	SW139-ND	2.66	59.75	106.22	SS-01GLT
G	SPDT Gold	.1 amps	PC Mount	0.53	150gf	SW155-ND	2.32	52.15	92.71	SS-01D
E	SPDT Gold	.1 amps	PC Mount	0.775	50gf	SW239-ND	2.66	59.75	106.22	SS-01GLD
F	SPDT Gold	.1 amps	PC Mount	0.850	50gf	SW240-ND	2.40	54.00	96.00	SS-01GL13D
G	SPDT	5 amps	.110 QC	0.53	150gf	SW141-ND	1.55	34.90	62.05	SS-5T
E	SPDT	5 amps	.110 QC	0.775	50gf	SW143-ND	1.71	38.39	68.26	SS-5GLT
F	SPDT	5 amps	.110 QC	0.850	50gf	SW144-ND	1.76	39.63	70.45	SS-5GL13T
G	SPDT	5 amps	.110 QC	0.53	150gf	SW142-ND	1.55	34.90	62.05	SS-5FT
H	SPDT	5 amps	.110 QC	0.772	50gf	SW156-ND	1.66	37.37	66.43	SS-5GL2
G	SPDT	5 amps	PC Mount	0.53	150gf	SW241-ND	1.55	34.90	62.05	SS-5D
E	SPDT	5 amps	PC Mount	0.775	50gf	SW242-ND	1.71	38.39	68.26	SS-5GLD
F	SPDT	5 amps	PC Mount	0.850	50gf	SW243-ND	1.76	39.63	70.45	SS-5GL13D
H	SPDT	5 amps	PC Mount	0.772	50gf	SW244-ND	1.98	44.55	79.21	SS-5GL2D
G	SPDT	10 amps	.110 QC	0.53	150gf	SW245-ND	2.49	56.05	99.65	SS-10T
E	SPDT	10 amps	.110 QC	0.775	50gf	SW246-ND	2.24	50.30	89.43	SS-10GLT
F	SPDT	10 amps	.110 QC	0.850	50gf	SW247-ND	2.28	51.33	91.25	SS-10GL13T
H	SPDT	10 amps	.110 QC	0.772	50gf	SW248-ND	2.66	59.75	106.22	SS-10GL2T
					Watertight D2SW Series Switches					
I	SPDT	3 amps	Solder	0.53	180gf	SW228-ND	4.02	90.54	160.97	D2SW-3H
I	SPDT	3 amps	.110 QC	0.53	180gf	SW229-ND	4.02	90.54	160.97	D2SW-3T
I	SPDT	3 amps	PC Mount	0.53	180gf	SW291-ND	3.39	76.38	135.78	D2SW-3D
I	SPDT	3 amps	12" Wires	0.53	180gf	SW292-ND	6.14	138.18	245.65	D2SW-3M
J	SPDT	3 amps	Solder	0.775	60gf	SW293-ND	4.28	96.29	171.19	D2SW-3L1H
J	SPDT	3 amps	.110 QC	0.775	60gf	SW294-ND	4.28	96.29	171.19	D2SW-3L1T
J	SPDT	3 amps	12" Wires	0.775	60gf	SW295-ND	6.36	143.10	254.41	D2SW-3L1M
K	SPDT	3 amps	Solder	0.850	60gf	SW296-ND	4.28	96.29	171.19	D2SW-3L3H
K	SPDT	3 amps	12" Wires	0.850	60gf	SW297-ND	6.36	143.10	254.41	D2SW-3L3M
L	SPDT	3 amps	Solder	0.772	60gf	SW237-ND	4.53	101.84	181.04	D2SW-3L2H
L	SPDT	3 amps	12" Wires	0.772	60gf	SW238-ND	6.62	149.06	264.99	D2SW-3L2M
					D2MQ Switches					
M	SPDT Silver	500mA	.05 in.	.295	120gf	SW145-ND	2.66	59.75	106.22	D2MQ-1
N	SPDT Silver	500mA	.05 in.	.265	60gf	SW146-ND	2.75	61.86	109.98	D2MQ-1L
					D3C Series Switches					
O	Non-short	.1 amps	PC Mount	0.342	130gf	SW224-ND	1.10	24.85	44.18	D3C-1210
O	Shorting	.1 amps	PC Mount	0.342	130gf	SW226-ND	1.10	24.85	44.18	D3C-2210
O	Non-short	.1 amps	PC Mount	0.342	40gf	SW225-ND	1.10	24.85	44.18	D3C-1220
O	Shorting	.1 amps	PC Mount	0.342	40gf	SW227-ND	1.10	24.85	44.18	D3C-2220
					D2F Series Switches					
P	SPDT	3 amps	PC Mount	0.500	150gf	SW500-ND	1.45	32.52	59.02	D2F
P	SPDT	.1 amps	PC Mount	0.500	150gf	SW501-ND	1.45	32.52	59.02	D2F-01
P	SPDT	.1 amps	PC Mount	0.500	75gf	SW502-ND	1.45	32.52	59.02	D2F-01F
P	SPDT	3 amps	PC Mount	0.500	75gf	SW503-ND	1.38	31.04	56.34	D2F-F
					D2F Lever Series					
Q	SPDT	3 amps	PC Mount	0.500	80gf	SW152-ND	1.34	30.18	53.66	D2F-L
Q	SPDT	3 amps	PC Mount	0.500	25gf	SW153-ND	1.34	30.18	53.66	D2F-FL
Q	SPDT	.1 amps	PC Mount	0.500	80gf	SW154-ND	1.34	30.18	53.66	D2F-01L

Thumbwheel Switches

Fig. 1

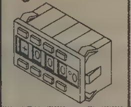


Fig. 2

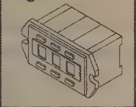
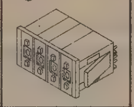


Fig. 3



Each digit is a separate module. Combine each module to make a final unit, as shown above.

A7B Series: **Features:** • Dustproof construction ensures highly reliable performance at low voltage and very small current even under adverse environmental conditions • Switch units can be assembled simply by fitting the integral hook coupler of each unit into the mating unit, thus eliminating the need of nuts and bolts for assembly • Switch assembly can be mounted easily by merely pushing the assembly into the mounting panel cutout from front

A7CN Series: **Features:** • Designed specially for printed circuit boards • The transparent window plate fitted in the readout section prevents the ingress of dust and also protects dial characters against wear by incorrect handling • Switch units can be assembled simply by fitting the integral hook coupler of each unit, into the mating unit, thus eliminating the need of nuts and bolts for assembly

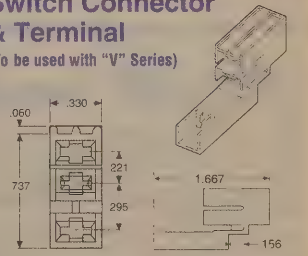
A7D Series: **Features:** • Cost effectiveness and improved reliability achieved through insert-molding and fewer component parts • Plastic spring with minimal fatigue and a mechanical service life of 30,000

Fig. No.	Output	No. of Pos.	Color	Digi-Key Part No.	Pricing			Omron Part No.
					1	25	50	
1	BCD	0-9	Black Gloss	SW266-ND	7.75	174.46	310.16	A7BS-206-1
1	BCD	0-9	Black Gloss	SW267-ND	7.75	174.46	310.16	A7BS-206-S-1
1	BCD w/ ext brd.	0-9	Black Gloss	SW268-ND	8.35	187.80	333.87	A7BS-207-1
1	BCD w/ +,- display	0-9	Black Gloss	SW269-ND	9.99	224.68	399.44	A7BS-207-PM-1
—	Connector for A7BS Series, solder terminal w/ mount ears			SW270-ND	4.55	102.27	181.82	A7B-C
—	End Caps for A7BS Series, Left/Right 2 pcs.			SW271-ND	1.26	28.25	50.22	A7B-M-1
—	Spacer for A7BS Series, Black No Marking			SW272-ND	.70	15.69	27.90	A7B-PA-1
2	BCD (Back Mnt)	0-9	Black Gloss	SW273-ND	6.20	139.41	247.85	A7CN-106-1
2	BCD (Front Mnt)	0-9	Black Gloss	SW274-ND	6.20	139.41	247.85	A7CN-206-1
—	End Caps for A7CN Series, Back Mount Only 2 pcs.			SW275-ND	.76	17.00	30.23	A7CN-1M-1
—	Spacer for A7CN Series, Back Mount Only, Black			SW276-ND	.60	13.60	24.18	A7CN-1PA-1
—	End Caps for A7CN Series, Front Mount Only 2 pcs.			SW277-ND	.76	17.00	30.23	A7CN-2M-1
—	Spacer for A7CN Series, Front Mount Only, Black			SW278-ND	.59	13.34	23.72	A7CN-2PA-1
3	BCD (Back Mnt)	0-9	Black Gloss	SW279-ND	4.79	107.76	191.58	A7D-106-1
3	BCD (Front Mnt)	0-9	Black Gloss	SW280-ND	4.79	107.76	191.58	A7D-206-1
—	End Caps for A7D Series, Back Mount Only 2 pcs.			SW281-ND	.74	16.74	29.76	A7D-1M-1
—	End Caps for A7D Series, Front Mount Only 2 pcs.			SW282-ND	.69	15.43	27.44	A7D-2M-1
—	Spacer for A7D Series, Back Mount Only, Black			SW283-ND	.74	16.74	29.76	A7D-1PA-1
—	Spacer for A7D Series, Front Mount Only, Black			SW284-ND	.76	17.00	30.23	A7D-2PA-1

molex Waldom

Switch Connector & Terminal

(To be used with "V" Series)



Switch Connector: 94V-2 Nylon, U.L. Approved, Accepts 14-28 AWG, No. of Circuits: 3, Max Current Rating: 10, Max. Voltage Rating: 250, Mtg. Ears: No, Max. Panel Thickness: N/A, Eng. No.: 2191.

Terminal: Without Detent, Loose Form

WM2553-ND	WM2514-ND
$.53/1	**$.20/1**
$3.83/10	**$1.49/10**
$34.00/100	**$13.20/100**
$255.00/1000	**$99.00/1000**

CTS Rotary Switches

SPECIFICATIONS:
• Adjustable stop allows you to limit the number of switch positions as needed • **Rotor Contact:** Standard with Silver plated Brass • **Rotor:** Standard with Nylon maximum temperature requirements of 125°C • **Voltage and Current ratings:** UL ratings are 3/4 amp at 125 volts AC; 1/4 amp at 250 volts DC; 1/2 amp at 125 volts DC (non-shorting contacts) • **Contact Resistance:** .008 to .010 ohms • **Contact Life:** Silver plated brass , solid silver rotor contacts, and silver plated brass stator contacts provide a minimum reliable life of over 1,100,000 operations or of 50,000 cycles through twelve positions and return without appreciable rise in contact resistance.

Fig.	Angle of Throw	Terminals	No. Poles	No. Pos.	No. Decks	Current Rating Amps	Digi-Key Part No.	Pricing 1	10	50
1	30°	Solder Lug	1	12	1	3/4A-125VAC	CT2121-ND	7.59	70.60	292.99
1	30°	Solder Lug	1	11	1	3/4A-125VAC	CT2122-ND	7.59	70.60	292.99
2	30°	Printed Circuit	1	12	1	3/4A-125VAC	CT2123-ND	8.28	77.00	319.55
2	30°	Printed Circuit	1	11	1	3/4A-125VAC	CT2124-ND	8.23	76.60	317.89

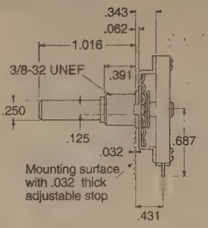


Fig. 1

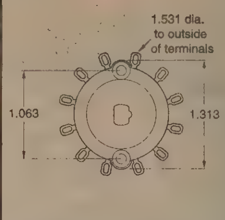
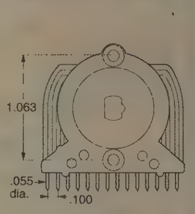


Fig. 2



Grayhill Adjustable Stop Rotary Switches

Series 42, 44, 56, & 71

9154B-ND Grayhill Engineering Catalog $4.95

42 and 44 Series:

Adjustable Stop: Two removable stop washers allow you to limit the number of switch positions as needed. A knurled nut is supplied to secure the washers if desired. **Electrical Ratings:** Nonshorting 1 amp, carry 10 amps continuously. **Contact Resistance:** After 25,000 cycles of operation 20 milliohms max. **Insulation Resistance:** 50,000 megohms min. (initially). **Voltage Breakdown:** 1,000VAC initially (500VAC or better after most environmental tests). **Materials & Finishes: Terminals:** Brass, lead-tin plated & fused. **Common Plate, Including Solder Lug:** Brass, silver plated .0003" min.

56 Series:

Electrical Ratings: Nonshorting 200mA, carry 6 amps continuously. **Contact Resistance:** 100 milliohms max. (15 milliohms initially). **Insulation Resistance & Voltage Breakdown:** 10,000 megohms min. **Materials & Finishes: Terminals:** Brass, gold over silver over nickel plated.

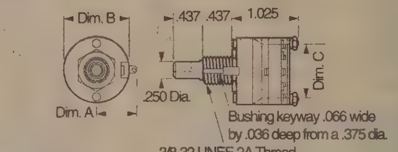
71 Series:

Electrical Ratings: Nonshorting 1/4 amp, carry 4 amps continuously. **Contact Resistance:** 50 milliohms max. (20 milliohms initially). **Insulation Resistance:** 10,000 megohms min. between mutually insulated parts (50,000 megohms initially). **Materials & Finishes: Base Contacts, Common Plate & Terminals:** Brass, gold plate 5 microinches min. over silver plate 50 microinches min. over nickel 20 microinches min.

Fig.	Angle Of Throw	Terminals	No. of Poles	Pos. per Pole	No. of Decks	Current Rating Amps	Digi-Key Part No.	Pricing* 1	10	25	Grayhill Part No.
1	36	Solder Lug	1	10	1	1	GH4201-ND	29.13	267.46	611.93	42D36-01-1-AJN
1	36	Solder Lug	2	5	1	1	GH4202-ND	30.35	278.66	637.55	42D36-01-2-AJN
1	30	Solder Lug	1	12	1	1	GH4401-ND	29.89	274.40	627.81	44D30-01-1-AJN
1	30	Solder Lug	2	6	1	1	GH4402-ND	31.13	285.82	653.95	44D30-01-2-AJN
2	30	Solder Lug	1	12	1	200mA	GH5601-ND	9.15	84.00	192.19	56D30-01-1-AJN
2	30	Solder Lug	2	6	1	200mA	GH5602-ND	10.15	93.18	213.20	56D30-01-2-AJN
2	36	Solder Lug	1	10	1	200mA	GH5603-ND	8.86	81.31	186.04	56D36-01-1-AJN
2	36	Solder Lug	2	5	1	200mA	GH5604-ND	9.86	90.50	207.05	56D36-01-2-AJN
3	30	Solder Lug	1	12	1	250mA	GH7101-ND	13.15	120.74	276.24	71BD30-01-1-AJN
3	30	Solder Lug	2	6	1	250mA	GH7102-ND	13.66	125 44	287.00	71BD30-01-2-AJN
3	30	Solder Lug	1	12	2	250mA	GH7103-ND	17.03	156.35	357.73	71BD30-02-1-AJN
3	30	Solder Lug	2	6	2	250mA	GH7104-ND	18.10	166.21	380.28	71BD30-02-2-AJN
4	30	PC	1	12	1	250mA	GH7105-ND	14.37	131.94	301.86	71BDF30-01-1-AJN
4	30	PC	2	6	1	250mA	GH7106-ND	14.91	136.86	313.14	71BDF30-01-2-AJN
4	30	PC	1	12	2	250mA	GH7107-ND	19.74	181.22	414.61	71BDF30-02-1-AJN
4	30	PC	2	6	2	250mA	GH7108-ND	20.76	190.62	436.14	71BDF30-02-2-AJN

* Call for pricing of larger quantities

Fig. 1


Dim. B
.437
.437
1.025
Dim. C
.250 Dia.
Dim. A
Bushing keyway .066 wide by .036 deep from a .375 dia.
3/8-32 UNEF-2A Thread
(Mtg. Hole = 3/8 dia. min.)

Series 42		
A	B	C
.562	1.000	.830
Series 44		
.642	1.162	1.000

Fig. 4

PC Mount — Rear view

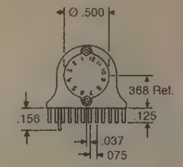
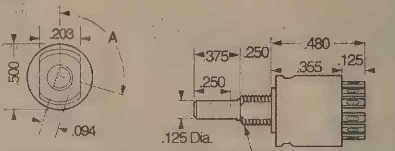
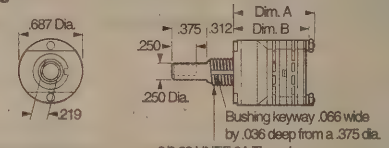


Fig. 2



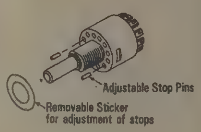
Angle Of Throw	
30°	36°
Angle "A"	
105°	108°

Fig. 3



Dim. A	Dim. B
1 Deck	
.761	.031
2 Decks	
.979	.031

56 & 71 Series



Adjustable Stop:

Allows you to change number of positions per pole. Simply remove and relocate stop pins in the holes in front of switch.
Pins are held in place by a self-adhesive sticker which fits over the front plate.

Grayhill Keypads

Grayhill's 96 Series are their most economical 3x4 and 4x4 keypad family. They have such features as conductive rubber contacts with an operational life of 3 million operations and a good tactile feel for positive feedback to the operator. GH5001 thru GH5004 have black legends with white keys and a black ABS housing. GH5008 thru GH5011 have white legends with black keys and a black ABS housing.

Specifications:

• **Rating at 12Vdc:** 5 milliamps for .5 seconds • **Contact Bounce:** <12 milliseconds • **Contact Resistance:** <100 ohms (@ stated operating force) • **Operation Life:** 3,000,000 minimum cycles per key • **Operating Force:** 175 ± 40 grams • **Operating Temperature:** -30°C to +80°C

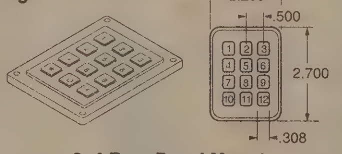
Material and Finishes:

• **Terminal Pin:** Phosphor Bronze, solder plated • **PC Board:** FR-4 glass cloth epoxy • **Keypad:** Silicone rubber • **Housing:** ABS, cycolac "KJW" • **Housing Color:** Black • **Output:** Matrix (Rear SIL Header)

12 Key mating connector use Digi-Key part numbers:
A3016-ND (connector, 1 piece) / A3005-ND (contacts, 1 package).

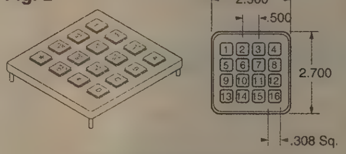
16 Key mating connector use Digi-Key part numbers:
A3017-ND (connector, 1 piece) / A3005-ND (contacts, 1 package).

Fig. 1



3x4 Rear Panel Mount

Fig. 2



4x4 Front Panel Mount

Fig. No.	Description	Digi-Key Part No.	Price Per Piece 1	10	100	Grayhill Part No.
1	12 Key Keypad, Front Mount, White Keys	GH5001-ND	11.14	9.41	7.43	96AB2-102-F
1	12 Key Keypad, Rear Mount, White Keys	GH5002-ND	11.14	9.41	7.43	96AB2-102-R
2	16 Key Keypad, Front Mount, White Keys	GH5003-ND	12.40	10.47	8.27	96BB2-006-F
2	16 Key Keypad, Rear Mount, White Keys	GH5004-ND	12.40	10.47	8.27	96BB2-006-R
1	12 Key Keypad, Front Mount, Black Keys	GH5008-ND	11.14	9.41	7.43	96AB2-152-F
1	12 Key Keypad, Rear Mount, Black Keys	GH5009-ND	11.14	9.41	7.43	96AB2-152-R
2	16 Key Keypad, Front Mount, Black Keys	GH5010-ND	12.40	10.47	8.27	96BB2-056-F
2	16 Key Keypad, Rear Mount, Black Keys	GH5011-ND	12.40	10.47	8.27	96BB2-056-R

MGR INDUSTRIES INC Environmentally Sealed Keypads

Storm 700 Series Sealed Keypads

A range of sealed and rugged keypads intended for use individually, or as modular building blocks to create more complex key-panel layouts. Unlike other sealed keypads, they have excellent tactile characteristics providing fast and reliable data input. When a keytop is depressed a conductive rubber pill makes contact with a gold on nickel plated PCB. Designed for use in wet, dirty or extreme environments. These contact materials provide the highest level of protection against corrosive atmospheres and contact oxidization. Each keypad has interchangeable keytop legend tiles. Keypads come in two colors, gray or black, and feature a matrix style output. Instructions and pinouts are included.

Fig. No.	Description	Digi-Key Part No.	Price 1
1	4 Key Keypad W/ Legend Set A, Gray	MGR1101-ND	26 01
1	4 Key Keypad W/ Legend Set A, Black	MGR1111-ND	26 01
2	12 Key Keypad W/ Legend Set A, Gray	MGR1102-ND	34.68
2	12 Key Keypad W/ Legend Set A, Black	MGR1112-ND	34.68
3	16 Key Keypad W/ Legend Set A, Gray	MGR1103-ND	44 96
3	16 Key Keypad W/ Legend Set A, Black	MGR1113-ND	44.96
4	36 Key Keypad W/ Legend Set B & C, Gray	MGR1104-ND	77 16
4	36 Key Keypad W/ Legend Set B & C, Black	MGR1114-ND	77 16
—	Legend Set A 0-9, Arith. Function, Arrows	MGR1201-ND	4.30
—	Legend Set B Computer Legend, Arrows	MGR1202-ND	4.30
—	Legend Set C Alphabet Legend	MGR1203-ND	4 30
—	Legend Set D F1-F12, Misc. Keys	MGR1204-ND	4 30
—	Legend Set E Blank Legend	MGR1205-ND	4.30
—	Legend Set F 0-9, Ent, Off, +, -, #, *	MGR1206-ND	4.30
—	Under Panel Mount Clip (2pcs)	MGR1401-ND	3.87

Fig. 1

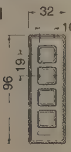


Fig. 2

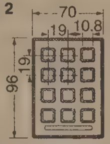


Fig. 3

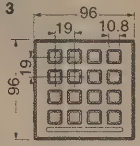
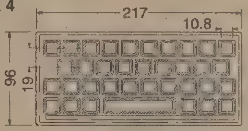


Fig. 4

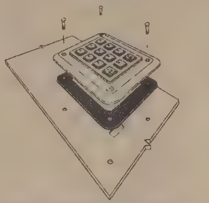


Storm K Range Keypad System Interchangeable for Different Environments

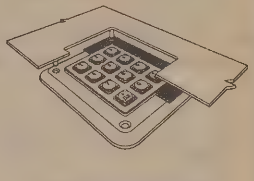
Three responsive keypads, each available in four price/performance specifications • 4, 12 and 16 key formats in each keypad series. • Fully interchangeable: Each keypad series is dimensionally and electrically compatible with the others. • Compatible with the STORM Keypad Encoder. Instructions and gasket seal included.

General Specifications: • Contact bounce: 5ms (max.) • Contact resistance: 100 ohms (max.) • Insulation resistance: 50Meg ohms (min.) • Breakdown Voltage: 500V AC (60 Secs) • Operating Voltage: 24V DC (max.) • Operating Current: 50mA (max.) Rapid and reliable data entry.

Accessories: • Rear Casing: Providing space to house additional components and circuitry (12 Key format only). Includes security mounting screws and screwdriver bit.

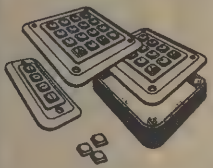


Top-Panel Mounting



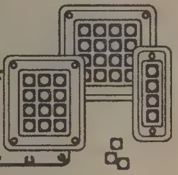
Under-Panel Mounting

Fig. 1 Storm 1000 Series *Public/Outdoor Environments*



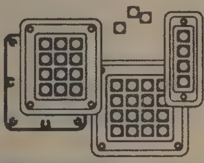
- Anti-Vandal.
- Metal casing and keytops (Silver).
- Fully sealed, to IP67, for use in exposed outdoor applications.
- Engraved keytop characters.
- Gold on nickel plated FR4 contact PCB.
- 4 key, 12 key and 16 key formats.
- Operational life 4 Million cycles.
- -40°C to +100°C Operational
- Case Color: Silver
- Keytop Color: Silver
- Connector: 0.1" pitch, gold plated, square pin, male with locking ramp.

Fig. 2 Storm 2000 Series *Harsh Industrial/Wet Environments*



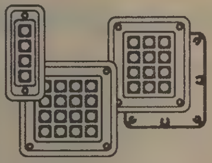
- Tough, impact resistant construction.
- Super high impact resistant polymer casing and keytops.
- Fully sealed to IP65, enabling pressure hose wash down and use in exposed outdoor locations.
- Laser engraved keytop characters.
- Gold on nickel plated FR4 contact PCB.
- 4 key, 12 key and 16 key formats.
- Operational life 4 million cycles.
- -25°C to +85°C Operational
- Case Color: Mid Grey
- Keytop Color: Light Grey
- Connector: 0.1" pitch, gold plated, square pin, male with locking ramp.

Fig. 3 Storm 3000 Series *General Service/sheltered Outdoor Use*



- General service polymer casing and keytops.
- Rain and splash proof, to IP54, for sheltered outdoor applications.
- Printed hard coated keytop characters.
- Gold on nickel plated FR4 contact PCB.
- 4 key, 12 key and 16 key formats.
- Operational life 2 million cycles.
- -10°C to +85°C Operational.
- Case Color: Mid Grey
- Keytop Color: Light Grey
- Connector: 0.1" pitch, gold plated, square pin, male.

Fig. 4 Storm 4000 Series *Light Duty/Indoor Applications*



- General service polymer casing.
- Silicone rubber keytops.
- Printed keytop characters.
- Gold on nickel plate FR4 contact PCB.
- 4 key, 12 key and 16 key formats.
- Operational life 1 million cycles.
- 0°C to 70°C Operational
- Case Color: Mid Grey
- Keytop Color: Light Grey
- Connector: 0.1" pitch, gold plated, square pin, male.

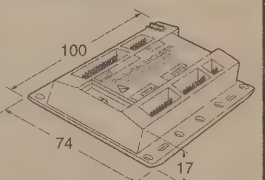
Fig. No.	Description	Digi-Key Part No.	Price 1	MGR Part No.
	1000 Series			
1	Vandal Resistant 4 Key Keypad, Arrow keys	MGR1512-ND*	45.00	1K041103
1	Vandal Resistant 4 Key Keypad, F1-F4 keys	MGR1511-ND*	45.00	1K042103
1	Vandal Resistant 12 Key Keypad, Telephone	MGR1513-ND†	65.00	1K12T103
1	Vandal Resistant 12 Key Keypad Calculator	MGR1501-ND†	65.00	1K120103
1	Vandal Resistant 16 Key Keypad, Telephone	MGR1514-ND‡	75.37	1K16T103
1	Vandal Resistant 16 Key Keypad Calculator	MGR1601-ND‡	75.37	1K160103
	2000 Series			
2	Industrial 4 Key Keypad, Arrow keys	MGR1516-ND*	30.93	2K041103
2	Industrial 4 Key Keypad, F1-F4 keys	MGR1517-ND*	30.93	2K042103
2	Industrial 12 Key Keypad, Calculator Format	MGR1518-ND†	44.89	2K120103
2	Industrial 12 Key Keypad, Telephone Format	MGR1519-ND†	44.89	2K12T103
2	Industrial 16 Key Keypad, Calculator Format	MGR1520-ND‡	54.87	2K160303
2	Industrial 16 Key Keypad, Telephone Format	MGR1521-ND‡	54.87	2K16T103
	3000 Series			
3	Commercial 4 Key Keypad, Arrow keys	MGR1523-ND*	19.75	3K041103
3	Commercial 4 Key Keypad, F1-F4 keys	MGR1524-ND*	19.75	3K042103
3	Commercial 12 Key Keypad, Calculator Format	MGR1525-ND†	29.12	3K120103
3	Commercial 12 Key Keypad, Telephone Format	MGR1526-ND†	29.12	3K12T103
3	Commercial 16 Key Keypad, Calculator Format	MGR1527-ND‡	35.41	3K160103
3	Commercial 16 Key Keypad, Telephone Format	MGR1528-ND‡	35.41	3K16T103
	4000 Series			
4	Light Duty 4 Key Keypad, Arrow keys	MGR1530-ND*	12.76	4K041103
4	Light Duty 4 Key Keypad, F1-F4 keys	MGR1531-ND*	12.76	4K042103
4	Light Duty 12 Key Keypad, Calculator Format	MGR1532-ND†	18.85	4K120103
4	Light Duty 12 Key Keypad, Telephone Format	MGR1533-ND†	18.85	4K12T103
4	Light Duty 16 Key Keypad, Calculator Format	MGR1534-ND‡	22.84	4K160103
4	Light Duty 16 Key Keypad, Telephone Format	MGR1535-ND‡	22.84	4K16T103
	Accessories			
—	Blank Keys for 1000 Series 4 pieces	MGR1515-ND	6.02	1K000003
—	Blank Keys for 2000/3000 Series 4 pieces	MGR1522-ND	2.58	2K000003
—	Rear Casing for 12 Key Keypad	MGR1536-ND	30.74	RC120203

• 4 Key Mating Connector use Digi-Key part Numbers: WM2003-ND (Connector, 1 pkg)/ WM2200-ND (Contacts, 1 pkg)
† 12 Key Mating Connector use Digi-Key part Numbers: WM2006-ND (Connector, 1 pkg)/ WM2200-ND (Contacts, 1 pkg)
‡ 16 Key Mating Connector use Digi-Key part Numbers: WM2006-ND (Connector, 1 pkg)/ WM2200-ND (Contacts, 1 pkg)

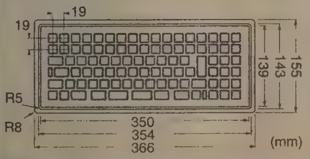
Universal Encoder

The Universal Keyboard Encoder is a compact microprocessor controlled encoder designed for use with PC XT/AT/PS2 as well as ASCII RS232 Formats. It provides the electrical interface between keypad and computer or other electronics and is compatible with both 700 and K Range keypads, or any other matrix style keypad. Encoder reads up to 90 key positions with a single 5V supply. Instructions included. Dimensions in mm.

MGR1301-ND **140.56**



Storm 1100 Series Industrial Keyboard for Tough Environments



Resistant to impact and sharp objects, this keyboard is designed and constructed for use in the most hostile or aggressive environments. Storm 1100 provides high level resistance to operator abuse or accidental damage. Keytop graphics are permanently marked into the keytop surface.

Meeting the needs of most industrial users, the keyboard is completely protected against water and dust to IP65 / Nema 4 specification. It is resistant to most commonly used solvents, detergents and other corrosives. Interfaces directly with current industry standard PCs.

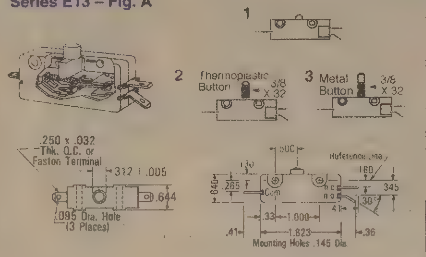
Key Life: >4 million cycles
Output Codes: TTL level data with clock generating PC compatible upstroke and downstroke codes
Service Temperature: -25°C to +85°C
Water/Dust Resistance: IP65 / Nema 4

Description	Digi-Key Part No.	Price 1	MGR Part No.
Vandal Resistant Keyboard, 90 Key	MGR1537-ND	449.00	11000203
Keyboard Rack Mount Kit, 19Ux4U for 1100 Series	MGR1538-ND	79.50	11RM0003
Keyboard Mounting Clips for 1100 Series	MGR1539-ND	19.50	11UP0003
Keyboard Adaptor, 6 pin mini - 5 pin din	MGR1540-ND	15.00	11AT0003

CHERRY Switches E-Series

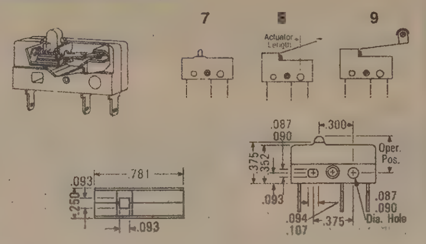
UL Recognized and CSA Certified

Series E13 – Fig. A


1
2 Thermoplastic Button 3/8 x 32
3 Metal Button 3/8 x 32
.250 x .032 Thk. Q.C. or Faston Terminal
.312
.005
.644
.095 Dia. Hole (3 Places)
.500
Reference Line
.160
.345
.30°
.285
.640
.33
1.000
1.823
.41
.36
Mounting Holes .145 Dia

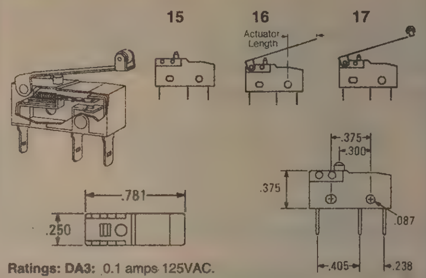
Ratings: E13: 15 amps 125/250VAC, 3/4 H.P., 125VAC – 1 1/2 H.P., 250VAC.

Series E61, E62 – Fig. C


7
8
9
Actuator Length
.093
.250
.781
.093
.087
.090
.300
.375
.352
Oper. Pos.
.093
.094
.107
.375
.087
.090
Dia. Hole

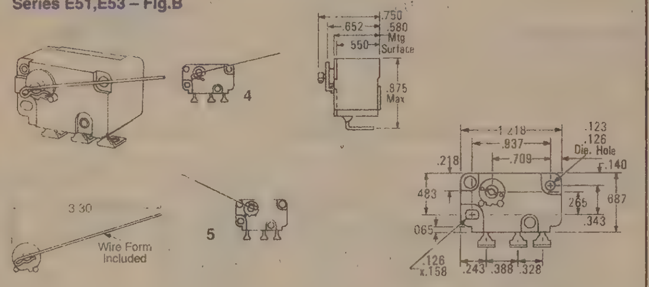
Ratings: E61: 5 amps 125/250VAC. **E62:** 10.1 amps 125/250VAC, 1/4 H.P., 125VAC.

Series DA3 – Fig. E


15
16
17
Actuator Length
.781
.250
.375
.300
.375
.087
.405
.238

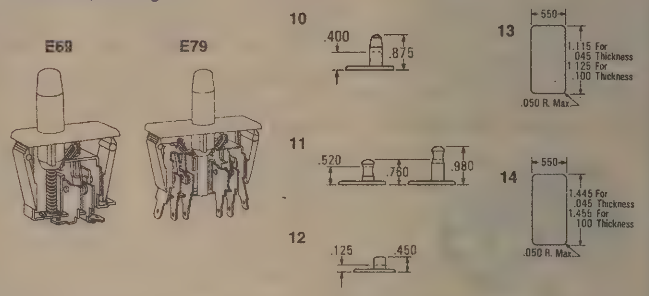
Ratings: DA3: 0.1 amps 125VAC.

Series E51,E53 – Fig.B


4
5
3.30
Wire Form Included
.750
.652
.580 Mtg Surface
.550
.875 Max
1.218
.837
.709
.123
.126 Dia. Hole
.140
.218
.483
.265
.687
.343
.065
.126 x.158
.243
.388
.328

Ratings: E51: 6 amps 250VAC. **E53:** 0.1 amps 125VAC. Gold crosspoint contacts. **Operating Torque:** Standard force – 4.0 inch grams. **Overtravel:** 15° min. **Movement differential:** 3° min.

Series E69,E79– Fig. D


E69
E79
10
.400
.875
11
.520
.760
.980
12
.125
.450
13
.550
1.115 For .045 Thickness
1.125 For .100 Thickness
.050 R. Max.
14
.550
1.445 For .045 Thickness
1.455 For .100 Thickness
.050 R. Max.

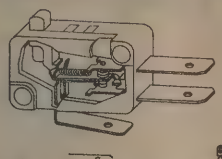
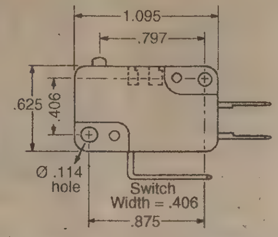
Ratings: E69: 10 amps 125/250VAC, 1/3 H.P., 125/250 VAC. **E79:** 10 amps 125/250VAC, 1/3 H.P., 125/250VAC

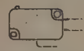
Fig.	Terminal	Circuitry	Operating Force (Max. gms.)	Current	Actuator	Actuator Length	Digi-Key Part No.	Pricing 1	10	100	500	Cherry Part No.	Equivalent Cherry Part No.	Cross Reference Cutler/ Hammer	McGill	Micro-Switch	Unimax
General Purpose Single Pole																	
A1	250 QC	SPDT	425	15A	Plastic Button	—	CH102-ND	2.32	20.64	148.35	679.40	E13-00E	—	—	1601-1150	1PL1	A
A2	.250 QC	SPDT	425	15A	THD Bushing/Plastic Button	—	CH100-ND	2.59	23.04	165.60	758.40	E13-00J	—	—	1629-1150	—	AQ
A3	250 QC	SPDT	425	15A	THD Bushing/Metal Button	—	CH101-ND	3.27	29.04	208.73	955.90	E13-00M	—	—	1609-1150	—	AJ
Low Torque																	
B4	.205″ x QC	SPDT	—	6A	CW Lever	—	CH146-ND	7.32	65.04	467.48	2140.90	E51-00B	—	—	—	—	—
B4	.187″ x QC	SPDT	—	6A	CW Lever	—	CH148-ND	7.32	65.04	467.48	2140.90	E51-00R	—	—	—	—	—
B5	205″ x QC	SPDT	—	6A	CCW Lever	—	CH147-ND	7.32	65.04	467.48	2140.90	E51-00E	—	—	—	—	—
B5	.187″ x QC	SPDT	—	6A	CCW Lever	—	CH149-ND	7.32	65.04	467.48	2140.90	E51-00T	—	—	—	—	—
B4	.205″ x QC	SPDT	—	0.1A	CW Lever	—	CH150-ND	9.59	85.20	612.38	2804.50	E53-00B	—	—	—	—	—
B4	187″ x QC	SPDT	—	0.1A	CW Lever	—	CH152-ND	9.59	85.20	612.38	2804.50	E53-00R	—	—	—	—	—
B5	.205″ x QC	SPDT	—	0.1A	CCW Lever	—	CH151-ND	9.59	85.20	612.38	2804.50	E53-00E	—	—	—	—	—
B5	.187″ x QC	SPDT	—	0.1A	CCW Lever	—	CH153-ND	9.59	85.20	612.38	2804.50	E53-00T	—	—	—	—	—
Subminiature																	
C7	.093 QC	SPDT	90	5A	Plunger	—	CH103-ND	3.21	28.56	205.28	940.10	E61-00A	—	SS11FT34	—	11SM701	—
C7	Solder Eyelet	SPDT	90	5A	Plunger	—	CH104-ND	3.21	28.56	205.28	940.10	E61-10A	—	SS11FT20	—	11SM1	2LM-E
C8	093 QC	SPDT	27	5A	Lever Std. Ratio	.271	CH105-ND	3.81	33.84	243.23	1113.90	E61-00H	—	SS11FT34-2L13	—	311SM2	2LMT2-E
C8	Solder Eyelet	SPDT	27	5A	Lever Std. Ratio	.271	CH106-ND	3.81	33.84	243.23	1113.90	E61-10H	—	SS11FT20-2L13	—	—	45ML
C9	.093 QC	SPDT	30	5A	Roller Std. Ratio	.201	CH107-ND	4.29	38.16	274.28	1256.10	E61-00K	—	SS11FT20-202L	—	—	USMW
C9	Solder Eyelet	SPDT	30	5A	Roller Std. Ratio	.201	CH108-ND	4.29	38.16	274.28	1256.10	E61-10K	—	—	—	—	—
C7	.093 QC	SPDT	212	10A	Plunger	—	CH109-ND	3.21	28.56	205.28	940.10	E62-00A	—	—	4801-3200	41SM1	3LML-E
C7	Solder Eyelet	SPDT	212	10A	Plunger	—	CH110-ND	3.21	28.56	205.28	940.10	E62-10A	—	—	4801-5200	—	—
C8	.093 QC	SPDT	56	10A	Lever Std. Ratio	.271	CH111-ND	3.81	33.84	243.23	1113.90	E62-00H	—	—	4802-3200	341SM2	—
C8	Solder Eyelet	SPDT	56	10A	Lever Std. Ratio	.271	CH112-ND	3.81	33.84	243.23	1113.90	E62-10H	—	—	4802-5200	—	—
C9	093 QC	SPDT	65	10A	Roller Std. Ratio	.201	CH113-ND	4.29	38.16	274.28	1256.10	E62-00K	—	—	4805-3200	—	—
C9	Solder Eyelet	SPDT	65	10A	Roller Std. Ratio	.201	CH114-ND	4.29	38.16	274.28	1256.10	E62-10K	—	—	4805-5200	—	—
E15	.093 QC	SPDT	90	0.1A	Plunger	—	CH140-ND	3.32	29.52	212.18	971.70	DA3C-F1AA	E63-00A	—	—	—	—
E15	Solder Eyelet	SPDT	90	0.1A	Plunger	—	CH141-ND	3.32	29.52	212.18	971.70	DA3C-D1AA	E63-10A	—	—	—	—
E16	093 QC	SPDT	27	0.1A	Lever Std. Ratio	.271	CH142-ND	4.97	44.16	317.40	1453.60	DA3C-F1LB	E63-00H	—	—	—	—
E16	Solder Eyelet	SPDT	27	0.1A	Lever Std. Ratio	.271	CH143-ND	4.97	44.16	317.40	1453.60	DA3C-D1LB	E63-10H	—	—	—	—
E17	.093 QC	SPDT	30	0.1A	Roller Std. Ratio	.201	CH144-ND	5.37	47.76	343.28	1572.10	DA3C-F1RB	E63-00K	—	—	—	—
E17	Solder Eyelet	SPDT	30	0.1A	Roller Std. Ratio	.201	CH145-ND	5.37	47.76	343.28	1572.10	DA3C-D1RB	E63-10K	—	—	—	—
Panel Mount Pushbutton Single Pole																	
D10,13	.187 QC	SPDT	425	10A	Momentary	.875	CH154-ND	3.02	26.88	193.20	884.80	E69-00A	—	—	—	—	—
D11,13	.187 QC	SPDT	425/285	10A	Momentary Cheat Interlock	.980	CH155-ND	4.08	36.24	260.48	1192.90	E69-30A	—	—	—	—	—
D12,13	.187 QC	SPDT	425	10A	Short Button Momentary	.450	CH156-ND	3.02	26.88	193.20	884.80	E69-40A	—	—	—	—	—
D10,14	.187 QC	DPDT	680	10A	Momentary	.875	CH157-ND	5.16	45.84	329.48	1508.90	E79-00A	—	—	—	—	—
D11,14	.187 QC	DPDT	757/567	10A	Momentary Cheat Interlock	.980	CH158-ND	6.75	60.00	431.25	1975.00	E79-30A	—	—	—	—	—
D12,14	.187 QC	DPDT	680	10A	Short Button Momentary	.450	CH159-ND	5.16	45.84	329.48	1508.90	E79-40A	—	—	—	—	—

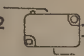
CHERRY Switches D4, DG and DH Series

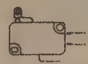
UL Recognized and CSA Certified

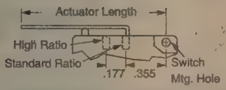
A. Miniature International – D4 Series

1


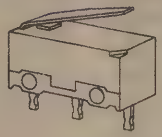
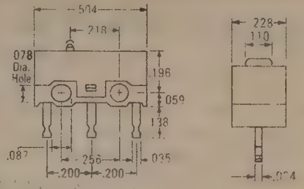
2


3


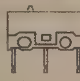


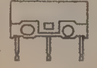
Ratings: 187 QC terminals. **D41:** 0.1 amps 125VAC, Gold crosspoint contacts. **D42:** 3 amps 125/250VAC. **D43:** 5 amps, 1/4 H.P., 125/250VAC. **D44:** 10 amps, 1.2 H.P., 125/250VAC. **D45:** 15 amps. 1/2 H.P., 125/250VAC.

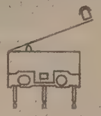
B. Sub-Subminiature – DG Series

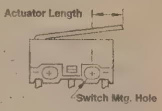



NOTE: B5* is a replacement for Macintosh Mouse

5


6


7


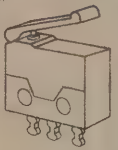


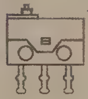
Ratings: **DG1:** 3 amps 125VAC, 2 amps 30VDC, PCB. **DG2:** 50mA 30VDC,PCB.

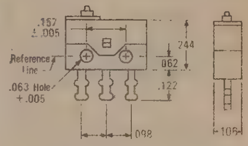
Fig.	Operating Force (Max. gms.)	Current	Actuator	Actuator Length	Digi-Key Part No.	Pricing 1	10	100	500	Cherry Part No.	Equivalent Cherry Part No.
				Miniature International							
A1	75	.1A	Button	—	CH115-ND	3.73	33.12	238.05	1090.20	D41C-R1AA	E21-00A
A1	15	.1A	Button	—	CH119-ND	3.97	35.28	253.58	1161.30	D41L-R1AA	E21-00AX
A2	75	.1A	Lever Std. Ratio	.865	CH116-ND	4.08	36.24	260.48	1192.90	D41C-R1LA	E21-00H
A2	2	.1A	Lever High Ratio	2.932	CH118-ND	4.27	37.92	272.55	1248.20	D41L-R1XL	E21-85HX
A3	75	.1A	Roller Std. Ratio	.810	CH117-ND	4.46	39.60	284.63	1303.50	D41C-R1RA	E21-00K
A1	75	3A	Button	—	CH120-ND	2.13	18.96	136.28	624.10	D42C-R1AA	E22-00A
A1	15	3A	Button	—	CH124-ND	2.54	22.56	162.15	742.60	D42L-R1AA	E22-00AX
A2	75	3A	Lever Std. Ratio	.865	CH121-ND	2.48	22.08	158.70	726.80	D42C-R1LA	E22-00H
A2	2	3A	Lever High Ratio	2.932	CH123-ND	2.81	24.96	179.40	821.60	D42L-R1XL	E22-85HX
A3	75	3A	Roller Std. Ratio	.810	CH122-ND	2.84	25.20	181.13	829.50	D42C-R1RA	E22-00K
A1	170	5A	Button	—	CH125-ND	2.03	18.00	129.38	592.50	D43C-R1AA	E23-00A0
A1	45	5A	Button	—	CH129-ND	2.51	22.32	160.43	734.70	D43L-R1AA	E23-00AX
A2	170	5A	Lever Std. Ratio	.865	CH126-ND	2.46	21.84	156.98	718.90	D43C-R1LA	E23-00H
A2	6	5A	Lever High Ratio	2.932	CH128-ND	2.78	24.72	177.68	813.70	D43L-R1ML	E23-85HX
A3	170	5A	Roller Std. Ratio	.810	CH127-ND	2.81	24.96	179.40	821.60	D43C-R1RA	E23-00K
A1	285	10A	Button	—	CH130-ND	2.03	18.00	129.38	592.50	D44C-R1AA	E33-00A
A1	75	10A	Button	—	CH134-ND	2.51	22.32	160.43	734.70	D44L-R1AA	E33-00AX
A2	285	10A	Lever Std. Ratio	.865	CH131-ND	2.46	21.84	156.98	718.90	D44C-R1LA	E33-00H
A2	10	10A	Lever High Ratio	2.932	CH133-ND	2.78	24.72	177.68	813.70	D44L-R1ML	E33-85HX
A3	285	10A	Roller Std. Ratio	.810	CH132-ND	2.81	24.96	179.40	821.60	D44C-R1RA	E33-00K
A1	400	15A	Button	—	CH135-ND	2.03	18.00	129.38	592.50	D45C-R1AA	E34-00A
A1	100	15A	Button	—	CH139-ND	2.51	22.32	160.43	734.70	D45L-R1AA	E34-00AX
A2	400	15A	Lever Std. Ratio	.865	CH136-ND	2.46	21.84	156.98	718.90	D45C-R1LA	E34-00H
A2	13	15A	Lever High Ratio	2.932	CH138-ND	2.78	24.72	177.68	813.70	D45L-R1ML	E34-85HX
A3	400	15A	Roller Std. Ratio	.810	CH137-ND	2.81	24.96	179.40	821.60	D45C-R1RA	E34-00K
				Sub-Subminiature							
B5*	140	2A	Button	—	CH164-ND	3.08	27.36	196.65	900.60	DG1C-B1AA	—
B6	45	2A	Lever	.169	CH165-ND	3.19	28.32	203.55	932.20	DG1C-B1LA	—
B7	45	2A	Roller	.075	CH166-ND	3.29	29.28	210.45	963.80	DG1C-B1RA	—
B5	140	50mA	Button	—	CH167-ND	3.29	29.28	210.45	963.80	DG2C-B1AA	—
B6	45	50mA	Lever	.169	CH168-ND	3.40	30.24	217.35	995.40	DG2C-B1LA	—
B7	45	50mA	Roller	.075	CH169-ND	3.56	31.68	227.70	1042.80	DG2C-B1RA	—
				Ultra-Subminiature							
C8	90	500mA	Button	—	CH170-ND	4.27	37.92	272.55	1248.20	DH1C-B1AA	—
C9	50	500mA	Lever	—	CH171-ND	4.37	38.88	279.45	1279.80	DH1C-B1PA	—
C8	90	50mA	Button	—	CH172-ND	4.48	39.84	286.35	1311.40	DH2C-B1AA	—
C9	50	50mA	Lever	—	CH173-ND	4.59	40.80	293.25	1343.00	DH2C-B1PA	—

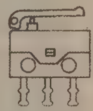
* Replacement for MacIntosh mouse.

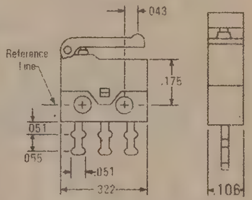
C. Ultra-Subminiature – DH Series

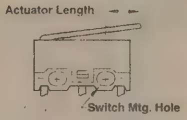


8




9


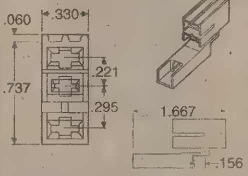




Ratings: **DH1C:** 50-500mA resistive @ 30VDC, Silver plated contacts, PCB. **DH2C:** 5-50mA resistive @ 30VDC. Gold plated contacts, PCB.

molex Waldom

Switch Connector & Terminal (TO BE USED WITH D4 SERIES)



Switch Connector: 94V-2 Nylon, U.L. Approved, Accepts 14-28 AWG. No. of Circuits: 3, Max. Current Rating: 10, Max. Voltage Rating: 250, Mtg. Ears: No, Max. Panel Thickness: N/A. Eng. No.: 2191

WM2553-ND ....**.53**/1: **3.83**/10; **34.00**/100

Terminal: Without Detent. Loose Form
WM2514-ND........**.20**/1; **1.49**/10; **13.20**/100

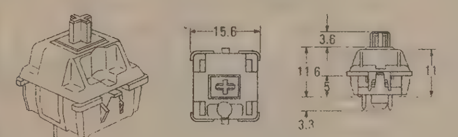
CHERRY MX/ML Key Switches

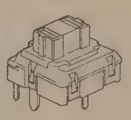
Main Advantages: • The MX is a modern full-travel low-profile keyswitch. • The keyswitch module is designed to meet all current ergonomic standards demanded for word and data processing applications. • Gold wire crossbar contacts ensure long life expectancy. • High reliability also during quick actuation.

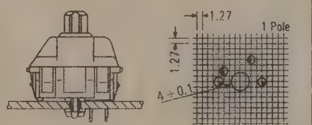
ML Series Features: • Ultra low profile with full travel keyswitch. • Ideal for notebook computers, medical and industrial equipment.

Specifications: • Maximum Voltage 12 • Maximum Current 10mA • Contact Resistance 200mΩ • Capacity at 1MHz <1pf • Bouncing Time at 0.4 ≤5ms

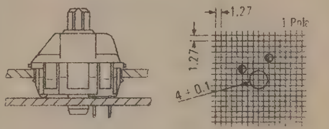
Fig.	Description	Digi-Key Part No.	Pricing 1	10	100	500	Cherry Part No.
A1	PCB Mount Linear Feel	CH160-ND	1.32	11.76	84.53	387.10	MX1A-11NW
A2	Face Plate Mount Linear Feel	CH162-ND	1.32	11.76	84.53	387.10	MX1A-11NN
A2	Face Plate Mount Click Tactile Feel	CH196-ND	1.32	11.76	84.53	387.10	MX1A-EINN
A1	PCB Mount Click Tactile Feel	CH197-ND	1.32	11.76	84.53	387.10	MX1A-EINW
A2	Face Plate Mount Soft Tactile Feel	CH198-ND	1.32	11.76	84.53	387.10	MX1A-CINN
B	Low Profile PCB Mount	CH199-ND	1.84	16.32	117.30	537.20	ML1A-IIJW

A


B


1. PCB Mount


With Support Pins

2. Face Plate Mount


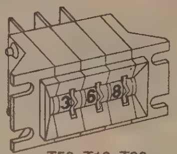
CHERRY Thumbwheel Switches

Fig.	Output Code	Posi-tions	Read-Out	Finish	Digi-Key Part No.	Pricing				Cherry Part No.
						1	10	100	500	
T50 Thumbwheel — Back Mount										
A	Decimal	10	0-9	Matte	CH174-ND	7.88	70.72	596.40	—	0T50-01M0
A	BCD	10	0-9	Matte	CH175-ND	7.88	70.72	596.40	—	0T50-02M0
A	Hex	16	0-15	Matte	CH176-ND	11.30	101.43	855.40	—	0T50-03M0
A	BCD Compl.	10	0-9	Matte	CH177-ND	9.73	87.32	736.40	—	0T50-04M0
Right & Left End Caps for T50 Switches 2 Pieces = 1 set (ex. 100 pc = 50 sets)					CH186-ND	1.08/2	4.80	34.50	158.00	0609-0970
T55/T56 Pushwheel — Front Snap-in Mount										
B1	BCD	10	0-9	Matte	CH178-ND	8.99	80.68	680.40	—	0T55-02M0
B1	BCD Compl.	10	0-9	Matte	CH179-ND	13.75	123.34	1040.20	—	0T55-12M0
B1	BCD*	10	0-9	Matte	CH180-ND	10.47	93.96	792.40	—	0T55-52M0
Right End Caps for T55 Switches					CH188-ND	.54	4.80	34.50	158.00	0609-0799
Left End Caps for T55 Switches					CH189-ND	.54	4.80	34.50	158.00	0609-0801
B2	Decimal	10	0-9	Matte	CH239-ND	14.50	128.88	926.33	4242.30	0T56-01M0
B2	BCD	10	0-9	Matte	CH181-ND	9.93	89.14	751.80	—	0T56-02M0
B2	Hex	16	0-15	Matte	CH240-ND	19.60	174.24	1252.35	5735.40	0T56-03M0
B2	BCD Compl.	10	0-9	Matte	CH241-ND	19.60	174.24	1252.35	5735.40	0T56-04M0
B2	BCD Compl.	10	0-9	Matte	CH182-ND	13.43	120.52	1016.40	—	0T56-12M0
B2	BCD*	10	0-9	Matte	CH183-ND	12.45	111.72	942.20	—	0T56-52M0
Right End Caps for T56 Switches					CH190-ND	.54	4.80	34.50	158.00	0609-0756
Left End Caps for T56 Switches					CH191-ND	.54	4.80	34.50	158.00	0609-0754
T57 Pushwheel — Back Mount										
C	Decimal	10	0-9	Matte	CH242-ND	14.50	128.88	926.33	4242.30	0T57-01M0
C	BCD	10	0-9	Matte	CH184-ND	9.93	89.14	751.80	—	0T57-02M0
Right End Caps for T57 Switches					CH192-ND	.54	4.80	34.50	158.00	0609-0825
Left End Caps for T57 Switches					CH193-ND	.54	4.80	34.50	158.00	0609-0822
T59 Pushwheel — "Dustproof" Front Mount										
B3	BCD	10	0-9	Matte	CH185-ND	4.42	39.67	334.60	—	0T59-02M0
Right End Caps for T59 Switches					CH194-ND	.54	4.80	34.50	158.00	0609-1347
Left End Caps for T59 Switches					CH195-ND	.54	4.80	34.50	158.00	0609-1346
T10 Industrial Thumbwheel — Back Mount										
A	Decimal	10	0-9	Gloss	CH220-ND	15.07	133.92	962.55	4408.20	0T10-01A0
A	BCD	10	0-9	Gloss	CH221-ND	15.07	133.92	962.55	4408.20	0T10-02A0
A	BCD*	10	0-9	Gloss	CH222-ND	19.39	172.32	1238.55	5672.20	0T10-52A0
A	Hex	16	0-15	Gloss	CH223-ND	26.70	237.36	1706.03	7813.10	0T10-03A0
Left End Caps for T10 Switches					CH224-ND	.54	4.80	34.50	158.00	0009-0498
Right End Caps for T10 Switches					CH225-ND	.54	4.80	34.50	158.00	0009-0499
T20 Thumbwheel — L20 Leverwheel										
A	Decimal	10	0-9	Gloss	CH226-ND	12.96	115.20	828.00	3792.00	0T20-01A0
A	Decimal	10	0-9	Matte	CH227-ND	13.55	120.48	865.95	3965.80	0T20-01M0
A	BCD	10	0-9	Gloss	CH228-ND	12.96	115.20	828.00	3792.00	0T20-02A0
A	BCD	10	0-9	Matte	CH229-ND	13.55	120.48	865.95	3965.80	0T20-02M0
A	Hex	16	0-15	Gloss	CH230-ND	20.84	185.28	1331.70	6098.80	0T20-03A0
Right or Left End Caps for Gloss Switches					CH231-ND	.54	4.80	34.50	158.00	0009-1034
Right or Left End Caps for Matte Switches					CH232-ND	.54	4.80	34.50	158.00	0009-1153
A	Decimal	10	0-9	Gloss	CH233-ND	16.28	144.72	1040.18	4763.70	0L20-01A0
A	Decimal	10	0-9	Matte	CH234-ND	16.82	149.52	1074.68	4921.70	0L20-01M0
A	BCD	10	0-9	Gloss	CH235-ND	16.28	144.72	1040.18	4763.70	0L20-02A0
A	BCD	10	0-9	Matte	CH236-ND	16.82	149.52	1074.68	4921.70	0L20-02M0
A	BCD Compl.	10	0-9	Gloss	CH237-ND	17.63	156.72	1126.43	5158.70	0L20-12A0
A	BCD*	10	0-9	Gloss	CH238-ND	18.71	166.32	1195.43	5474.70	0L20-52A0
PH Pushwheel — Front Mount (Includes End Caps)										
B1	BCD	10	0-9	Matte	CH243-ND	6.75	60.00	431.25	1975.00	PHCA-3100†
B1	Hex	16	0-15	Matte	CH244-ND	11.66	103.68	745.20	3412.80	PHGA-3100†
B1	BCO	8	0-7	Matte	CH245-ND	6.75	60.00	431.25	1975.00	PHBA-3100†
B1	BCD	10	0-9	Matte	CH246-ND	6.75	60.00	431.25	1975.00	PHCA-3114††
B1	Hex	16	0-15	Matte	CH247-ND	11.66	103.68	745.20	3412.80	PHGA-3114††
B1	BCO	8	0-7	Matte	CH248-ND	6.75	60.00	431.25	1975.00	PHBA-3114††

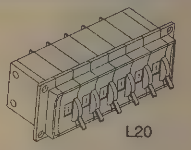
* With extended board for diodes. † Indicates raised buttons †† Indicates recessed buttons

Fig.	Description	Digi-Key Part No.	Pricing				Cherry Part No.
			10	100	500	1000	
Rods and Fasteners							
D	1 Module Rod Ass'y. for T10/11 & L10/11 Series	CH250-ND	3.24	28.80	103.50	189.60	0012-0147
D	2 Module Rod Ass'y. for T10/11 & L10/11 Series	CH251-ND	3.24	28.80	103.50	189.60	0012-0148
D	3 Module Rod Ass'y. for T10/11 & L10/11 Series	CH252-ND	3.24	28.80	103.50	189.60	0012-0149
D	4 Module Rod Ass'y. for T10/11 & L10/11 Series	CH253-ND	3.24	28.80	103.50	189.60	0012-0150
D	1 Module Rod Ass'y. for T/L20 Series	CH254-ND	2.16	19.20	69.00	126.40	0012-0340
D	2 Module Rod Ass'y. for T/L20 Series	CH255-ND	2.16	19.20	69.00	126.40	0012-0341
D	3 Module Rod Ass'y. for T/L20 Series	CH256-ND	2.16	19.20	69.00	126.40	0012-0342
D	4 Module Rod Ass'y. for T/L20 Series	CH257-ND	2.16	19.20	69.00	126.40	0012-0343
D	1 Module Rod Ass'y. for T50 Series	CH258-ND	2.16	19.20	69.00	126.40	0012-0640
D	2 Module Rod Ass'y. for T50 Series	CH259-ND	2.16	19.20	69.00	126.40	0012-0641
D	3 Module Rod Ass'y. for T50 Series	CH260-ND	2.16	19.20	69.00	126.40	0012-0642
D	4 Module Rod Ass'y. for T50 Series	CH261-ND	2.16	19.20	69.00	126.40	0012-0643
D	Fastener for Rod Ass'y. L20, T20, T50, T65	CH262-ND	.27	2.40	8.63	15.80	0012-0744
D	Fastener for Rod Ass'y. L10, T10, L11, T11	CH263-ND	.54	4.80	17.25	31.60	0012-0093

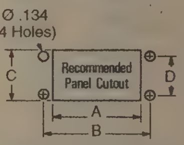
A T50, T10, T20, L20 - Right and Left End Caps



T50, T10, T20



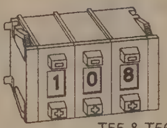
L20



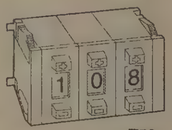
Each digit is a separate module. Combine each module to make a final unit, as shown above.

Model	A	B	C	D
T50	(n x .315) + .355	(n x .315) + .655	.748	.551
T10	(n x .500) + .395	(n x .500) + .580	1.38	1.565
T20/L20	(n x .500) = .405	(n x .500) + .595	.900	.980

B T55, T56 & T59 - Right and Left End Caps

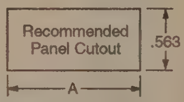


T55 & T56



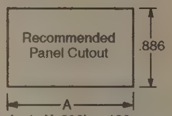
T59

Fig. 1



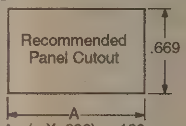
A= (n X .300) + .130

Fig. 2



A= (n X .300) + .138

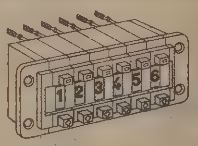
Fig. 3

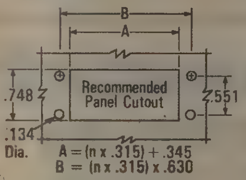


A= (n X .236) + .129

Each digit is a separate module. Combine each module to make a final unit, as shown above.

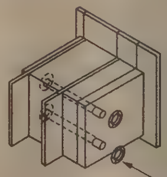
C T57 - Right and Left End Caps





Each digit is a separate module. Combine each module to make a final unit, as shown above.

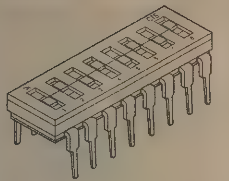
D Mounting Hardware



Through-rods and fasteners

CTS®

DIP SWITCHES



Electrical Specifications:

Initial Contact Resistance: 25 milliohms (209, 219 Series); 50 milliohms (206 Series, 194 Series); 100 milliohms (208 Series, 195 Series).

Max. Contact Resistance: 100 milliohms after 10,000 cycles switching 50mA @ 24VDC (206 Series); 100 milliohms after 7,000 cycles switching 50mA @ 24VDC (194 Series); 500 milliohms after 2,000 cycles switching 50mA @ 24VDC (195 Series); 50 milliohms after 5,000 cycles switching 50mA @ 6VDC or 2mA @ 50VDC (208 Series); 50 Milliohms max. at end of life (209, 219 Series).

Max. Non-Switching Rating: 100mA or 50VDC.

Insulation Resistance: Across open switch and between adjacent closed switches - 1 x 10^9 ohms.

Dielectric Breakdown: Between adjacent switches min. - 500VAC.

Switch Capacitance: Between adjacent switches max. - 5.0pF.

Shock: Per MIL-STD-202F, method 213B, condition A with no contact inconsistencies greater than 1μsec (206 Series); Per MIL-STD-202F, method 213B, condition A (50G's) with no contact inconsistencies greater than 1μsec. (208 Series, 209, 219 Series); no mechanical damage or changes of switch settings with 25G applied (194 Series, 195 Series).

Vibration: Per MIL-STD-202F, method 204D, condition B (.06" or 15G's between 10Hz to 2KHz) with no contact inconsistencies greater than 1μsec (206 Series, 208 Series, 207 Series, 209, 219 Series); No mechanical damage or changes of switch settings during or after testing when tested in three mutually perpendicular planes at 10-50Hz sweep or at 60Hz constant vibration (194 Series, 195 Series).

Fig. 1 - Top Actuated Slide

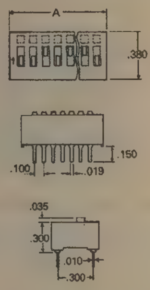


Fig. 2 - Side Actuated

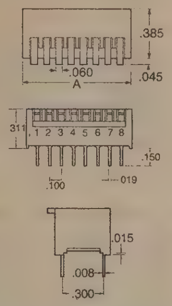


Fig. 3 - Right Angle Slide

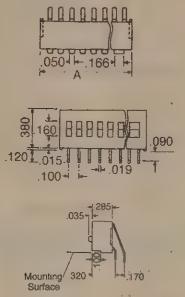


Fig. 4 - Top Actuated - Auto Dip

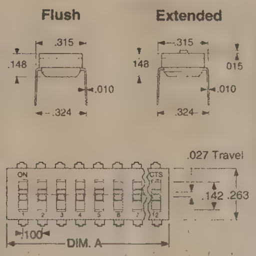
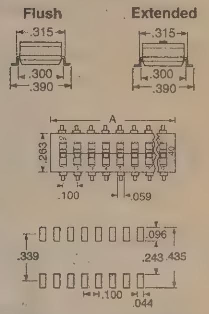


Fig. 5 - Surface Mount



Cir-cuits	Dim. "A"	Digi-Key Part No.	Pricing				CTS Part No.
			1	10	100	500	
Fig. 1, 206 Series – SPST, Top Actuated, Gold Finish							
2	.286	CT2062-ND	1.27	11.63	105.75	390.10	206-2
3	.386	CT2063-ND	1.32	12.13	110.25	406.70	206-3
4	.486	CT2064-ND	1.35	12.38	112.50	415.00	206-4
5	.586	CT2065-ND	1.49	13.61	123.75	456.50	206-5
6	.686	CT2066-ND	1.43	13.12	119.25	439.90	206-6
7	.787	CT2067-ND	1.46	13.37	121.50	448.20	206-7
8	.886	CT2068-ND	1.49	13.61	123.75	456.50	206-8
9	.986	CT2069-ND	1.54	14.11	128.25	473.10	206-9
10	1.086	CT20610-ND	1.59	14.60	132.75	489.70	206-10
12	1.286	CT20612-ND	1.70	15.59	141.75	522.90	206-12
Fig. 1, 206-ST Series – SPST, Top Actuated, Gold Finish, Sealed							
2	.286	CT2062ST-ND	1.49	13.61	123.75	456.50	206-2ST
3	.386	CT2063ST-ND	1.54	14.11	128.25	473.10	206-3ST
4	.486	CT2064ST-ND	1.57	14.36	130.50	481.40	206-4ST
5	.586	CT2065ST-ND	1.59	14.60	132.75	489.70	206-5ST
6	.686	CT2066ST-ND	1.65	15.10	137.25	506.30	206-6ST
7	.786	CT2067ST-ND	1.67	15.35	139.50	514.60	206-7ST
8	.886	CT2068ST-ND	1.70	15.59	141.75	522.90	206-8ST
9	.986	CT2069ST-ND	1.76	16.09	146.25	539.50	206-9ST
10	1.086	CT20610ST-ND	1.81	16.58	150.75	556.10	206-10ST
12	1.286	CT20612ST-ND	1.92	17.57	159.75	589.30	206-12ST
Fig. 1, 208 Series – SPST, Top Actuated, Tin Finish							
2	.286	CT2082-ND	.97	8.91	81.00	298.80	208-2
3	.386	CT2083-ND	1.08	9.90	90.00	332.00	208-3
4	.486	CT2084-ND	1.03	9.41	85.50	315.40	208-4
5	.586	CT2085-ND	1.05	9.65	87.75	323.70	208-5
6	.686	CT2086-ND	1.08	9.90	90.00	332.00	208-6
7	.786	CT2087-ND	1.13	10.40	94.50	348.60	208-7
8	.886	CT2088-ND	1.16	10.64	96.75	356.90	208-8
9	.986	CT2089-ND	1.22	11.14	101.25	373.50	208-9
10	1.086	CT20810-ND	1.27	11.63	105.75	390.10	208-10
12	1.286	CT20812-ND	1.35	12.38	112.50	415.00	208-12
Fig. 1, 206-124 – SPDT, Top Actuated, Gold Finish							
4	.886	CT206124-ND	2.57	23.51	213.75	788.50	206-124
Fig. 1, 206-214 – DPST, Top Actuated, Gold Finish							
4	.886	CT206214-ND	2.16	19.80	180.00	664.00	206-214
Fig. 2, 194-MST Series – SPST, Side Actuated, Gold Finish, Sealed							
2	.286	CT1942MST-ND	1.65	15.10	137.25	506.30	194-2MST
3	.386	CT1943MST-ND	1.70	15.59	141.75	522.90	194-3MST
4	.486	CT1944MST-ND	1.76	16.09	146.25	539.50	194-4MST
5	.586	CT1945MST-ND	1.86	17.08	155.25	572.70	194-5MST
6	.686	CT1946MST-ND	1.92	17.57	159.75	589.30	194-6MST
7	.786	CT1947MST-ND	2.00	18.32	166.50	614.20	194-7MST
8	.886	CT1948MST-ND	1.97	18.07	164.25	605.90	194-8MST
9	.986	CT1949MST-ND	2.05	18.81	171.00	630.80	194-9MST
10	1.086	CT19410MST-ND	2.32	21.29	193.50	713.80	194-10MST
12	1.286	CT19412MST-ND	2.43	22.28	202.50	747.00	194-12MST
Fig. 2, 195-MST Series – SPST, Side Actuated, Tin Finish, Sealed							
2	.286	CT1952MST-ND	1.46	13.37	121.50	448.20	195-2MST
3	.386	CT1953MST-ND	1.49	13.61	123.75	456.50	195-3MST
4	.486	CT1954MST-ND	1.51	13.86	126.00	464.80	195-4MST
5	.586	CT1955MST-ND	1.59	14.60	132.75	489.70	195-5MST
6	.686	CT1956MST-ND	1.62	14.85	135.00	498.00	195-6MST
7	.786	CT1957MST-ND	1.65	15.10	137.25	506.30	195-7MST
8	.886	CT1958MST-ND	1.67	15.35	139.50	514.60	195-8MST
9	.986	CT1959MST-ND	1.76	16.09	146.25	539.50	195-9MST
10	1.086	CT19510MST-ND	1.84	16.83	153.00	564.40	195-10MST
12	1.286	CT19512MST-ND	2.16	19.80	180.00	664.00	195-12MST

Cir-cuits	Dim. "A"	Digi-Key Part No.	Pricing				CTS Part No.
			1	10	100	500	
Fig. 3, CT206-RAST Series – SPST, Right Angle, Gold Finish							
2	.286	CT2062RAST-ND	1.97	18.07	164.25	605.90	206-2RAST
3	.386	CT2063RAST-ND	2.03	18.56	168.75	622.50	206-3RAST
4	.486	CT2064RAST-ND	2.05	18.81	171.00	630.80	206-4RAST
5	.586	CT2065RAST-ND	2.08	19.06	173.25	639.10	206-5RAST
6	.686	CT2066RAST-ND	2.13	19.55	177.75	655.70	206-6RAST
7	.786	CT2067RAST-ND	2.16	19.80	180.00	664.00	206-7RAST
8	.886	CT2068RAST-ND	2.19	20.05	182.25	672.30	206-8RAST
9	.986	CT2069RAST-ND	2.24	20.54	186.75	688.90	206-9RAST
10	1.086	CT20610RAST-ND	2.30	21.04	191.25	705.50	206-10RAST
12	1.286	CT20612RAST-ND	2.40	22.03	200.25	738.70	206-12RAST
Fig. 4, 209-LPST Series – SPST, Top Actuated Auto Dip, Tin Finish, Flush							
2	.258	CT2092LPST-ND	1.32	12.13	110.25	406.70	209-2LPST
3	.358	CT2093LPST-ND	1.35	12.38	112.50	415.00	209-3LPST
4	.458	CT2094LPST-ND	1.22	11.14	101.25	373.50	209-4LPST
5	.558	CT2095LPST-ND	1.43	13.12	119.25	439.90	209-5LPST
6	.658	CT2096LPST-ND	1.57	14.36	130.50	481.40	209-6LPST
7	.758	CT2097LPST-ND	1.43	13.12	119.25	439.90	209-7LSTPT
8	.858	CT2098LPST-ND	1.30	11.88	108.00	398.40	209-8LPST
9	.958	CT2099LPST-ND	1.57	14.36	130.50	481.40	209-9LPST
10	1.058	CT20910LPST-ND	1.62	14.85	135.00	498.00	209-10LPST
12	1.258	CT20912LPST-ND	1.73	15.84	144.00	531.20	209-12LPST
Fig. 4, 209-MS Series – SPST, Top Actuated Auto Dip, Tin Finish, Extended							
2	.258	CT2092MS-ND	1.32	12.13	110.25	406.70	209-2MS
3	.358	CT2093MS-ND	1.35	12.38	112.50	415.00	209-3MS
4	.458	CT2094MS-ND	1.22	11.14	101.25	373.50	209-4MS
5	.558	CT2095MS-ND	1.43	13.12	119.25	439.90	209-5MS
6	.658	CT2096MS-ND	1.57	14.36	130.50	481.40	209-6MS
7	.758	CT2097MS-ND	1.43	13.12	119.25	439.90	209-7MS
8	.858	CT2098MS-ND	1.30	11.88	108.00	398.40	209-8MS
9	.958	CT2099MS-ND	1.57	14.36	130.50	481.40	209-9MS
10	1.058	CT20910MS-ND	1.62	14.85	135.00	498.00	209-10MS
12	1.258	CT20912MS-ND	1.73	15.84	144.00	531.20	209-12MS
Fig. 5, 219-LPST Series – SPST, Gold Finish, Surface Mount, Flush							
2	.258	CT2192LPST-ND	.86	7.87	71.55	263.94	219-2LPST
3	.358	CT2193LPST-ND	.92	8.46	76.95	283.86	219-3LPST
4	.458	CT2194LPST-ND	1.00	9.13	83.03	306.27	219-4LPST
5	.558	CT2195LPST-ND	1.06	9.75	88.65	327.02	219-5LPST
6	.658	CT2196LPST-ND	1.13	10.37	94.28	347.77	219-6LPST
7	.758	CT2197LPST-ND	1.20	11.04	100.35	370.18	219-7LPST
8	.858	CT2198LPST-ND	1.27	11.63	105.75	390.10	219-8LPST
9	.958	CT2199LPST-ND	1.34	12.33	112.05	413.34	219-9LPST
10	1.058	CT21910LPST-ND	1.41	12.92	117.45	433.26	219-10LPST
12	1.258	CT21912LPST-ND	1.55	14.18	128.93	475.59	219-12LPST
Fig. 5, 219-MST Series – SPST, Gold Finish, Surface Mount, Extended							
2	.258	CT2192MST-ND	.86	7.87	71.55	263.94	219-2MST
3	.358	CT2193MST-ND	.92	8.46	76.95	283.86	219-3MST
4	.458	CT2194MST-ND	1.00	9.13	83.03	306.27	219-4MST
5	.558	CT2195MST-ND	1.06	9.75	88.65	327.02	219-5MST
6	.658	CT2196MST-ND	1.13	10.37	94.28	347.77	219-6MST
7	.758	CT2197MST-ND	1.20	11.04	100.35	370.18	219-7MST
8	.858	CT2198MST-ND	1.27	11.63	105.75	390.10	219-8MST
9	.958	CT2199MST-ND	1.34	12.33	112.05	413.34	219-9MST
10	1.058	CT21910MST-ND	1.41	12.92	117.45	433.26	219-10MST
12	1.258	CT21912MST-ND	1.55	14.18	128.93	475.59	219-12MST

ARIES ELECTRONICS, INC.

DIP SWITCHES

Features: • **Terminal:** Copper Alloy with selective gold plating over nickel plating and tin plating on leads. • Self cleaning wiping action. • 20µ gold in contact area. • Compatible with auto-insertion equipment. • End stackable. • Low profile height of 170°. • Single-pole, single-throw.

Fig.	No. of Circuits	Dim. A	Digi-Key Part No.	Pricing 1	10	100	500	Aries Part No.
			Gull Wing - Sealed					
1	4	.395	A601-ND	1.41	12.93	105.75	390.10	04-707-21
	5	.495	A602-ND	1.47	13.48	110.25	406.70	05-707-21
	6	.595	A603-ND	1.53	14.03	114.75	423.30	06-707-21
	7	.695	A604-ND	1.56	14.30	117.00	431.60	07-707-21
	8	.795	A605-ND	1.68	15.40	126.00	464.80	08-707-21
	9	.895	A606-ND	1.89	17.33	141.75	522.90	09-707-21
	10	.995	A607-ND	2.01	18.43	150.75	556.10	10-707-21
	12	1.195	A608-ND	2.22	20.35	166.50	614.20	12-707-21
			J-Lead - Sealed					
2	4	.395	A609-ND	1.41	12.93	105.75	390.10	04-707-31
	5	.495	A610-ND	1.47	13.48	110.25	406.70	05-707-31
	6	.595	A611-ND	1.53	14.03	114.75	423.30	06-707-31
	7	.695	A612-ND	1.56	14.30	117.00	431.60	07-707-31
	8	795	A613-ND	1.68	15.40	126.00	464.80	08-707-31
	9	.895	A614-ND	1.89	17.33	141.75	522.90	09-707-31
	12	1.195	A616-ND	2.22	20.35	166.50	614.20	12-707-31
			Thru-Hole Solder Tail					
3	4	.395	A617-ND	1.11	10.18	83.25	307.10	04-707-11
	5	.495	A618-ND	1.17	10.73	87.75	323.70	05-707-11
	6	.595	A619-ND	1.20	11.00	90.00	332.00	06-707-11
	7	.695	A620-ND	1.26	11.55	94.50	348.60	07-707-11
	8	.795	A621-ND	1.38	12.65	103.50	381.80	08-707-11
	9	.895	A622-ND	1.56	14.30	117.00	431.60	09-707-11
	10	.995	A623-ND	1.68	15.40	126.00	464.80	10-707-11
	12	1.195	A624-ND	1.92	17.60	144.00	531.20	12-707-11

Fig. 1 - Gull Wing
(Tape Seal Standard)

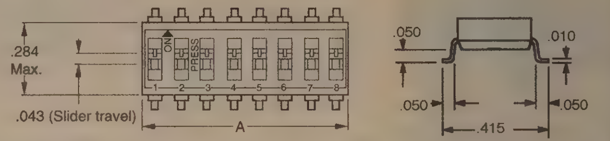


Fig. 2 - J-Lead
(Tape Seal Standard)

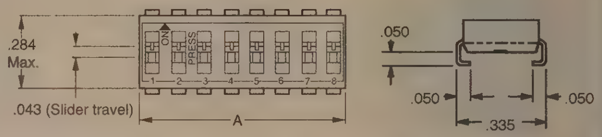
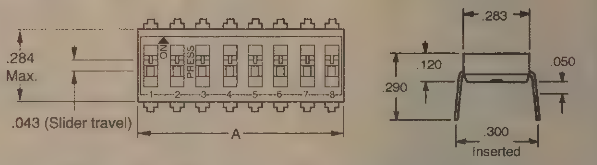


Fig. 3 - Thru-Hole Solder Tail
(With Tape Seal)



AMP

DIP SWITCHES

Fig. 1
Side Actuated

Max. cycle life:
up to 7,000 cycles per pole.
Single-pole, single-throw.

Contacts:
Beryllium copper with .00003 gold over .00005 nickel plating in contact area.

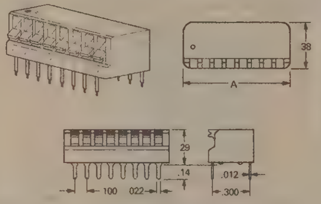


Fig. 2
Top Actuated

Max. cycle life:
up to 2,000 cycles per pole.
Single-pole single-throw.

Contacts:
Copper alloy .00003 gold over .00005 nickel plating in contact area.

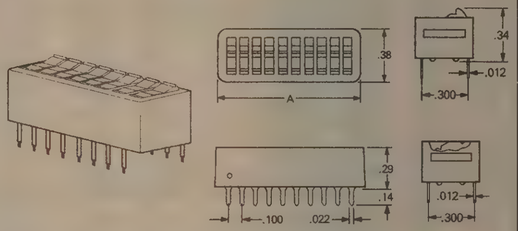


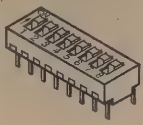
Fig.	No. of Circuits	Dim. "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
			7000 Series – SPST, Side Actuated, Unsealed				
1	4	.480	A5004-ND	1.98	18.15	148.50	435802-3
	5	.580	A5005-ND	2.04	18.70	153.00	435802-4
	6	.680	A5006-ND	2.04	18.70	153.00	435802-5
	7	.780	A5007-ND	2.07	18.98	155.25	435802-6
	8	.880	A5008-ND	2.13	19.53	159.75	435802-1
	9	.980	A5009-ND	2.16	19.80	162.00	435802-7
	10	1.080	A5010-ND	2.19	20.08	164.25	435802-8
			7000 Series – SPST, Side Actuated, Plastisol Sealed				
1	4	.480	A5104-ND	2.10	19.25	157.50	1-435802-5
	5	.580	A5105-ND	2.13	19.53	159.75	1-435802-6
	6	.680	A5106-ND	2.16	19.80	162.00	1-435802-7
	7	.780	A5107-ND	2.19	20.08	164.25	1-435802-8
	8	.880	A5108-ND	2.22	20.35	166.50	435802-9
	9	.980	A5109-ND	2.28	20.90	171.00	1-435802-9
	10	1.080	A5110-ND	2.31	21.18	173.25	2-435802-0
			7100 Series – SPST, Standard Profile, Unsealed				
2	4	.480	A5204-ND	1.38	12.65	103.50	435640-2
	5	.580	A5205-ND	1.41	12.93	105.75	435640-3
	6	.680	A5206-ND	1.44	13.20	108.00	435640-4
	7	.780	A5207-ND	1.47	13.48	110.25	435640-1
	8	.880	A5208-ND	1.50	13.75	112.50	435640-5
	9	.980	A5209-ND	1.50	13.75	112.50	435640-6
	10	1.080	A5210-ND	1.53	14.03	114.75	435640-7

Fig.	No. of Circuits	Dim. "A"	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
			7100 Series – SPST, Standard Profile, Plastisol Sealed				
2	4	.480	A5304-ND	1.44	13.20	108.00	3-435640-5
	5	.580	A5305-ND	1.47	13.48	110.25	3-435640-6
	6	.680	A5306-ND	1.50	13.75	112.50	3-435640-7
	7	.780	A5307-ND	1.53	14.03	114.75	3-435640-8
	8	.880	A5308-ND	1.56	14.30	117.00	3-435640-9
	9	.980	A5309-ND	1.59	14.58	119.25	4-435640-0
	10	1.080	A5310-ND	1.59	14.58	119.25	4-435640-1
			7100 Series – SPST, Low Profile, Unsealed				
2	4	.480	A5404-ND	1.50	13.75	112.50	435668-3
	5	.580	A5405-ND	1.53	14.03	114.75	435668-4
	6	.680	A5406-ND	1.59	14.58	119.25	435668-5
	7	.780	A5407-ND	1.59	14.58	119.25	435668-6
	8	.880	A5408-ND	1.65	15.13	123.75	435668-7
	10	1.080	A5410-ND	1.68	15.40	126.00	435668-9
			7100 Series – SPST, Low Profile, Tape Sealed				
2	4	.480	A5504-ND	1.59	14.58	119.25	3-435668-4
	5	.580	A5505-ND	1.59	14.58	119.25	3-435668-5
	6	.680	A5506-ND	1.65	15.13	123.75	2-435668-5
	7	.780	A5507-ND	1.68	15.40	126.00	2-435668-7
	8	.880	A5508-ND	1.74	15.95	130.50	2-435668-8
	9	.980	A5509-ND	1.77	16.23	132.75	2-435668-9

C&K® COMPONENTS, INC. DIP Switches

Specifications: • **Switch Function:** SPST • **Contact Rating:** Switch - 100mA max @ 5 VDC or 25 mA max. @ 25 VDC • **Mechanical & Electrical Life:** 2,000 make-and-break cycles at full load, each circuit • **Conatct Resistance:** Below 50 milliohms typ. • **Dielectric Strength:** 500 V RMS • **Operating Temperature:** -40°C to 85°C

Materials: • **Case & Cover:** Glass filled polyester (UL 94V-0), Flame retardant, Red in color • **Actuator:** Glass filled nylon 6/6, flame retardant (UL 94V-0) • **Contacts:** Copper alloy, with gold plate over nickel plate • **Terminals:** Copper alloy, with tin-lead alloy over nickel plate • **Terminal Seal:** Epoxy • **Tape Seal:** Polyimide



• Proven washable design — open base design allows cleaners to flush through • High temperature materials (UL 94V-0) withstands soldering and cleaning temperatures and processes • Slide actuators with positive detent — prevent accidental actuation • Reliable wiping contact mechanism • Tin-lead alloy coats all sides of terminals for joint integrity

Fig. 1 — Top Slide

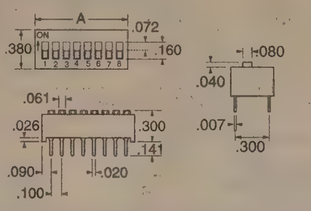

A
.072
.380
ON
1 2 3 4 5 6 7 8
.160
.080
.040
.061
.026
.300
.141
.007
.300
.090
.020
.100

Fig. 2 — Right Angle

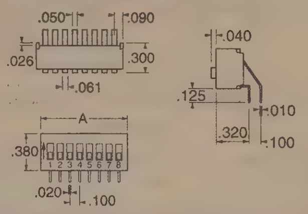

.050
.090
.040
.026
.300
.061
.125
.010
A
.320
.100
.380
1 2 3 4 5 6 7 8
.020
.100

Fig. 3 — Side Actuated

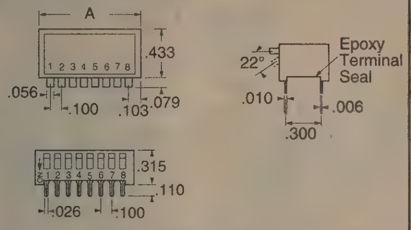

A
.433
1 2 3 4 5 6 7 8
Epoxy
Terminal
Seal
22°
.056
.100
.103
.079
.010
.006
.300
.315
.110
.026
.100

Fig. 4 — Auto-Dip

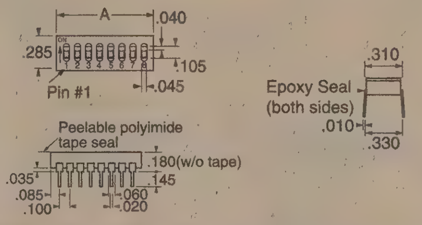

A
.040
.285
ON
1 2 3 4 5 6 7 8
.105
Pin #1
.045
.310
Epoxy Seal
(both sides)
.010
.330
Peelable polyimide
tape seal
.180(w/o tape)
.035
.145
.085
.060
.100
.020

Fig. 5 — Surface Mount

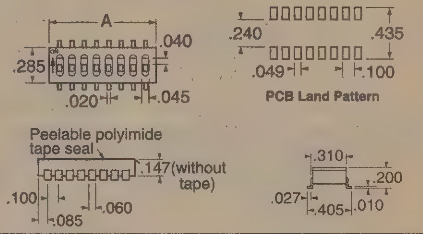

A
.040
.285
ON
.020
.045
.240
.435
.049
.100
PCB Land Pattern
Peelable polyimide
tape seal
.147(without
tape)
.100
.060
.085
.310
.200
.027
.405
.010

Fig. No.	No. of Pos.	Dimension A	Digi-Key Part No.	Pricing 1	25	100	250	C&K Part No.
Top Slide, Extended Actuator, Unsealed								
1	2	.280	CKN3001-ND	1.35	27.00	85.50	168.75	BD02
1	3	.380	CKN3002-ND	1.38	27.60	87.40	172.50	BD03
1	4	.480	CKN3003-ND	1.35	27.00	85.50	168.75	BD04
1	5	.580	CKN3004-ND	1.47	29.40	93.10	183.75	BD05
1	6	.680	CKN3005-ND	1.50	30.00	95.00	187.50	BD06
1	7	.780	CKN3006-ND	1.56	31.20	98.80	195.00	BD07
1	8	.880	CKN3007-ND	1.59	31.80	100.70	198.75	BD08
1	9	.980	CKN3008-ND	1.59	31.80	100.70	198.75	BD09
1	10	1.080	CKN3009-ND	1.68	33.60	106.40	210.00	BD10
1	12	1.280	CKN3010-ND	1.80	36.00	114.00	225.00	BD12
Right Angle Slide, Extended Actuator - Unsealed								
2	2	.280	CKN3011-ND	2.10	42.00	133.00	262.50	BD02AV
2	3	.380	CKN3012-ND	2.19	43.80	138.70	273.75	BD03AV
2	4	.480	CKN3013-ND	2.19	43.80	138.70.	273.75	BD04AV
2	5	.580	CKN3014-ND	2.25	45.00	142.50	281.25	BD05AV
2	6	.680	CKN3015-ND	2.28	45.60	144.40	285.00	BD06AV
2	7	.780	CKN3016-ND	2.34	46.80	148.20	292.50	BD07AV
2	8	.880	CKN3017-ND	2.37	47.40	150.10	296.25	BD08AV
2	9	.980	CKN3018-ND	2.40	48.00	152.00	300.00	BD09AV
2	10	1.080	CKN3019-ND	2.49	49.80	157.70	311.25	BD10AV
2	12	1.280	CKN3020-ND	2.58	51.60	163.40	322.50	BD12AV

Fig. No.	No. of Pos.	Dimension A	Digi-Key Part No.	Pricing 1	25	100	250	C&K Part No.
Side Actuated - Tape Sealed								
3	2	.315	CKN3021-ND	1.56	31.20	98.80	195.00	BP02YT
3	3	.413	CKN3022-ND	1.59	31.80	100.70	198.75	BP03YT
3	4	.512	CKN3023-ND	1.62	32.40	102.60	202.50	BP04YT
3	5	.610	CKN3024-ND	1.68	33.60	106.40	210.00	BP05YT
3	6	.709	CKN3025-ND	1.74	34.80	110.20	217.50	BP06YT
3	7	.807	CKN3026-ND	1.77	35.40	112.10	221.25	BP07YT
3	8	.906	CKN3027-ND	1.77	35.40	112.10	221.25	BP08YT
3	10	1.102	CKN3028-ND	1.98	39.60	125.40	247.50	BP10YT
3	12	1.299	CKN3029-ND	2.34	46.80	148.20	292.50	BP12YT
Auto-Insertable, Auto Dip - Tape Sealed								
4	4	.470	CKN3030-ND	1.38	27.60	87.40	172.50	LD04H0K
4	5	.570	CKN3031-ND	1.50	30.00	95.00	187.50	LD05H0K
4	6	.670	CKN3032-ND	1.68	33.60	106.40	210.00	LD06H0K
4	8	.870	CKN3033-ND	1.74	34.80	110.20	217.50	LD08H0K
4	10	1.070	CKN3034-ND	2.10	42.00	133.00	262.50	LD10H0K

Fig. No.	No. of Pos.	Dim A	Digi-Key Part No.	Pricing 1	25	100	Digi-Key Part No.	Tape & Reel 300	C&K Part No.
SMT Gull Wing - Tape Sealed									
5	4	.470	CKN3035CT-ND	1.98	42.70	137.25	CKN3035TR-ND	329.40	LD04H0SK
5	5	.570	CKN3036CT-ND	2.02	43.40	139.50	CKN3036TR-ND	334.80	LD05H0SK
5	6	.670	CKN3037CT-ND	2.11	45.50	146.25	CKN3037TR-ND	351.00	LD06H0SK
5	7	.770	CKN3038CT-ND	2.11	45.50	146.25	CKN3038TR-ND	351.00	LD07H0SK
5	[illegible]	.870	CKN3039CT-ND	2.21	47.60	153.00	CKN3039TR-ND	367.20	LD08H0SK
5	10	1.070	CKN3040CT-ND	2.28	49.00	157.50	CKN3040TR-ND	378.00	LD10H0SK

OMRON® Rotary DIP Switches

Life Expectancy:
Mechanical – 10,000 operations min.;
Electrical – 2,000 operations min.
Contact Resistance – 200mΩ.

BCD OUTPUT CODES

Note: "●" in the tables show the output terminal No. that can be connected to the common terminal.

BCD Type

Pos-ition	Terminal No. 1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●

Hexadecimal type

Pos-ition	Terminal No. 1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●		●	
6		●	●	
7	●	●	●	
8				●
9	●			●
A		●		●
B	●	●		●
C			●	●
D	●		●	●
E		●	●	●
F	●	●	●	●

Fig. 1

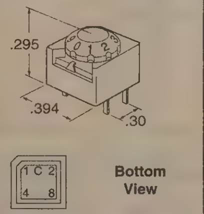

.295
.394
.30
1 C 2
4 8
Bottom
View

Fig. 2

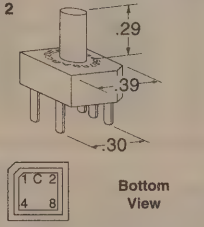

.29
.39
.30
1 C 2
4 8
Bottom
View

Fig. 3

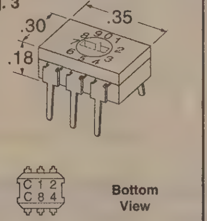

.30
.35
.18
C 1 2
C 8 4
Bottom
View

Fig. 4

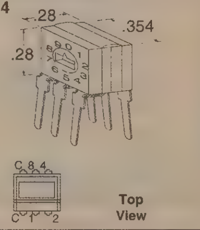
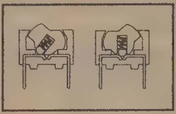

.28
.354
.28
C 8 4
C 1 2
Top
View

Fig. No.	No. of Pos.	Output Code Type	Switching Capacity mA	VDC	Operating Temp.	Digi-Key Part No.	Pricing 1	25	50	100	250	Omron Part No.
1	10	BCD	100	28	-10° to 70°C	SW220-ND	4.37	98.28	174.72	314.50	742.56	A6A-10R
1	16	Hexdec.	100	28	-10° to 70°C	SW221-ND	4.51	101.50	180.44	324.79	766.87	A6A-16R
2	10	BCD	100	28	-10 to 70°C	SW214-ND	4.93	110.86	197.08	354.74	837.59	A6A-10RS
2	16	Hexdec.	100	28	-10 to 70°C	SW215-ND	5.07	114.08	202.80	365.04	861.90	A6A-16RS
2	10	BCD	100	28	-10 to 70°C	SW222-ND	5.25	118.17	210.08	378.14	892.84	A6A-10RW
2	16	Hexdec.	100	28	-10 to 70°C	SW223-ND	4.93	110.86	197.08	354.74	837.59	A6A-16RW
3	10	BCD	100	30	-20 to 70°C	SW216-ND	3.34	75.08	133.48	240.26	567.29	A6C-10R(N)
3	16	Hexdec.	100	30	-20 to70°C	SW217-ND	3.53	79.31	141.00	253.80	599.25	A6C-16R(N)
4	10	BCD	100	30	-20 to 70°C	SW218-ND	4.59	103.37	183.77	330.79	781.02	A6CV-10R
4	16	Hexdec.	100	30	-20 to 70°C	SW219-ND	4.85	109.19	194.11	349.40	824.97	A6CV-16R

Grayhill DIP Switches



Grayhill's unique spring and ball contact design offers unparalleled reliability compared to conventional wiping contact designs. When actuated the ball rests between two contacts allowing multiple points of contact while the spring compression is at maximum pressure. Temperature, humidity and vibration have minimal affect on this design.

Specifications: • **Mechanical Life per switch position:** 76/78 — 20,000; 90B — 5,000 • **Contact Resistance:** Initially ≤ 30 mΩ • **Insulation Resistance:** 5,000 • **Dielectric Strength:** 750V • **Current Carry:** 3A • **Switch Capacitance:** 2pF • **Operating Temperature:** -40°C to +85°C • **SMT Processing Temperature (90HBW, 90HBJ):** 260°C Max.

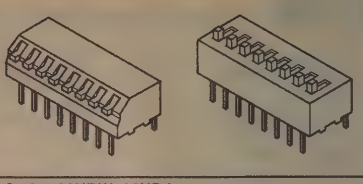


Fig. 1 – Series 76 Rocker and Recessed Rocker

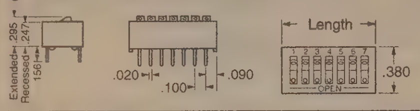


Fig. – 3 Series 78

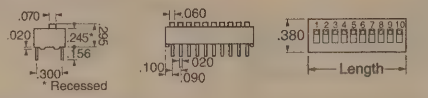


Fig. 5 – Series 90HBW, 90HBJ

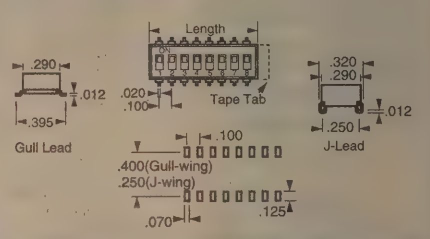


Fig. 2 – Series 76 Piano DIP

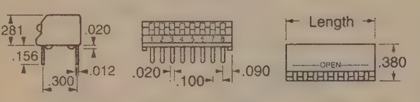
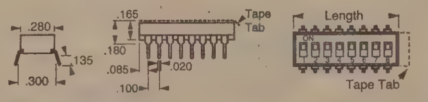
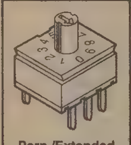


Fig. 4 – Series 90

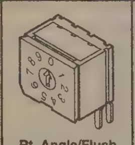


No. of Pos.	Length Inches	Digi-Key Part No.	Pricing				Grayhill Part No.
			1	10	25	100	
Fig. 1, Raise Rocker Unsealed							
2	0.280	GH1102-ND	2.64	21.70	46.50	124.00	76SB02
3	0.380	GH1103-ND	2.72	22.40	48.00	128.00	76SB03
4	0.480	GH1104-ND	2.81	23.10	49.50	132.00	76SB04
5	0.580	GH1105-ND	2.93	24.15	51.75	138.00	76SB05
6	0.680	GH1106-ND	2.98	24.50	52.50	140.00	76SB06
7	0.780	GH1107-ND	3.06	25.20	54.00	144.00	76SB07
8	0.880	GH1109-ND	3.19	26.25	56.25	150.00	76SB08
9	0.980	GH1110-ND	3.23	26.60	57.00	152.00	76SB09
10	1.080	GH1112-ND	3.23	26.60	57.00	152.00	76SB10
12	1.280	GH1202-ND	3.44	28.35	60.75	162.00	76SB12
Fig. 1, Raise Rocker Sealed							
2	0.280	GH1002-ND	2.81	23.10	49.50	132.00	76SB02S
3	0.380	GH1003-ND	2.93	24.15	51.75	138.00	76SB03S
4	0.480	GH1004-ND	2.98	24.50	52.50	140.00	76SB04S
5	0.580	GH1005-ND	3.10	25.55	54.75	146.00	76SB05S
6	0.680	GH1006-ND	3.19	26.25	56.25	150.00	76SB06S
7	0.780	GH1007-ND	3.23	26.60	57.00	152.00	76SB07S
8	0.880	GH1008-ND	3.32	27.30	58.50	156.00	76SB08S
9	0.980	GH1009-ND	3.40	28.00	60.00	160.00	76SB09S
10	1.080	GH1010-ND	3.44	28.35	60.75	162.00	76SB10S
12	1.280	GH1012-ND	3.61	29.75	63.75	170.00	76SB12S
Fig. 1, Recessed Rocker Unsealed							
2	0.280	GH1272-ND	2.64	21.70	46.50	124.00	76RSB02
3	0.380	GH1273-ND	2.72	22.40	48.00	128.00	76RSB03
4	0.480	GH1274-ND	2.81	23.10	49.50	132.00	76RSB04
5	0.580	GH1275-ND	2.93	24.15	51.75	138.00	76RSB05
6	0.680	GH1276-ND	2.98	24.50	52.50	140.00	76RSB06
7	0.780	GH1277-ND	3.06	25.20	54.00	144.00	76RSB07
8	0.880	GH1278-ND	3.19	26.25	56.25	150.00	76RSB08
9	0.980	GH1279-ND	3.23	26.60	57.00	152.00	76RSB09
10	1.080	GH1280-ND	3.23	26.60	57.00	152.00	76RSB10
12	1.280	GH1281-ND	3.44	28.35	60.75	162.00	76RSB12
Fig. 1, Recessed Rocker Sealed							
2	0.280	GH1262-ND	2.81	23.10	49.50	132.00	76RSB02S
3	0.380	GH1263-ND	2.93	24.15	51.75	138.00	76RSB03S
4	0.480	GH1264-ND	2.98	24.50	52.50	140.00	76RSB04S
5	0.580	GH1265-ND	3.10	25.55	54.75	146.00	76RSB05S
6	0.680	GH1266-ND	3.19	26.25	56.25	150.00	76RSB06S
7	0.780	GH1267-ND	3.23	26.60	57.00	152.00	76RSB07S
8	0.880	GH1268-ND	3.32	27.30	58.50	156.00	76RSB08S
9	0.980	GH1269-ND	3.40	28.00	60.00	160.00	76RSB09S
10	1.080	GH1270-ND	3.44	28.35	60.75	162.00	76RSB10S
12	1.280	GH1271-ND	3.61	29.75	63.75	170.00	76RSB12S
Fig. 2, PIANO DIP® Unsealed							
2	0.280	GH1213-ND	3.15	25.90	55.50	148.00	76PSB02
3	0.380	GH1214-ND	3.23	26.60	57.00	152.00	76PSB03
4	0.480	GH1215-ND	3.32	27.30	58.50	156.00	76PSB04
5	0.580	GH1216-ND	3.36	27.65	59.25	158.00	76PSB05
6	0.680	GH1217-ND	3.44	28.35	60.75	162.00	76PSB06
7	0.780	GH1218-ND	3.53	29.05	62.25	166.00	76PSB07
8	0.880	GH1219-ND	3.57	29.40	63.00	168.00	76PSB08
9	0.980	GH1220-ND	3.70	30.45	65.25	174.00	76PSB09
10	1.080	GH1221-ND	3.87	31.85	68.25	182.00	76PSB10
12	1.280	GH1222-ND	4.04	33.25	71.25	190.00	76PSB12
Fig. 2, PIANO DIP® Sealed							
2	0.280	GH1203-ND	3.32	27.30	58.50	156.00	76PSB02S
3	0.380	GH1204-ND	3.40	28.00	60.00	160.00	76PSB03S
4	0.480	GH1205-ND	3.49	28.70	61.50	164.00	76PSB04S
5	0.580	GH1206-ND	3.53	29.05	62.25	166.00	76PSB05S
6	0.680	GH1207-ND	3.61	29.75	63.75	170.00	76PSB06S
7	0.780	GH1208-ND	3.70	30.45	65.25	174.00	76PSB07S
8	0.880	GH1209-ND	3.74	30.80	66.00	176.00	76PSB08S
9	0.980	GH1210-ND	3.91	32.20	69.00	184.00	76PSB09S
10	1.080	GH1211-ND	4.04	33.25	71.25	190.00	76PSB10S
12	1.280	GH1212-ND	4.21	34.65	74.25	198.00	76PSB12S
Fig. 3, Raised Slide Switch, Unsealed							
2	0.280	GH1233-ND	2.55	21.00	45.00	120.00	78B02
3	0.380	GH1234-ND	2.64	21.70	46.50	124.00	78B03
4	0.480	GH1235-ND	2.72	22.40	48.00	128.00	78B04
5	0.580	GH1236-ND	2.81	23.10	49.50	132.00	78B05
6	0.680	GH1237-ND	2.89	23.80	51.00	136.00	78B06
7	0.780	GH1238-ND	2.93	24.15	51.75	138.00	78B07
8	0.880	GH1239-ND	3.02	24.85	53.25	142.00	78B08
9	0.980	GH1240-ND	3.10	25.55	54.75	146.00	78B09
10	1.080	GH1241-ND	3.15	25.90	55.50	148.00	78B10
12	1.280	GH1242-ND	3.36	27.65	59.25	158.00	78B12
Fig. 3, Raised Slide Switch, Sealed							
2	0.280	GH1223-ND	2.72	22.40	48.00	128.00	78B02S
3	0.380	GH1224-ND	2.81	23.10	49.50	132.00	78B03S
4	0.480	GH1225-ND	2.89	23.80	51.00	136.00	78B04S
5	0.580	GH1226-ND	2.98	24.50	52.50	140.00	78B05S
6	0.680	GH1227-ND	3.06	25.20	54.00	144.00	78B06S
7	0.780	GH1228-ND	3.10	25.55	54.75	146.00	78B07S
8	0.880	GH1229-ND	3.19	26.25	56.25	150.00	78B08S
9	0.980	GH1230-ND	3.27	26.95	57.75	154.00	78B09S
10	1.080	GH1231-ND	3.32	27.30	58.50	156.00	78B10S
12	1.280	GH1232-ND	3.53	29.05	62.25	166.00	78B12S
Fig. 3, Recessed Slide Switch, Unsealed							
2	0.280	GH1252-ND	2.55	21.00	45.00	120.00	78RB02
3	0.380	GH1253-ND	2.64	21.70	46.50	124.00	78RB03
4	0.480	GH1254-ND	2.72	22.40	48.00	128.00	78RB04
5	0.580	GH1255-ND	2.81	23.10	49.50	132.00	78RB05
6	0.680	GH1256-ND	2.89	23.80	51.00	136.00	78RB06
7	0.780	GH1257-ND	2.93	24.15	51.75	138.00	78RB07
8	0.880	GH1258-ND	3.02	24.85	53.25	142.00	78RB08
9	0.980	GH1259-ND	3.10	25.55	54.75	146.00	78RB09
10	1.080	GH1260-ND	3.15	25.90	55.50	148.00	78RB10
12	1.280	GH1261-ND	3.36	27.65	59.25	158.00	78RB12
Fig. 3, Recessed Slide Switch, Sealed							
2	0.280	GH1243-ND	2.72	22.40	48.00	128.00	78RB02S
3	0.380	GH1244-ND	2.81	23.10	49.50	132.00	78RB03S
4	0.480	GH1245-ND	2.89	23.80	51.00	136.00	78RB04S
5	0.580	GH1246-ND	2.98	24.50	52.50	140.00	78RB05S
6	0.680	GH1247-ND	3.06	25.20	54.00	144.00	78RB06S
7	0.780	GH1248-ND	3.10	25.55	54.75	146.00	78RB07S
8	0.880	GH1249-ND	3.19	26.25	56.25	150.00	78RB08S
9	0.980	GH1250-ND	3.27	26.95	57.75	154.00	78RB09S
10	1.080	GH1251-ND	3.32	27.30	58.50	156.00	78RB10S
Fig. 4, Auto-Insertable Auto DIP Sealed							
2	0.270	GH1282-ND	3.19	26.25	56.25	150.00	90B02S
3	0.370	GH1283-ND	3.27	26.95	57.75	154.00	90B03S
4	0.470	GH1284-ND	2.81	23.10	49.50	132.00	90B04S
5	0.570	GH1285-ND	3.19	26.25	56.25	150.00	90B05S
6	0.670	GH1286-ND	3.27	26.95	57.75	154.00	90B06S
7	0.770	GH1287-ND	3.32	27.30	58.50	156.00	90B07S
8	0.870	GH1288-ND	2.76	22.75	48.75	130.00	90B08S
9	0.970	GH1289-ND	3.44	28.35	60.75	162.00	90B09S
10	1.070	GH1290-ND	3.66	30.10	64.50	172.00	90B10S
Fig. 5, SMT Gull Lead Sealed							
2	0.270	GH1291-ND	4.38	36.05	77.25	206.00	90HBW02S
3	0.370	GH1292-ND	4.51	37.10	79.50	212.00	90HBW03S
4	0.470	GH1293-ND	3.87	31.85	68.25	182.00	90HBW04S
5	0.570	GH1294-ND	4.38	36.05	77.25	206.00	90HBW05S
6	0.670	GH1295-ND	4.51	37.10	79.50	212.00	90HBW06S
7	0.770	GH1296-ND	4.55	37.45	80.25	214.00	90HBW07S
8	0.870	GH1297-ND	3.78	31.15	66.75	178.00	90HBW08S
9	0.970	GH1298-ND	4.76	39.20	84.00	224.00	90HBW09S
10	1.070	GH1299-ND	5.06	41.65	89.25	238.00	90HBW10S
Fig. 5, SMT J-Lead Sealed							
2	0.270	GH1300-ND	4.85	39.90	85.50	228.00	90HBJ02S
3	0.370	GH1301-ND	5.02	41.30	88.50	236.00	90HBJ03S
4	0.470	GH1302-ND	4.29	35.35	75.75	202.00	90HBJ04S
5	0.570	GH1303-ND	4.85	39.90	85.50	228.00	90HBJ05S
6	0.670	GH1304-ND	5.02	41.30	88.50	236.00	90HBJ06S
7	0.770	GH1305-ND	5.02	41.30	88.50	236.00	90HBJ07S
8	0.870	GH1306-ND	4.17	34.30	73.50	196.00	90HBJ08S
9	0.970	GH1307-ND	5.31	43.75	93.75	250.00	90HBJ09S
10	1.070	GH1308-ND	5.61	46.20	99.00	264.00	90HBJ10S

Grayhill Rotary DIP Switches

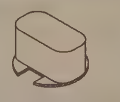


Perp./Extended

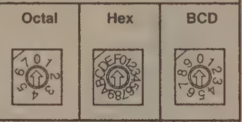


Rt. Angle/Flush

Knob for Extended Actuators



Switch Markings



Specifications: • **Mechanical Life:** 10,000 cycles • **Make and Break Current Rating:** 30 mA at 30 Vdc for 10,000 cycles of operation • **Carrying Current Rating:** 100mA at 50 Vdc • **Contact Resistance:** 50 milliohms maximum • **Operating Temperature Range:** -25° to +85°C

Materials and Finishes: • **Rotor and Switch Body:** Plastic, rated at UL 94V-0 • **Contact Material:** Copper alloy gold over 30 microinches nickel • **Terminals:** Copper alloy plated 150 microinches tin lead solder over nickel • **Internal O-ring:** Silicon rubber

Flux cleaning: • Acceptable cleaning solutions include 1-1-1 Trichlorethane, Freon (TF, TE, or TMS), Isopropyl Alcohol, and detergent (140°F maximum). Solutions which are not recommended include Acetone, Methylene Chloride, and Freon TMC.

*All Grayhill Dip Switches are shipped in tubes.

Code & Positions	Type of Mounting	Type of Actuator	Digi-Key Part No.	Pricing				Grayhill Part No.
				1	10	25	100	
Rotary Switches								
Octal	SMT	Flush	GH1309-ND	5.19	42.70	91.50	244.00	94HAB08W
Octal	Perp.	Flush	GH1310-ND	5.19	42.70	91.50	244.00	94HAB08
Octal	Perp.	Extended	GH1311-ND	5.19	42.70	91.50	244.00	94HBB08
Octal	Rt. Ang.	Flush	GH1312-ND	5.78	47.60	102.00	272.00	94HAB08RA
Octal	Rt. Ang.	Extended	GH1313-ND	5.78	47.60	102.00	272.00	94HBB08RA
BCD	SMT	Flush	GH1314-ND	5.19	42.70	91.50	244.00	94HAB10W
BCD	Perp.	Flush	GH1315-ND	5.19	42.70	91.50	244.00	94HAB10
BCD	Perp.	Extended	GH1316-ND	5.19	42.70	91.50	244.00	94HBB10
BCD	Rt. Ang.	Flush	GH1317-ND	5.78	47.60	102.00	272.00	94HAB10RA
BCD	Rt. Ang.	Extended	GH1318-ND	5.78	47.60	102.00	272.00	94HBB10RA
HEX	SMT	Flush	GH1319-ND	5.19	42.70	91.50	244.00	94HAB16W
HEX	Perp.	Flush	GH1320-ND	5.19	42.70	91.50	244.00	94HAB16
HEX	Perp.	Extended	GH1321-ND	5.19	42.70	91.50	244.00	94HBB16
HEX	Rt. Ang.	Flush	GH1322-ND	5.78	47.60	102.00	272.00	94HAB16RA
HEX	Rt. Ang.	Extended	GH1323-ND	5.78	47.60	102.00	272.00	94HBB16RA
Knobs for Extended Actuators Only								
Black Knob, open window type			GH5005-ND	.66/each		55.00/100		947701-001
Gray Knob, open window type			GH5006-ND	.66/each		55.00/100		947701-002
Gray Knob, black arrowhead			GH5007-ND	.78/each		64.63/100		947701-007

C&K COMPONENTS, INC. Rotary Switches

Specifications:

- **Contact Rating:** Switch-2.5 AMPS @ 125 V AC or 28 V DC; 150 mA @ 250 V AC or DC. Carry - 5 AMPS • **Electrical Life:** 15,000 make-and-break cycles • **Contact Resistance:** 20 milliohms typ.
- **Operating Temperature:** -30°C to 85°C

Materials:

- **Housing:** Glass filled nylon, red • **Movable Contact:** coin silver, silver plated • **Stationary Contacts & Terminals:** Brass, silver plated
- **Hardware:** Nut, Lockwasher, Stop Ring Included

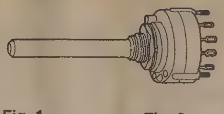


Fig. 1

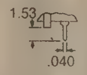


Fig. 2

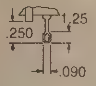


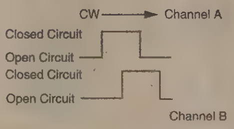
Fig. No.	Poles	No. of Pos.	Digi-Key Part No.	Pricing 1	25	100	250	C&K Part No.
1	SP	12	CKC7001-ND	4.86	97.20	307.80	607.50	A11215RNCQ
2	SP	12	CKC7002-ND	4.86	97.20	307.80	607.50	A11215RNZQ
1	DP	6	CKC7003-ND	5.13	102.60	324.90	641.25	A20615RNCQ
2	DP	6	CKC7004-ND	5.13	102.60	324.90	641.25	A20615RNZQ
1	3P	4	CKC7005-ND	5.28	105.60	334.40	660.00	A30415RNCQ
2	3P	4	CKC7006-ND	5.28	105.60	334.40	660.00	A30415RNZQ
1	4P	3	CKC7007-ND	5.82	116.40	368.60	727.50	A40315RNCQ
2	4P	3	CKC7008-ND	5.82	116.40	368.60	727.50	A40315RNZQ

BOURNS 9MM Square/Sealed Encoder

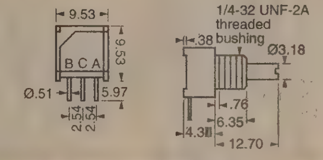
Electrical Characteristics:

Output: 2-bit gray code, Channel A leads Channel by 90° electrically turning clockwise (CW): 6 pulses per resolution **Closed Circuit Resistance:** 2 ohms maximum **Open Circuit Resistance:** 100K ohms minimum **Contact Rating:** 10 milliamp@ 10 VDC or 0.1 watt maximum **Insulation Resistance (500 VDC):** 1,000 megohms minimum **Dielectric Withstanding Voltage:** **(Sea Level)** 900 VAC minimum; **(Electrical Travel)** Continuous **Contact Bounce (15 RPM):** 5 milliseconds maximum **RPM (Operating):** 120 maximum

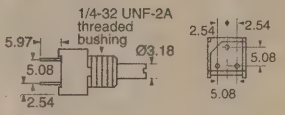
Environmental Characteristics: **Temperature Range:** -55°C to+125°C **Rotational Life:** 100,000 cycles **Mechanical Characteristics:** **(Mechanical Angle)** Continuous; **(Torque)** 5 oz-in. maximum



3315C

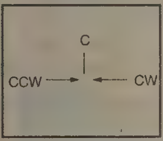


3315Y



Description	Digi-Key Part No.	Pricing 1	10	100	1000	Bourns Part No.
9mm Square Right Angle Encoder	3315C-1-006-ND	2.59	22.94	192.40	1295.00	3315C-1-006
9mm Square Vertical Encoder	3315Y-1-006-ND	2.59	22.94	192.40	1295.00	3315Y-1-006

BOURNS Sealed Selector Switches

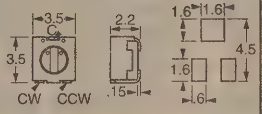


Electrical Characteristics: **Contact Rating: Maximum Current:** 100mA max.; **Maximum Voltage:** 24V **Contact Timing:** Non-Shorting **Contact Resistance:** 2 ohms max. **Insulation Resistance:** 100 megohms min. (DC500V) **Dielectric Strength:** 250 VAC

General Characteristics: **Switch Type:** SPDT **Operating Temperature Range:** -55C to +125°C

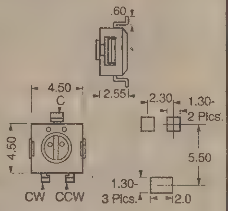
Size (mm)	Life	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	1000	5,000
3	50	7813J-051ECT-ND	2.10	18.60	156.00	7813J-051ETR-ND	—	1050.00	900.00/M
3	2000	7813J-023ECT-ND	2.31	20.46	171.60	7813J-023ETR-ND	—	1155.00	990.00/M
4	50	7814G-051ECT-ND	2.10	18.60	156.00	7814G-051ETR-ND	600.00	1050.00	900.00/M
4	2000	7814G-023ECT-ND	2.31	20.46	171.60	7814G-023ETR-ND	660.00	1155.00	990.00/M
4	50	7814J-051ECT-ND	2.10	18.60	156.00	7814J-051ETR-ND	600.00	1050.00	900.00/M
4	2000	7814J-023ECT-ND	2.31	20.46	171.60	7814J-023ETR-ND	660.00	1155.00	990.00/M

7813J



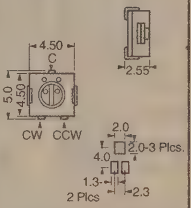
Mechanical Angle: 245°C ±15° **Positions:** 2 **Adjustment Torque:** 50g. cm max. **Stop Strength:** 200g. cm min. **Switching Angle:** 45° ± 5° **Seal Test:** 85°C Flourinert **Rotational Life:** **-051:** 50 cycles **-023:** 2000 cycles **Max Soldering Heat:** 260°C, 5 seconds

7814G



Mechanical Angle: 240°C ±15° **Positions:** 2 **Adjustment Torque:** 180g. cm max. **Stop Strength:** 300g. cm min. **Switching Angle:** 45° ± 5° **Pushover Strength (S Style):** 2 kilograms min. **Rotational Life:** **-051:** 50 cycles **-023:** 2000 cycles **Max Soldering Heat:** 260°C, 10 seconds

7814J



BOURNS SMD Momentary Key Switch

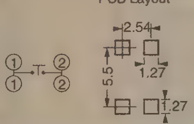
Electrical Characteristics:

Contact Rating: Maximum Current: 100mA max.; **Maximum Voltage:** 24V **Contact Resistance:** 100 milliohms max. **Insulation Resistance:** 100 megohms min. (DC500V) **Dielectric Strength:** 250 VAC.

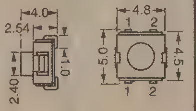
General Characteristics:

Switch Type: Normally Open **Operating Temperature Range:** -55C to +125°C ***Mechanical Characteristics:*** **Cycle Life, Loaded:** 10,000 actuations **Contact Resistance:** 100 milliohms max.

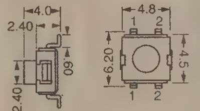
PCB Layout



7914J

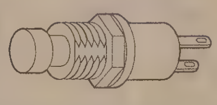


7914G



Type	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 500	1,000	5,000	10,000
J-Hook	7914J-000ECT-ND	.95	8.37	70.20	7914J-000ETR-ND	270.00	473.00	405.00/M	359.00/M
Gull Wing	7914G-000ECT-ND	.95	8.37	70.20	7914G-000ETR-ND	270.00	473.00	405.00/M	359.00/M

Pushbutton Switch



Black Top, Round, Push Button SPST Normally Open Momentary, Complete with Hex Nut and Washer Mounts in 5/16" Hole.

150C-ND ....**.77 ea.,**
7.00/10, 63.00/100

Plastic Pushbutton Switches

Fig. 1

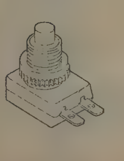
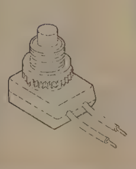


Fig. 2



.50 wide x .60 hgt. 3/8 -27 Thread 10 amp @ 14 Volts 1 amp @ 110 Volts. (Nut is included).

Fig. No.	Description	Digi-Key Part No.	1	10 Pk.	100 Pk.
	Black Body with Red Button				
1	Push On-Push Off, Solder Terminal	501PB-ND	1.14	9.63	85.75
1	Normally Open, Solder Terminal	502PB-ND	1.14	9.63	85.75
1	Normally Closed, Solder Terminal	503PB-ND	1.14	9.63	85.75
2	Push On-Push Off, 4.5" Wire Leads	505PB-ND	1.14	9.63	85.75
2	Normally Open, 4.5" Wire Leads	506PB-ND	1.14	9.63	85.75

Fig. No.	Description	Digi-Key Part No.	1	10 Pk.	100 Pk.
	Black Body with Black Button				
1	Push On-Push Off, Solder Terminal	508PB-ND	1.14	9.63	85.75
1	Normally Open, Solder Terminal	509PB-ND	1.14	9.63	85.75
1	Normally Closed, Solder Terminal	510PB-ND	1.14	9.63	85.75
2	Push On-Push Off, 4.5" Wire Leads	504PB-ND	1.14	9.63	85.75
2	Normally Open, 4.5" Wire Leads	507PB-ND	1.14	9.63	85.75

Panasonic

Rotary Encoders

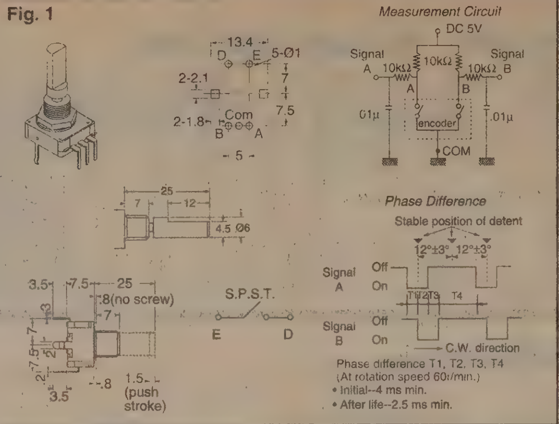
SPECIFICATIONS (EVQ-WTE Series, Figure 1)

Mechanical: • Shaft rotation angle: 360° (endless). • Detent points: 30 (each detent angle: 12° ± 3°). **Electrical:** • Output signal: A,B 2 signals (output of phase difference). • Output resolution: 15 pulse / 360°. • Rating: DC 10V-1mA (each bit). • Contact resistance between terminals: 1 Ω max. • Detent position: At each detent position, output between Com. and A is stable ON or OFF. (output between Com. & B is not specified). • Chattering (phase t1, t2): 5 ms max. (passing time between 3.5V & 1.5V) (measurement circuit -see diagram) (at rotation speed 60r / min.). • Insulation resistance: 50 MΩ min. (at DC 250V) (between all terminals and a shaft). • Withstand voltage: AC 300V 1 min. (between all terminals & a shaft). • **Push On Switch (SW):** Switch rating: DC 16V-20mA. • Switch contact resistance: initial, 100 mΩ max. and after life, 200 mΩ maximum. • Switch operation force: 4.0 ± 2.0 N (400 ± 200gf) max. • Push stroke: 1.5 ± 0.5 mm. **Durability:** • Rotation life: 15,000 T min. • Switch life: 15 000 operations min. • Solder ability: 350 C. 3 s max

SPECIFICATIONS (EVQ-VEM Series, Figure 2)

Mechanical: • Rotation angle 360° (endless). • Detent points: 24 (each detent angle: 15 ± 3°). **Electrical:** • Output signal: A,B 2 signal. 24 Pulse / 360° (phase difference). • Switch rating: DC 10V - 1mA (each bit). • ON resistance between terminal: 1Ω max. • Insulation resistance: at DC 50V, 10MΩ min.(between terminals at detent position). • Chattering: 5ms max. Rotation speed 60 r/min. Measurement circuit: See diagram • Detent position: Output Signal "A" OFF & Output Signal "B" Off or On. **Physical, Environment Life:** • Temp. range: -10~70°C. • Soldering Temp.: 300°C 3 sec~max. • Rotation life: 50,000

Fig. 1


Measurement Circuit
DC 5V
Signal A
Signal B
10kΩ
10kΩ
10kΩ
.01μ
.01μ
encoder
COM
13.4
5-Ø1
2-2.1
7
7.5
2-1.8
Com
B A
5
25
7
12
4.5 Ø6
Phase Difference
Stable position of detent
12°±3°
12°±3°
Signal A
Off
On
Signal B
Off
On
T1 T2 T3 T4
C.W. direction
3.5
7.5
25
.8(no screw)
7
S.P.S.T.
E
D
3.5
.8
1.5
(push stroke)

Phase difference T1, T2, T3, T4 (At rotation speed 60r/min.)
- Initial--4 ms min.
- After life--2.5 ms min.

Fig. 2

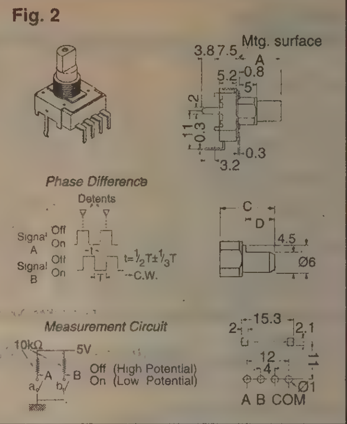

Mtg. surface
3.8
7.5
A
5.2
0.8
5
2
11
0.3
0.3
3.2
Phase Difference
Detents
Signal A
Off
On
Signal B
Off
On
t=½T±⅓T
C.W.
C
D
4.5
Ø6
Measurement Circuit
10kΩ
5V
A
B
a
b
Off (High Potential)
On (Low Potential)
15.3
2
2.1
12
4
Ø1
A B COM

Fig.	Description	Dimensions C	Dimensions D	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Pricing 500	Panasonic Part No.
1	11 MM Rotary Sq. Vert W/S	—	—	P80675-ND	7.72	64.34	540.49	2316.38	EVQ-WTEF2515B
2	14 MM Rotary Sq. Vert	12.5	7	P80685-ND	3.38	28.14	236.38	1013.04	EVQ-VEMF0124B
2	14 MM Rotary Sq. Vert.	17.5	12	P80695-ND	3.38	28.14	236.38	1013.04	EVQ-VEMF0224B
2	14 MM Rotary Sq. Vert.	22.5	12	P80705-ND	3.38	28.14	236.38	1013.04	EVQ-VEMF0324B

Grayhill

Optically Coupled Rotary Encoder Switches

DIMENSIONS (Inches):
Shaft: .250 dia., .375 long. **Pin Spacing:** .1 x .025 dia. **Thread:** 3/8 – 32. **Overall Diameter:** .750.

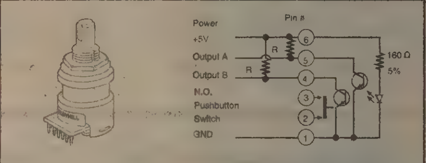
FEATURES:
Competitively priced to similar electromechanical switches. • Optically coupled for more than a million trouble-free operations. • Has data entry pushbutton switch activated by switch shaft. • Compatible with CMOS, TTL & HCMOS Logic. • Operationally used to move display icon and input data. • Used to set radio frequency, drill depth, RPM, etc.

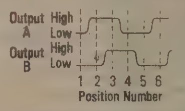
RATINGS – Encoder: **Operating Voltage:** 5±.25 Vdc. **Supply Current:** 30ma max. at 5Vdc. **Life:** 1 million cycles of operation, 1 cycle is rotation through all positions and a full return. **Rotational Torque:** 1.5 inch-ounces ± 30%. **Load Current:** 5mA max. per channel. **Turn-On Time:** ≤ 30 mSec at 16.6 RPM. **Turn-Off Time:** ≤ 30 mSec at 16.6 RPM.

RATINGS – Pushbutton Switch: **Rating:** at 5 Vdc, 10 mA, resistive. **Contact Resistance:** < 10Ω. **Life Expectancy:** 3 million operations. **Contact Bounce:** < 4 milliseconds at make < 10 milliseconds at break. **Operating Temp. Range:** -40°C to +70°C.

Description	Digi-Key Part No.	Pricing* 1	Pricing* 10	Pricing* 25	Pricing* 50	Grayhill Part No.
Rotary Opto Encoder, 16-position	GH6101-ND	18.86	173.15	396 16	707 30	61C22-01-04-02
Rotary Opto Encoder, 32-position	GH6102-ND	18.86	173.15	396.16	707.30	61C11-01-08-02

* Call for quote on quantities of 100 or more.


Power
Pin #
+5V
Output A
Output B
R
R
160 Ω
5%
N.O.
Pushbutton
Switch
GND
6
5
4
3
2
1


Output A
High
Low
Output B
High
Low
1 2 3 4 5 6
Position Number

Clockwise Rotation		
	Output	Output
Position	A	B
1		
2	●	
3	●	●
4		●

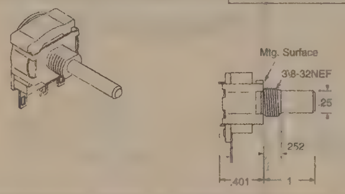
CTS

Rotary Encoders Series 288

FEATURES: Miniature 16mm style, Low Cost, Metal Shaft. ***SPECIFICATIONS:*** Power Rating: .1 Watts. Operating Temp: -25°C to 100°C. Rotational Life: 10K Cycles. Contact Resistance: 5000 Ω Static Closed Circuit Max. & 1 Meg Ω Open Circuit Maximum. Continuous Rotation.

Fig. 1 - Binary Switching Code

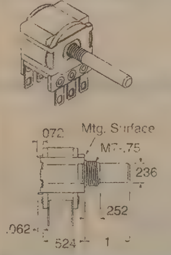
Truth Table Clockwise Rotation
1 — ON
0 — OFF

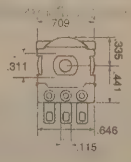

Mtg. Surface
3\8-32NEF
.25
252
.401
1

Pos. No.	Denotes Contact Closure to Common A	Denotes Contact Closure to Common B
1	0	0
2	1	0
3	1	1
4	0	1
5	0	0
6	1	0
7	1	1
8	0	1
9	0	0
10	1	0
11	1	1
12	0	1
13	0	0
14	1	0
15	1	1
16	0	1

Fig. 2 - Gray Switching Code

Truth Table Clockwise Rotation
1 — ON
0 — OFF


072
Mtg. Surface
M7-.75
236
252
.062
524
1


709
.311
335
.441
.646
.115

Pos. No.	Denotes Contact Closure to Common A	B	E	F
1	0	0	0	0
2	0	0	1	0
3	0	0	1	1
4	0	0	0	1
5	0	1	0	1
6	0	1	1	1
7	1	1	1	1
8	1	1	0	1
9	1	0	0	1
10	1	0	1	1
11	1	0	1	0
12	1	0	0	0
13	1	1	0	0
14	1	1	1	0
15	0	1	1	0
16	0	1	0	0

Fig.	Description	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 50	Pricing 100	CTS Part No.
1	2 Bit Non-Detented 16 Position	CT3001-ND	2.47	23.00	95.45	172.50	288T232R11
1	2 Bit Detented 16 Position	CT3002-ND	2.47	23.00	95.45	172.50	288T232R12
2	4 Bit Non-Detented 16 Position	CT3003-ND	3.35	31.20	129.48	234.00	288T232R31

CLAROSTAT

Optical Rotary Encoder

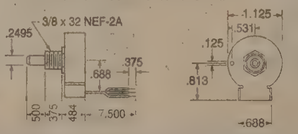
SERIES: 600, 601H, 601V

ELECTRICAL SPECIFICATIONS: **Description:** The Series 600 and 601 controls are manually operated, rotary, optical encoders that output two square waves in quadrature at a rate of 128 pulses per channel per revolution as a standard with other resolutions down to 60 pulses available. The outputs are TTL compatible. The variation by series is the terminal configuration, with the Model 600 having (4) cable leads, and the Model 601 having (4) pin leads and internal resistors. **Input Power:** 4 volts DC ±5% @ 30 MA max. plus external requirements. **Output Rate:** 128 pulses/revolution per channel-standard. **Channels:** Two separate output channels in quadrature. 90° ±45°. **Output Voltage:** High level voltage — 2.4 volts min. with 10KΩ load to ground. Low level voltage — .4 volt max.

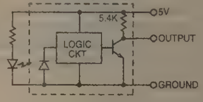
ENVIRONMENTAL CHARACTERISTICS: **Operating Temperature:** -20°C to +65°C.

MECHANICAL CHARACTERISTICS: **Shaft Rotation:** Continuous in either direction, 300 RPM max. **Terminals: P/C Type:** .025 by 0.12 thick brass, gold plated to facilitate soldering. **Cable Type:** Four lead ribbon cable, color-coded, with .050 spacing. 28 AWG stranded copper wire, .039 diameter. **Strength:** Terminals withstand 2 lb. push and pull and a 90° bend.

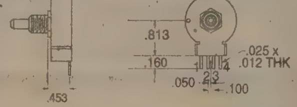
MODEL 600 — CABLE STYLE


3/8 x 32 NEF-2A
.2495
.375
.688
.500
.375
.484
7.500
1.125
.531
.125
.813
.688

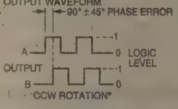
BLOCK DIAGRAM
ONE OUTPUT CHANNEL


5V
5.4K
OUTPUT
LOGIC CKT
GROUND

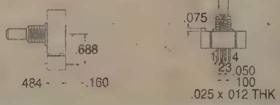
MODEL 601 — PC TERMINAL (HORIZONTAL)


.813
.160
.025 x .012 THK
1 2 3 4
.050
.100
.453

OUTPUT WAVEFORM


90° ±45° PHASE ERROR
A
OUTPUT
B
1
0
1
0
LOGIC LEVEL
"CCW ROTATION"

MODEL 601 — PC TERMINAL (VERTICAL)


.688
484
.160
.075
1 2 3 4
.050
100
.025 x 012 THK

CABLE CODE		
Term#	Color	Function
1	Red	5VDC ±5% @ 30 MA max.
2	Yellow	A Out
3	Green	Ground
4	Orange	B Out

Description	Digi-Key Part No.	Price 1	Clarostat Part No.
Cable Version	600CS-ND	41.20	600EN-128-CBL
Horizontal PC Version	601HCS-ND	39.53	600EN-128-B66
Vertical PC Version	601VCS-ND	38.82	600EN-128-C24

CW INDUSTRIES SLIDE SWITCHES

Made
in
U.S.A.

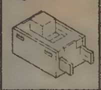
Fig. 1


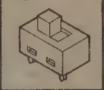
Fig. 2


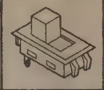
Fig. 3


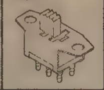
Fig. 4


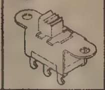
Fig. 5


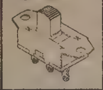
Fig. 6


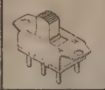
Fig. 7


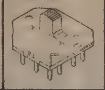
Fig. 8


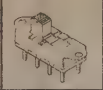
Fig. 9


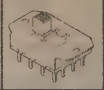
Fig. 10


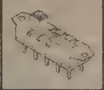
Fig. 11


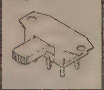
Fig. 12


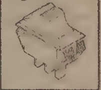
Fig. 13


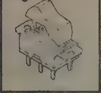
Fig. 14


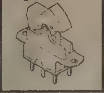
Fig. 15


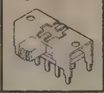
Fig. 16


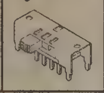
Fig. 17


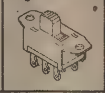
Fig. 18


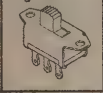
Fig. 19


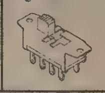
Fig. 20


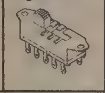
Fig.21


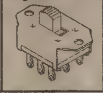
Fig.22


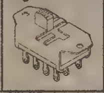
Fig. 23


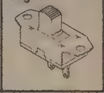
Fig. 24


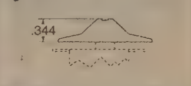
Fig. 25


Fig. No.	Circuit	Listing	Volts		Curr. Rtg. (A)		Dimensions (Inches)			Description	Digi-Key Part No.	Pricing				CW Industries Part No.
			DC	AC	DC	AC	L	W	H			1	10	100	500	
1	SPST	UL	125	125	.5	.5	.250	.320	.620	Vertical Mount PC Switch	SW100-ND	.68	6.28	54.60	232.05	G105-0513
2	SPDT	UL	125	125	.5	.5	.505	.305	.515	Horizontal Mount PC Switch	SW101-ND*	1.10	10.14	88.20	374.85	G107-0513
3	SPST	UL	125	125	.5	.5	.705	.385	.395	Panel Mount Snap-In Switch	SW331-ND	1.48	13.23	99.23	330.75	G-107-SI-0005
3	SPDT	UL	125	125	.5	.5	.705	385	.395	Panel Mount Snap-In Switch	SW332-ND	1.75	15.66	117.45	391.50	G-107-SI-0511
4	DPDT	—	125	125	.5	.5	.762	.312	.558	Micro-Miniature Switch	SW102-ND*	.96	8.86	77.00	327.25	GS113-0512
5	SPDT	—	125	125	.5	.5	.750	.220	.458	Micro-Miniature Switch	SW103-ND*	.80	7.38	64.20	272.85	GS115-0511
6	SPDT	UL	125	125	.5	6.0	1.360	.550	.966	Standard Size Switch Eyelet Term	SW104-ND*	.45	4.12	35.80	152.15	GF624-6014
6	SPDT	UL	125	125	.5	6.0	1.360	.550	966	Standard Size Switch Off-Mom	SW338-ND	1.81	16.23	121.73	405.75	G-1132-0003
7	DPDT	UL	125	125	.5	11	1.360	.550	.747	Standard Size Switch PCB Mount	SW105-ND*	.79	7.24	62.92	267.41	GF1126-1110
7	DPDT	UL	125	125	.5	11	1.360	.550	.747	Standard Size Switch Eyelet Term	SW333-ND	.81	7.26	54.45	181.50	GF-1126-0033
8	4PDT	UL	125	125	.5	6.0	1.360	1 000	.767	Standard Size Switch PCB Mount	SW106-ND*	1.13	10.40	90.40	384.20	GF642-6010
9	DP-3Pos	UL	125	125	.5	11	1.656	.550	.757	Standard Size Switch PCB Mount	SW107-ND*	.96	8.79	76.44	324.87	G1128S-1110
9	DP-3Pos	UL	125	125	.5	11	1.656	550	.664	Standard Size Switch Eyelet Term	SW334-ND	.98	8.82	66.15	220.50	G1128S-0055
9	SP-3Pos	UL	125	125	.5	11	1.656	.550	.664	Standard Size Switch On-Off-Mom	SW337-ND	1.48	13.26	99.45	331.50	G-633S-0000
10	4P-3Pos	UL	125	125	.5	6.0	1.656	1.000	.767	Standard Size Switch PCB Mount	SW108-ND	1.39	12.81	111.38	473.37	G660S-6010
11	DP-4Pos	UL	125	125	.5	11	1.968	.560	.757	Standard Size Switch PCB Mount	SW109-ND	1.04	9.55	83.00	352.75	G1138S-1110
11	DP-4Pos	UL	125	125	.5	11	1.968	.560	.757	Standard Size Switch Eyelet Term	SW335-ND	1.18	10.59	79.43	264 75	G1138S-0048
12	DPDT	UL	125	125	.5	3.0	1.360	.550	.610	Side Actuated Switch PCB Mount	SW110-ND	.56	5.15	44.80	190.40	GG350-3010
13	SPDT	UL	125	125	.5	13	1.235	.680	1.397	Pop-in Mount Slide Switch	SW111-ND	.81	7.45	64 80	275.40	G2012-1315
14	DPDT	UL	125	125	.5	6.0	1.375	.550	1.167	Rocker Switch PCB Mount	SW112-ND*	1.05	9.66	84.00	357.00	GR5-626-6010
15	DPDT	UL	125	125	.5	11	1.562	.550	1.417	Rocker Switch PCB Mount	SW113-ND*	1.63	14 95	130.00	552 50	GR29-1126-1110
16	DPDT	UL	125	125	.5	3.0	1.000	.404	.484	Miniature Side Actuated Switch PCB	SW114-ND*	.84	7.74	67.30	286.03	GPI152-3013
17	DP-3Pos	UL	125	125	.5	3.0	1.170	.404	.484	Miniature Side Actuated Switch PCB	SW115-ND*	1.01	9.26	80.50	342.13	GPI154-3013
18	DPDT	UL	125	125	.5	3.0	1.000	.400	.735	Miniature Slide Switch Eyelet Term	SW116-ND	.61	5 59	48.60	206.55	GF126-3011
18	DPDT	UL	125	125	.5	3.0	.628	.400	.735	Miniature Slide Switch w/o Mnt Ears, PC Mnt.	SW342-ND **NEW!**	1.29	11.58	86.85	289.50	GF-126-0159
19	SPDT	UL	125	125	.5	.5	1.000	.400	.735	Spring Return Switch Eyelet Term	SW118-ND*	.63	5 80	50.40	214.20	G133-3011
20	DP-3Pos	UL	125	125	.5	3.0	1.190	.400	.745	Miniature Slide Switch Eyelet Term	SW119-ND*	.74	6.79	59.00	250.75	G128S-3011
21	DP-4Pos	UL	125	125	.5	3.0	1.377	.400	.745	Miniature Slide Switch Eyelet Term	SW120-ND	.94	8.69	75.60	321.28	G141S-3011
22	3PDT	UL	125	125	.5	3.0	1.000	.567	.745	Miniature Slide Switch Eyelet Term	SW121-ND*	.97	8.96	77.90	331.08	GF161-3011
23	3P-3Pos	UL	125	125	.5	3.0	1.190	.567	.745	Miniature Slide Switch Eyelet Term	SW122-ND	1.05	9.66	84.00	357.00	G168S-3011
23	3P-3Pos	UL	125	125	.5	3.0	1.656	.780	674	Standard Size Switch Eyelet Term	SW336-ND	1.28	11.46	85.95	286.50	G-368S-0000
24	SPST	UL	125	125	.5	11	1.360	.550	.654	Standard Size Switch Eyelet Term	SW148-ND	.63	5.77	50.20	213.35	GF-1123-0009
25	Black Topper Button for SW105-ND, SW107-ND, SW110-ND, SW148-ND, SW333-ND, SW337-ND & SW334-ND										SW149-ND	.20	1.84	16.00	68.00	G-02-072

***SW-KIT-ND** Assortment of switches denoted. Includes notebook style storage case & bin storage guide. 130 total pieces........ **$89.95**

CW INDUSTRIES

Panel Mount Rocker Switches

FIG. 1

Hot Stamp Vert.

FIG. 2

Hot Stamp Horz.

GRS-4011, 4012, 4021, 4022 MAINTAINED ACTION
GRS-4013/GRS-4023 CENTER-OFF MINI-ROCKER SWITCHES
GRL-4011 "SOFT-GLOW" ILLUMINATED

Typical applications: Motor-driven devices, instruments, household appliances, auto. access., recreational vehicles, & telecommunication, computer & computer peripheral equip..
MATERIALS: Rocker Knob: Nylon 94V-2. **Housing:** Nylon 94V-2. **Terminal/Stationary/Moving Contact:** Copper alloy, and/or copper alloy silver plated. **Springs:** Music wire. **Plunger:** Brass. **MOUNTING:** Self locks without hardware when popped into the panel cutout. Acceptable panel thick-ness range is from .050≤ to .150≤.

PERFORMANCE STANDARDS: Contact Resistance: Less than .01Ω at 10mA (initial). **Operating Temperature:** 105°C maximum. **High Voltage Dielectric Withstanding Voltage:** 2,500V, 60Hz for 1 minute between mounting surface and circuit connections.

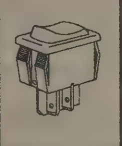
"SOFT GLOW" MATERIALS: Rocker Knob: Transparent polycarbonate. **Rocker Lamp:** High intensity neon lamp type NE-38 with 1/8 watt 47k ohm resistor, 10,000 hour life for 125 volt applications. **Housing:** Nylon 94V-2. **MOUNTING:** Self locks without hardware when popped into a panel cutout. Acceptable panel thickness range is from .050≤ to .150≤.

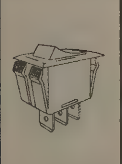
Caution: Burr direction must be away from the direction of insertion.

GRL-2011 "SOFT-GLOW" ILLUMINATED
GRS-2011/GRS-2012 "SOFT STYLED"
GRS-2013 THREE-POSITION CENTER-OFF SWITCHES
GR-2022 16.0 AMP "HI-GLOSS" ROCKERS

OPERATING STANDARDS: Temperature: 105°C max. **High Voltage:** 2,500V, 60Hz for one minute between mounting surface and circuit connections (min.). **Contact Resistance:** ◄0.01Ω at 10mA. **MATERIALS: Rocker Knob:** Nylon 94V-4. **Housing:** Nylon 94V-2. **Terminal Board:** Nylon 94V-0. **Terminal/Moving Contact:** Copper and/or copper alloy silver plated. **MOUNTING:** No hardware or tools needed; self locks into proper panel cutout. Acceptable panel thickness range is from .025≤ to .180≤.

Caution: Burr direction must be away from the direction of insertion.

A


B


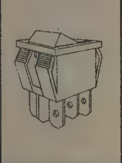
C


Diagram	Rocker Color	Circuit	Switch Function	Electrical Ratings	Terminal Type	Listing Agencies	Panel Cutout (In.)	Digi-Key Part No.	Pricing				CW Industries Part No.
									1	10	100	500	
Mini-Rocker Switches													
A	Black	SPST	ON/OFF	16A 125-250VAC	Solder Eyelet	UL, CSA, VDE	.756 x .508	SW339-ND **NEW!**	1.22	10.44	78.30	261.00	GRS-4011-0024
A	Black	SPST	ON/OFF	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW301-ND	1.10	9.87	74.03	246.75	GRS-4011-1600
A	Red	SPST	ON/OFF	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW302-ND	1.10	9.87	74.03	246.75	GRS-4011-0040
A2	Black	SPST	ON/OFF	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW322-ND	1.27	11.37	85.28	284.25	GRS-4011-0068
A1	Black	SPST	ON/OFF	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW323-ND	1.27	11.37	85.28	284.25	GRS-4011-0076
A	Black	SPDT	ON/ON	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW303-ND	1.19	10.68	80.10	267.00	GRS-4012-1600
A	Red	SPDT	ON/ON	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW304-ND	1.19	10.68	80.10	267.00	GRS-4012-0026
A1	Black	SPDT	ON/ON	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW324-ND	1.36	12.18	91.35	304.50	GRS-4012-0047
A	Black	DPDT	ON/ON	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW307-ND	1.70	15.21	114.08	380.25	GRS-4022-1600
A	Red	DPDT	ON/ON	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW308-ND	1.70	15.21	114.08	380.25	GRS-4022-0010
A1	Black	DPDT	ON/ON	16A 125-250VAC	.187QC	UL, CSA, VDE	.756 x .508	SW325-ND	1.87	16.71	125.33	417.75	GRS-4022-0013
A	Black	SPDT	ON/OFF/ON	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW305-ND	1.51	13.53	101.48	338.25	GRS-4013A-1300
A	Red	SPDT	ON/OFF/ON	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW306-ND	1.51	13.53	101.48	338.25	GRS-4013A-0008
A	Black	SPST	OFF/MOM	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW329-ND	1.28	11.43	85.73	285.75	GRS-4011B-1300
A	Black	SPDT	MOM/OFF/MOM	13A 125VAC, 12A 250VAC	.187QC	UL, CSA	.756 x .508	SW340-ND **NEW!**	1.48	13.23	99.23	330.75	GRS-4013C-0001
A	Black	DPDT	ON/OFF/ON	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW309-ND	2.02	18.06	135.45	451.50	GRS-4023A-1300
A	Red	DPDT	ON/OFF/ON	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW310-ND	2.02	18.06	135.45	451.50	GRS-4023A-0009
A	Black	DPST	OFF/MOM	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW330-ND	1.78	15.93	119.48	398.25	GRS-4021B-0000
A	Black	DPDT	MOM/OFF/MOM	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW311-ND	2.02	18.06	135.45	451.50	GRS-4023C-1300
A	Red	DPDT	MOM/OFF/MOM	13A 125VAC, 10A 250VAC	.187QC	UL, CSA	.756 x .508	SW312-ND	2.02	18.06	135.45	451.50	GRS-4023C-0005
A	Illum.	SPST	ON/OFF	16A 125VAC	.187QC	UL, CSA	.756 x .508	SW300-ND	2.79	24.96	187.20	624.00	GRL-4011-1600
"Standard" Rocker Switches													
B	Illum.	SPST	ON/OFF	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW313-ND	2.25	20.16	151.20	504.00	GRS-2011-1600
B	Black	SPST	ON/OFF	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW314-ND	1.06	9.51	71.33	237.75	GRS-2011-2000
B	Red	SPST	ON/OFF	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW315-ND	1.06	9.51	71.33	237.75	GRS-2011-2019
B1	Black	SPST	ON/OFF	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW326-ND	1.23	11.01	82.58	275.25	GRS-2011-2080
B	Black	SPST	ON/OFF	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.072 x .480	SW316-ND	1.06	9.51	71.33	237.75	GRS-2011-3000
B1	Black	SPST	ON/OFF	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.072 x .480	SW341-ND **NEW!**	1.23	11.01	82.58	275.25	GRS-2011-3020
B	Black	SPDT	ON/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW317-ND	1.15	10.26	76.95	256.50	GRS-2012-2000
B	Red	SPDT	ON/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW318-ND	1.15	10.26	76.95	256.50	GRS-1200-2009
B1	Black	SPDT	ON/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.125 x .550	SW327-ND	1.31	11.76	88.20	294.00	GRS-2012-2028
B	Black	SPDT	ON/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.072 x .480	SW319-ND	1.15	10.26	76.95	256.50	GRS-2012-3000
B	Black	SPDT	ON/OFF/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA	1.125 x .550	SW320-ND	1.48	13.26	99.45	331.50	GRS-2013A-2000
C	Black	DPDT	ON/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.071 x .872	SW321-ND	2.74	24.57	184.28	614.25	GR-2022-1600
C1	Black	DPDT	ON/ON	16A 125VAC, 12A 250VAC	.250QC	UL, CSA, VDE	1.071 x .872	SW328-ND	2.91	26.07	195.53	651.75	GR-2022-0007

HAMLIN Magnetic Reed Position Sensor's

The basic reed switch consists of two ferromagnetic reeds, hermetically sealed in a gas filled capsule. When these reeds are introduced to a magnetic field, they assume opposite polarities and attract toward each other closing the contacts. When the magnetic field is reduced beyond the spring force of the reeds the contacts again spring open. Hamlin's reed switches are ideal in auto, marine and moist environment applications and operating environments can be almost anywhere from air, submerged in water or fuels, to dust-laden atmospheres.

Fig. 1

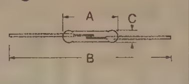


Fig. 2

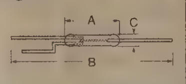
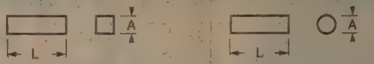


Fig. No.	Circuit	Ampere Turns	Max. DC Contact Rating Watts	Volts	Switching Current (A)	Carry Current (A)	Operate/ Release (ms)	Dimensions (in.) A	B	C	Digi-Key Part No.	Pricing 1	10	50	Hamlin Part No.
1	SPST	10-20	10	200	0.5	0.8	6/.2	.500	1.59	.072	HE500-ND	1.56	13.92	56.40	MDSR-7 10-20
1	SPST	17-28	10	300	0.5	1.5	.6/.2	.600	1.59	.090	HE501-ND	1.56	13 92	56.40	MDRR-6 17-28
1	SPST	12-23	10	200	0.5	1.2	.6/.2	.600	1.59	.090	HE502-ND	1.20	10.73	43 48	MDSR-4 12-23
1	SPST	12-33	10	200	0.5	1.8	.6/ 25	.600	1.59	090	HE503-ND	1 14	10.15	41.13	MDCG-4 12-33
1	SPST	22-33	10	1000	0.5	1.5	.75/.2	.800	2.23	.105	HE504-ND	3.54	31.61	128.08	MARR-5 22-33
1	SPST	22-38	50	250	1.5	2.5	.75/.5	.800	2.23	.112	HE505-ND	2.05	18.27	74.03	MRPR-8 22-38
2	SPDT	15-25	5	175	0.25	1.5	.7/1	.580	2.06	.105	HE506-ND	4 58	40.89	165.68	MDRR-DT 15-25
2	SPDT	50-65	30	500	0.5	3.0	4.5/7	1.56	3.38	.218	HE507-ND	11.28	100.63	407.73	DRR-DTH 50-65
2	SPDT	50-65	50	500	1.5	2.0	5 5/8	1.56	3.38	.218	HE508-ND	13.75	122.67	497.03	DRT-DTH 50-65
1	SPST	47-68	100	400	3.0	6.0	4.5/2.5	2.00	3.25	.207	HE509-ND	5.98	53.36	216.20	DRR-129 47-68

Magnets



A permanent magnet is the most common source for operating the magnetic reed switch. The method used to position the magnet depends upon the switching requirement but can be used in one of four basic techniques; perpendicular or parallel motion (up and down, side to side) rotation (revolving magnet or switch), shielding (passing a ferromagnetic material between the switch and magnet) or biasing which is using one magnet of opposite polarity to cancel another magnet's lines of force.

Dim. (In.) A x L	Use w/ A.T. Range	Gauss at Pole	Digi-Key Part No.	Pricing 1	10	50	Hamlin Part No.
.062 Sq. x .5	10-38	700	HE510-ND	1.17	10.44	42.30	H-31
.19 Sq. x 1.0	10-38	1400	HE511-ND	2.89	25.81	104.58	H-32
.12 Sq. x .75	10-38	1200	HE512-ND	1.56	13.92	56.40	H-33
.24 Sq. x .98	10-68	1300	HE513-ND	2.18	19.43	78.73	H-34
.15 Dia. x .78	10-38	1150	HE514-ND	1 53	13.63	55.23	420
.23 Dia. x .98	10-68	1500	HE515-ND	4.55	40.60	164.50	625

HAMLIN
Magnetic Position Sensor's

Specifications:

- Switching Voltage: SPST-N/O- 200VDC,
  SPST- HV- 300VDC,
  SPDT- 175VDC.
- Initial Contact Resistance: 0.200Ω.
- Typical Operate Time: 1.00 ms.
- Shock w/o False Operation: 100 G's, 11 ms, 1/2 sine wave.
- Operate & Storage Temp: -40°C to +105°C.

Fig. 1

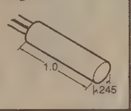


Fig. 2

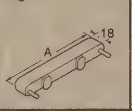
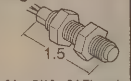


Fig. 3



3A = 5/16 - 24 Thread
3B = M8 x 1.25 Thread

Fig. 4

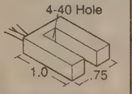


Fig. 5

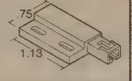


Fig. 6

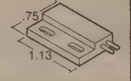


Fig. 7

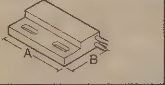


Fig. 8

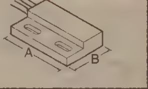


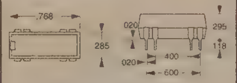
Fig. 5 mates with Digi-Key part number WM2900 (connector), WM2510 (contact)

Fig. No.	Dim. A	B	Must Operate/Release Distance	Termination or Wiring	Sensor Part No.	Pricing 1	10	50	100	Matching Actuator Part No.	Pricing 1	10	50	100
SPST-N/O														
1	—	—	.150/.800	12"PVC Leads	59025-010-ND•	3 71	31.73	135.00	229.50	57025-000-ND•	3.33	28.44	121.00	205.70
2	.70	—	.075/.550	PCB Pins	59045-010-ND	2.37	20.21	86 00	146.20	57045-000-ND	4.02	34.31	146.00	248.20
2	.90	—	.150/.750	PCB pins	59050-010-ND•	2 12	18.10	77.00	130.90	57050-000-ND•	4.40	37.60	160.00	272.00
3A	—	—	.150/.800	12"PVC Leads	59065-010-ND•	4 70	40.19	171 00	290 70	57065-000-ND•	4 18	35.72	152.00	258.40
3B	—	—	.150/.800	12"PVC Leads	59070-010-ND	4.70	40.19	171 00	290.70	57070-000-ND	4.18	35.72	152.00	258.40
4	—	—	.100/.250	12"PVC Leads	59085-010-ND	10.23	87.42	372.00	632.40	VANE	—	—	—	—
5	—	—	.150/.800	Connector	59105-010-ND	4.84	41 36	176.00	299.20	57105-000-ND	3.52	30.08	128.00	217.60
6	—	—	.150/.800	Pins	59125-010-ND•	4 18	35.72	152.00	258 40	57125-000-ND•	3.52	30.08	128.00	217.60
8	1 125	750	.350/1.150	12"Teflon Leads	59135-010-ND	7 92	67.68	288 00	489.60	57135-000-ND	4.70	40.19	171.00	290.70
7	.906	.551	.175/ 800	12"PVC Leads	59140-010-ND	4.21	35 96	153.00	260 10	57140-000-ND•	4.13	35.25	150.00	255.00
7	1 125	.750	.225/.800	12"PVC Leads	59145-010-ND•	4 21	35.96	153.00	260.10	57145-000-ND•	3.52	30.08	128.00	217.60
8	1.175	750	.225/.800	12"PVC Leads	59150-010-ND•	4.18	35.72	152 00	258 40	57150-000-ND•	3.52	30.08	128.00	217.60
SPST-HV-N/O														
1	—	—	.150/.800	12"PVC Leads	59025-020-ND†	4.21	35.96	153.00	260 10	57025-000-ND†	3.33	28 44	121.00	205.70
2	—	—	.150/.750	PCB Pins	59050-020-ND†	2.64	22.56	96.00	163.20	57050-000-ND†	4.40	37.60	160.00	272.00
3A	—	—	.150/.800	12"PVC Leads	59065-020-ND†	5.23	44.65	190.00	323 00	57065-000-ND†	4.18	35.72	152.00	258.40
3B	—	—	150/.800	12"PVC Leads	59070-020-ND†	5.23	44.65	190.00	323 00	57070-000-ND†	4.18	35.72	152.00	258.40
5	—	—	.150/.800	Connector	59105-020-ND†	5.39	46.06	196.00	333 20	57105-000-ND†	3.52	30.08	128.00	217.60
6	—	—	.150/.800	Pins	59125-020-ND†	4.70	40.19	171.00	290.70	57125-000-ND†	3.52	30.08	128.00	217.60
8	1.125	750	.350/1.150	12" Teflon Leads	59135-020-ND	8.44	72.15	307.00	521 90	57135-000-ND	4.70	40.19	171.00	290.70
7	906	551	.175/.800	12"PVC Leads	59140-020-ND†	4.76	40.66	173.00	294 10	57140-000-ND†	4.13	35.25	150.00	255.00
7	1.125	.750	.225/.800	12"PVC Leads	59145-020-ND†	4.76	40.66	173.00	294 10	57145-000-ND†	3.52	30.08	128.00	217.60
8	1 125	.750	.225/.800	12"PVC Leads	59150-020-ND†	4.70	40.19	171.00	290.70	57150-000-ND†	3.52	30.08	128.00	217.60
SPDT-N/C-N/O														
1	—	—	150/.800	12"PVC Leads	59025-030-ND•	6.08	51.94	221.00	375.70	57025-000-ND	3.33	28.44	121.00	205.70
3A	—	—	.150/.800	12"PVC Leads	59065-030-ND•	7.07	60.40	257.00	436.90	57065-000-ND	4.18	35.72	152.00	258.40
3B	—	—	.150/ 800	12"PVC Leads	59070-030-ND	6.96	59.46	253.00	430 10	57070-000-ND	4.18	35.72	152.00	258.40
4	—	—	.175/.800	12"PVC Leads	59085-030-ND	10.97	93.77	399.00	678.30	VANE	—	—	—	—
8	1 125	750	.350/1.150	12"Teflon	59135-030-ND	10.29	87.89	374.00	635.80	57135-000-ND	4.70	40 19	171.00	290.70
7	.906	551	.175/.800	12"PVC Leads	59140-030-ND•	6.60	56.40	240.00	408.00	57140-000-ND	4.13	35.25	150.00	255.00
7	1.125	.750	.225/.800	12"PVC Leads	59145-030-ND•	6.60	56.40	240.00	408.00	57145-000-ND	3.52	30 08	128.00	217.60
8	1.125	.750	.225/.800	12"PVC Leads	59150-030-ND•	6.96	59.46	253.00	430.10	57150-000-ND	3.52	30.08	128.00	217.60

• **HE1-KIT-ND** Assortment of switches denoted.(22 total pieces) Includes notebook style standard case $69.95
† **HE2-KIT-ND** One each of switches denoted.(18 total pieces) Includes notebook style standard case $49.95

HAMLIN Reed Relays

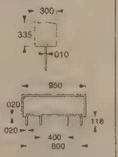
700 SERIES DIP REED RELAYS



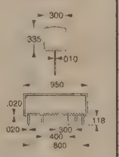
- Transfer Molded Body

3300 SERIES SIP REED RELAYS

SPST

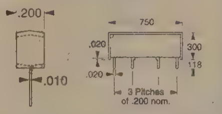


SPDT

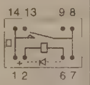
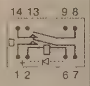
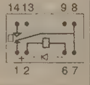
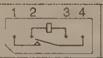
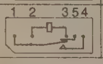
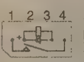


- Transfer Molded Body

3600 SERIES ULTRA MINIATURE REED RELAYS



- Transfer Molded Body
- Maximum Space Utilization

Top View	Coil Volt. (VDC)	Coil Res. (Ω)	Pickup/ Dropout (VDC@ 25°C)	Switch. Volt. (VDC)	Switch Cur. (Amps)	Carry Cur. (Amps)	Cont. Res. (Ω)	Oper. /Rel. Time (msec)	Ins. Res. (Ω)	Digi-Key Part No.	Pricing 1	10	50	100	Hamlin Part No.
700 Series Dip Reed Relays															
1A SPST-NO † With Diode Suppressor 	5	500	3.75/0.5	200	0.5	1.2	0.200	1.0/0.5	10^{10}	HE100-ND	2.44	21.75	88.13	150.00	HE721A0500
	5	500	3.75/0.5	200	0.5	1.2	0.200	1.0/0.5	10^{10}	HE101-ND†	2.70	24.07	97.53	166.00	HE721A0510
	12	1000	8.0/1.0	200	0 5	1.2	0.200	1.0/0.5	10^{10}	HE102-ND	2 70	24 07	97 53	166.00	HE721A1200
	12	1000	8.0/1.0	200	0 5	1 2	0.200	1.0/0.5	10^{10}	HE103-ND†	2 96	26.39	106 93	182.00	HE721A1210
	24	2150	16.0/2.0	200	0 5	1.2	0.200	1.0/0.5	10^{10}	HE104-ND	3.35	29.87	121.03	206.00	HE721A2400
	24	2150	16.0/2.0	200	0.5	1.2	0.200	1.0/0.5	10^{10}	HE105-ND†	3.61	32 19	130.43	222.00	HE721A2410
2A DPST-NO † With Diode Suppressor 	5	150	3.75/0.5	200	0.5	1 2	0.200	1.0/0.5	10^{10}	HE106-ND	4.06	36.25	146.88	250.00	HE722A0600
	5	150	3 75/0.5	200	0 5	1 2	0.200	1.0/0 5	10^{10}	HE107-ND†	4.32	38.57	156.28	266.00	HE722A0610
	12	500	8.0/1.0	200	0 5	1.2	0.200	1.0/0.5	10^{10}	HE108-ND	4.32	38.57	156.28	266.00	HE722A1200
	12	500	8.0/1.0	200	0.5	1 2	0.200	1.0/0.5	10^{10}	HE109-ND†	4.58	40.89	165.68	282.00	HE722A1210
	24	2150	16.0/2.0	200	0.5	1 2	0.200	1.0/0.5	10^{10}	HE110-ND	5.36	47.85	193.88	330.00	HE722A2400
	24	2150	16.0/2.0	200	0.5	1.2	0 200	1.0/0.5	10^{10}	HE111-ND†	5.62	50.17	203.28	346.00	HE722A2410
1C SPDT-CO † With Diode Suppressor 	5	200	3.75/0.5	175	0.25	1	0.200	3.0/3.0	10^9	HE112-ND	5 56	49 59	200.93	342.00	HE721C0500
	5	200	3.75/0.5	175	0.25	1	0.200	3.0/3.0	10^9	HE113-ND†	5.82	51 91	210.33	358.00	HE721C0510
	12	500	8.0/1.0	175	0.25	1	0.200	3.0/3.0	10^9	HE114-ND	5.82	51.91	210.33	358.00	HE721C1200
	12	500	8.0/1.0	175	0.25	1	0.200	3.0/3.0	10^9	HE115-ND†	6 11	54.52	220.90	376.00	HE721C1210
	24	2000	16.0/2.0	175	0 25	1	0.200	3.0/3 0	10^9	HE116-ND	6 66	59 45	240 88	410.00	HE721C2400
	24	2000	16.0/2.0	175	0 25	1	0.200	3.0/3.0	10^9	HE117-ND†	6.96	62.06	251.45	428.00	HE721C2410
3300 Series Sip Reed Relays															
1A SPST-NO 	5	500	3.75/0.5	200	0.5	1.2	0.200	1.0/0.5	10^{10}	HE200-ND	2.37	21.17	85.78	146.00	HE3321A0400
	12	500	9.0/1.0	200	0.5	1.2	0.200	1.0/0.5	10^{10}	HE201-ND	2 37	21 17	85.78	146.00	HE3321A1200
	24	2000	18.0/2.0	200	0.5	1.2	0.200	1.0/0.5	10^{10}	HE202-ND	2.99	26.68	108.10	184 00	HE3321A2400
1C SPDT-CO 	5	125	3.75/0.5	175	0.25	1	0.200	3.0/3.0	10^9	HE203-ND	4 81	42.92	173.90	296.00	HE3321C0500
	12	500	9.0/1.0	175	0.25	1	0.200	3.0/3.0	10^9	HE204-ND	5.07	45.24	183.30	312.00	HE3321C1200
	24	2000	18.0/2.0	175	0.25	1	0.200	3.0/3.0	10^9	HE205-ND	5.53	49.30	199.75	340.00	HE3321C2400
3600 Series Ultra Miniature Reed Relays															
1A SPST-NO † With Diode Suppressor 	5	500	3.75/0.5	200	0.5	1 25	0.200	1.0/0.5	10^{10}	HE206-ND	2.15	19.14	77.55	132.00	HE3621A0500
	5	500	3.75/0.5	200	0.5	1.25	0.200	1.0/0.5	10^{10}	HE207-ND†	2.41	21.46	86.95	148.00	HE3621A0510
	12	1000	8.0/1.0	200	0.5	1.25	0.200	1.0/0.5	10^{10}	HE208-ND	2.44	21.75	88.13	150.00	HE3621A1200
	12	1000	8.0/1.0	200	0.5	1 25	0.200	1.0/0.5	10^{10}	HE209-ND†	2.73	24.36	98.70	168.00	HE3621A1210
	24	2150	16.0/2.0	200	0.5	1.25	0.200	1.0/0.5	10^{10}	HE210-ND	3.06	27.26	110.45	188.00	HE3621A2400
	24	2150	16.0/2.0	200	0.5	1.25	0.200	1.0/0.5	10^{10}	HE211-ND†	3.32	29.58	119.85	204.00	HE3621A2410

CROSS REFERENCE CHART	
HAMLIN Part No.	ELEC-TROL Part No.
HE721A0500	RA30451051
HE721A0510	RA30461051
HE721A1200	RA30451121
HE721A1210	RA30461121
HE721A2400	RA30451241
HE721A2410	RA30461241
HE722A0600	—
HE722A0610	—
HE722A1200	RA30981121
HE722A1210	RA31231121
HE722A2400	RA30981241
HE722A2410	RA31231241
HE721C0500	RA30421051
HE721C0510	RA30441051
HE721C1200	RA30421121
HE721C1210	RA30441121
HE721C2400	RA30421241
HE721C2410	RA30441241
HE3321A0400	BBS1A05A10
HE3321A1200	BBS1A12A10
HE3321A2400	BBS1A24A10
HE3321C0500	BBS1C05A10
HE3321A1200	BBS1C12A10
HE3321C2400	BBS1C24A10
HE3621A0500	RA32041051
HE3621A0510	RA32051051
HE3621A1200	RA32041121
HE3621A1210	RA32051121
HE3621A2400	RA32041241
HE3621A2410	RA32051241

Grayhill Solid State Relays

SPECIFICATIONS FOR STYLES V, F, N, S – *AC Output:* Frequency Range: 25 to 75 Hz. **Operating Temperature Range:** -40°C to 100°C. **UL File Number:** E58632. **Turn-On Time/Turn-Off Time:** 8.3ms. ***DC Output:*** **Operating Temperature Range:** -40° to +85°C. **Turn-On Time:** 75µs. **Turn-Off Time:** 500µs.

9154B-ND Grayhill Engineering Catalog..**$4.95**

Fig. 1 - Type V

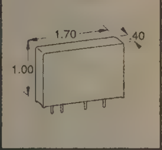


Fig. 2 - Type H, F

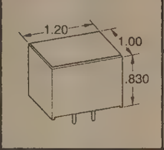


Fig. 3 - Type N

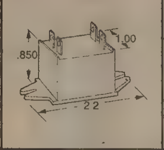


Fig. 4 - Type S

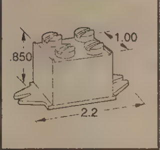


Fig.	Input Circuit Vdc	mA	Ω	Output Circuit V. Nom.	Range	Load Cur. Range	Digi-Key Part No.	Price Each* 1	10	100	Grayhill Part No.
1	3-32	1.0-19.0	2000	120AC	24-140	3A	GH7001-ND	9.12	8.22	7.75	70S2-04-B-03-V
1	3-32	1.0-19.0	2000	240AC	24-280	3A	GH7002-ND	9.60	8.65	8.15	70S2-04-C-03-V
1	3-15	1.0-19.0	2000	3-60DC		3A	GH7003-ND	10.46	9.43	8.89	70S2-01-A-03-V
2	3-30	1.0-18.0	2000	120AC	24-140	4A	GH7004-ND	11.33	10.21	9.62	70S2-04-B-04-F
2	3-30	1.0-18.0	2000	240AC	24-280	4A	GH7005-ND	12.19	10.99	10.36	70S2-04-C-04-F
2	3-15	1.0-18.0	2000	3-60DC		3A	GH7006-ND	11.33	10.21	9.62	70S2-01-A-03-F
3	3-30	1.0-18.0	2000	120AC	24-140	6A	GH7007-ND	12.96	11.68	11.01	70S2-04-B-06-N
3	3-30	1.0-18.0	2000	120AC	24-140	12A	GH7008-ND	13.63	12 29	11.58	70S2-04-B-12-N
3	3-30	1.0-18.0	2000	240AC	24-280	6A	GH7009-ND	13.63	12.29	11 58	70S2-04-C-06-N
3	3-30	1.0-18.0	2000	240AC	24-280	12A	GH7010-ND	14.40	12.98	12.23	70S2-04-C-12-N
3	3-15	5.0-40.0	2000	3-60DC		5A	GH7011-ND	14.98	13.50	12.72	70S2-01-A-05-N
4	3-30	1.0-18.0	2000	120AC	24-140	6A	GH7012-ND	14.40	12.98	12.23	70S2-04-B-06-S
4	3-30	1.0-18.0	2000	120AC	24-140	12A	GH7013-ND	14.98	13 50	12.72	70S2-04-B-12-S
4	3-30	1.0-18.0	2000	120AC	24-140	25A	GH7014-ND	21 31	19.21	18.10	70S2-03-B-25-S
4	3-30	1.0-18.0	2000	240AC	24-280	12A	GH7015-ND	15.55	14.02	13.21	70S2-04-C-12-S
4	3-30	1.0-18.0	2000	240AC	24-280	25A	GH7016-ND	22.66	20.42	19 24	70S2-03-C-25-S
4	3-15	5.0-40.0	2000	3-60DC		5A	GH7017-ND	15.90	14.33	13.50	70S2-01-A-05-S

* Call for pricing on larger quantities.

Grayhill Input/Output Modules and Racks

Our line of pluggable input and output modules provide a low cost, versatile method for interconnecting real world analog and digital signals to data acquisition, monitoring, or control systems. All modules provide an optically isolated barrier between sensitive microprocessor or digital logic circuits and field power devices. The case color of these modules identify their function: Digital AC Output Module = Black Case; Digital DC Output Module = Red Case; Digital AC Input Module = Yellow Case; Digital DC Input Module = White Case; Analog Output Module = Orange Case; Analog Input Module = Blue Case.

Features – • Transient protection meets the requirements of IEEE472 "Surge Withstanding Capability Test". • 4000 Vac optical isolation. **General Characteristics – Op. Temp. Range:** -40C to +100C. **UL File No.:** E58632. **CSA File No.:** L38763.

General Specifications: • **Operating Temperature:** 0 - 60°C • **Short Circuit Protection:** Output signal can be shorted to ground without damaging the module.

Voltage Output Modules: • **Supply Voltage (Vcc) Range:** 4.5 - 5.5 Vdc • **Supply Current at 5 Vdc:** 140 mA max. • **Output Current (Sourcing):** 73G-OV5 – -20mA max. at 5 Vdc, 73G-OV10 – -10mA max. at 10Vdc, 73G-OV10B – -10mA max. at 10 Vdc

Current Output Modules: • **Supply Voltage:** 4.5 - 5.5 Vdc • **Supply Current at 5 VDC:** 240 mA max. • **Output Current (Sourcing):** 20mA max.

Voltage Input Modules: • **Supply Voltage:** 4.5 - 5.5 Vdc • **Supply Current at 5 Vdc:** 150mA max. • **Output Frequency:** 14.4 to 72.0 KHz squarewave • **Squarewave Duty Cycle:** 40% to 60% • **Accuracy:** ±0.1% (DC Version), ±0.3% (AC Versions)

Thermocouple Input Modules: • **Supply Voltage:** 4.5 - 5.5 Vdc • **Supply Current at 5 Vdc:** 150 mA max. • **Output Frequency:** 14.4 to 72.0 KHz squarewave • **Squarewave Duty Cycle:** 40% to 60% • **Accuracy, Across Range at 25°C:** ±3.0°C

Fig. 1 — Standard

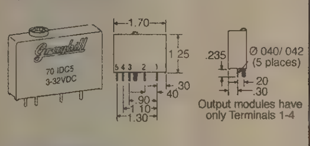


Fig. 2 — Mini

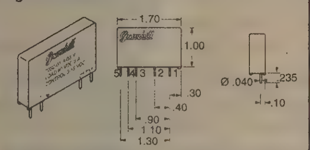


Fig. 3 — Mounting Board (4 Pos. Board Shown)

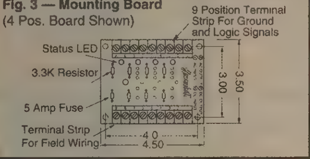

9 Position Terminal Strip For Ground and Logic Signals
Status LED
3.3K Resistor
5 Amp Fuse
Terminal Strip For Field Wiring
3.00
3.50
4.0
4.50

Fig. 4

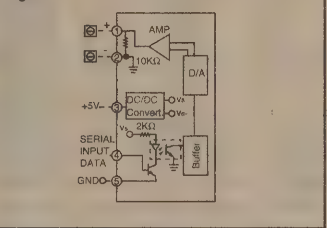


Fig. 5

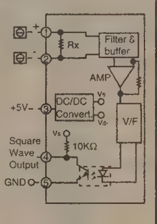
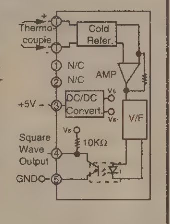


Fig. 6



Digital I/O Modules

Fig.	Input Circuit Vdc. Nom.	Range	Output Circuit Volt. Nom.	Range	Load Cur.(Rms)	T on Time	T off Time	Digi-Key Part No.	Price Each 1	10	100	Grayhill Part No.
1	5 VDC	2.5-10	120 VAC	24-140	.030-3.5A	8.3ms	8.3ms	GH7018-ND	9.12	8.22	7.75	70-OAC5
1	5 VDC	2.5-10	60 VDC	3-60	.020-3.5A	20µs	50µs	GH7019-ND	9.12	8.22	7.75	70-ODC5
1	120 VAC	90-140	5 VDC	3-60	1-50mA	20ms	20ms	GH7020-ND	9.12	8.22	7.75	70-IAC5
1	5 VDC	3-32 VDC	5 VDC	3-60	1-50mA	250µs	400µs	GH7021-ND	9.12	8.22	7 75	70-IDC5
2	5 VDC	2.5-10	120 VAC	24-140	.030-3A	8.3ms	8.3ms	GH7022-ND	9.12	8.22	7.75	70M-OAC5
2	5 VDC	2.5-10	240 VAC	24-140	.030-3A	8.3ms	8.3ms	GH7023-ND	10.08	9.09	8.56	70M-OAC5A
2	5 VDC	2.5-10	60 VDC	3-60	.020-3A	20µs	50µs	GH7024-ND	9.12	8 22	7 75	70M-ODC5
2	15 VDC	10-18	60 VDC	3-60	.020-3A	20µs	50µs	GH7025-ND	9.12	8.22	7.75	70M-ODC15
2	120 VAC	90-140	5 VDC	3-60	1-50mA	20ms	20ms	GH7026-ND	9.12	8.22	7.75	70M-IAC5
2	5 VDC	3-32 VDC	5 VDC	3-60	1-50mA	250µs	400µs	GH7027-ND	9.12	8.22	7 75	70M-IDC5
3	Mounting Board for 4 STD I/O Modules - Negative Logic Only							GH7028-ND	20.27	19.20	—	70RCK4
3	***NEW!*** Mounting Board for 4 STD I/O Modules - Negative or Positive Logic .							GH3035-ND	20.24	19.24	—	70RCK4R
3	Mounting Board for 8 STD I/O Modules							GH7029-ND	41.89	39.68	—	70RCK8
3	Mounting Board for 8 Mini I/O Modules.							GH7030-ND	43.91	41.60	—	70MRCK8-EC
3	Mounting Board for 16 STD I/O Modules....................							GH7031-ND	65.53	62.08	—	70RCK16
3	Mounting Board for 24 STD I/O Modules......							GH3007-ND	106.65	101.44	—	70RCK24
3	Mounting Board for 24 Mini I/O Modules							GH3008-ND	115.76	110.11	—	70MRCK24-EC

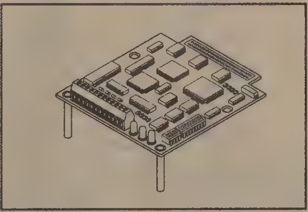
Fig. No.	Output Type	Output Range	Output Resolution	Input Type	Digi-Key Part No.	Pricing 1	5	50	Grayhill Part No.
Analog Output Modules									
4	Voltage	0-5Vdc	1.22mV	12 bit serial	GH3009-ND	85.69	378.89	3555.69	73G-OV5
4	Voltage	0-10Vdc	2.44mV	12 bit serial	GH3010-ND	85.69	378.89	3555.69	73G-OV10
4	Voltage	-10 to 10Vdc	4.88mV	12 bit serial	GH3011-ND	85.69	378.89	3555.69	73G-OV10B
4	Current	4-20mA	3.9µA	12 bit serial	GH3012-ND	107.10	473.59	4444.46	73G-OI420
4	Current	0-20mA	4.9µA	12 bit serial	GH3013-ND	107.10	473.59	4444.46	73G-OI020

Fig. No.	Input Type	Input Range	Input Resolution	Output Type	Digi-Key Part No.	Pricing 1	5	50	Grayhill Part No.
Analog Input Modules									
5	Voltage	0-50mV	12.2µV	12 bit serial	GH3014-ND	85.69	378.89	3555.69	73G-IV50M
5	Voltage	0-100mV	24.4µV	12 bit serial	GH3015-ND	85.69	378.89	3555.69	73G-IV100M
5	Voltage	0-1Vdc	244.1µV	12 bit serial	GH3016-ND	85.69	378.89	3555.69	73G-IV1
5	Voltage	0-5Vdc	1.22mV	12 bit serial	GH3017-ND	85.69	378.89	3555.69	73G-IV5
5	Voltage	0-10Vdc	2.44mV	12 bit serial	GH3018-ND	85.69	378.89	3555.69	73G-IV10
5	Voltage	-5 to 5Vdc	2.44mV	12 bit serial	GH3019-ND	85.69	378.89	3555.69	73G-IV5B
5	Voltage	-10 to 10Vdc	4.88mV	12 bit serial	GH3020-ND	85.69	378.89	3555.69	73G-IV10B
5	Voltage	28-140Vac	27.34mV	12 bit serial	GH3021-ND	95.20	420.94	3950.36	73G-IVAC120
5	Voltage	28-280Vac	65.52mV	12 bit serial	GH3022-ND	95.20	420.94	3950.36	73G-IVAC240
5	Current	4-20mA	3.91µA	12 bit serial	GH3023-ND	85.69	378.89	3555.69	73G-II420
5	Current	0-5A	1.22mA	12 bit serial	GH3024-ND	107.10	473.59	4444.46	73G-II5000
Thermocouple Input Modules									
6	J Type	0-700C	.18C	12 bit serial	GH3025-ND	107.10	473.59	4444.46	73G-ITCJ
6	K Type	-100 to 924C	.25C	12 bit serial	GH3026-ND	107.10	473.59	4444.46	73G-ITCK
6	R Type	0-960C	.23C	12 bit serial	GH3027-ND	107.10	473.59	4444.46	73G-ITCR
6	T Type	-200 to 224C	.10C	12 bit serial	GH3028-ND	107.10	473.59	4444.46	73G-ITCT
6	AD590	-188 to 150C	.08C	12 bit serial	GH3029-ND	85.69	378.89	3555.69	73G-ITP590
6	Plt. RTD	-50 to 350C	.10C	12 bit serial	GH3030-ND	130.90	578.83	5432.05	73G-ITR100
3	***NEW!*** Mounting Board for 4 Analog I/O Modules..				GH3031-ND	21.30	101.25	975.00	70GRCK4R
3	***NEW!*** Mounting Board for 8 Analog I/O Modules..				GH3032-ND	46.15	219.38	2112.50	70GRCK8-HS
3	***NEW!*** Mounting Board for 24 Analog I/O Modules .				GH3033-ND	116.44	553.50	5330.00	70GRCQ24-HS
3	***NEW!*** Mounting Board for 32 Analog I/O Modules .				GH3034-ND	156.20	742.50	7150.00	70GRCP32-HL

Grayhill I/O Module Controller Boards

General Information:

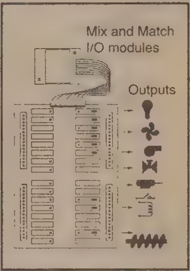
Grayhill's wide variety of I/O Modules provide sound solutions for today's industrial control and data acquisition problems. By adding MicroDac and ProMux controller boards, complete solutions can be developed. MicroDac and ProMux are high performance remote I/O controllers that allow you to add functionality by downloading routines which are executed independent of the host computer. MicroLon controllers are installed near sensors or actuators and network the MicroLon units over long signal lines, back to the host computer. MicroDac controls up to 32 Analog or Digital I/O Modules. ProMux controls up to 24 Digital I/O Modules. MicroLon can control up to 8 Digital or Analog I/O Modules with up to 32,385 MicroLon controllers (nodes) networked together.



MicroDAC LT is a low cost version of MicroDAC for customers who don't need all of the features of MicroDAC. Missing are the metal housing, battery back-up for the RAM memory, real-time clock, RS-232, and SBX ports.

ProMux® Serial Controller Board (Plugs onto I/O Mounting Boards)

Features: • Each Board Controls Up to 24 Standard, Mini or G5 Digital Modules • Up to 256 Addressable ProMux® Boards Separated by 5,000 feet • Communications at Speeds from 300 Baud to 38.4 KBaud • Transient Protection on Communications Lines • Direct Plug-In or Ribbon Cable Interconnection • BASIC and C Drivers for the PC


Mix and Match I/O modules
Outputs

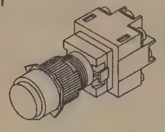
MicroDac Serial Controller Board

Features: The host commputer and MicroDACs communicate serially over one or two pair of twisted wires per RS-422/485 in either a multi-drop or repeat configuration. In addition to simple on/off instructions, commands are included which permit you to: • Sample analog signals at 1 mSec per input • Flag values above or below prescribed levels • Calculate the average input signal levels • Capture min/max values • Provide linearized thermocouple and RTD temp. values • Latch momentary input events • Set the level of analog outputs • Provide delayed-on or delayed -off outputs

Description	Digi-Key Part No.	Price Each	Grayhill Part No.
Parallel Controller Board for 24 Digital I/O Modules	GH3001-ND	164.84	72-PMX-24D
ProMux Controller board for 24 Digital I/O (serial)	GH3002-ND	173.88	72-PMO-1
MicroDac Controller Board with RS-232, SBX ports (serial)	GH3004-ND	591.19	72-MDC-32D
MicroDac LT Controller (low cost version of MicroDac)	GH3003-ND	330.87	72-MDL-32AD
NEW! MicroLon Controller/Extender Board for 8 Digital/Analog I/O	GH3036-ND	240.00	72-LON-8AD-FTTP
Installation-Troubleshooting Manual w/ software for MicroLon	GH3006-ND	29.81	72-LON-I

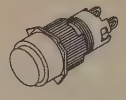
OMRON® 16mm Lighted Pushbutton Switches

Fig. 1



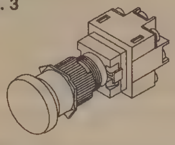
Illuminated/Non-illuminated

Fig. 2



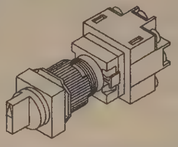
Indicator Light

Fig. 3



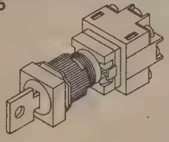
Mushroom Cap

Fig. 4

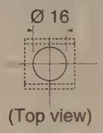


Selector Switch

Fig. 5



Key Switch



Panel Cut-Out

Omron's panel mount pushbutton switches are compact 16mm diameter switches designed for a panel thickness of .5mm to 5mm. All feature DPDT contacts capable of switching 5A at 120VAC. All switches come fully assembled with screw terminals. Lighted versions are 110VAC neon lamps

Features: • Switch color: Black • Contact form: DPDT • Pushbutton, Key Selector: 5A, 125 VAC/3A, 250 VAC; 3A, 30VDC

Service Life – Pushbutton: • Mechanical: Momentary 1,000 x 10³ operations min. Alternate action: 200 x 10³ operations min. • Electrical: 100 x 10³ operations min. **Service Life – Key, Selector:** • Mechanical: 200 x 10³ operations min. Key insertion/removal: 10 x 10³ times min.

Fig. No.	Operator	Circuit	Cap Color	Digi-Key Part No.	Pricing			Omron Part No.
					1	25	50	
Illuminated Type								
1	Pushbutton	Momentary	Red	SW160-ND	30.03	675.68	1201.20	A3GT-99C1-H1ND
1	Pushbutton	Momentary	Green	SW161-ND	30.03	675.68	1201.20	A3GT-99C1-H1NG
1	Pushbutton	Momentary	White	SW162-ND	30.03	675.68	1201.20	A3GT-99C1-H1NW
1	Pushbutton	Alt Action	Red	SW163-ND	30.03	675.68	1201.20	A3GT-99D1-H1ND
1	Pushbutton	Alt Action	Green	SW164-ND	30.03	675.68	1201.20	A3GT-99D1-H1NG
1	Pushbutton	Alt Action	White	SW165-ND	30.03	675.68	1201.20	A3GT-99D1-H1NW
2	Indicator	Light only	Red	SW166-ND	19.50	438.75	780.00	M2GT-99A1-H1ND
2	Indicator	Light only	Green	SW167-ND	19.50	438.75	780.00	M2GT-99A1-H1NG
2	Indicator	Light only	White	SW168-ND	19.50	438.75	780.00	M2GT-99A1-H1NW
Non-illuminated Type								
1	Pushbutton	Momentary	Red	SW169-ND	25.94	583.54	1037.40	A3GT-99C0-R
1	Pushbutton	Momentary	Green	SW170-ND	25.94	583.54	1037.40	A3GT-99C0-G
1	Pushbutton	Momentary	Yellow	SW171-ND	25.94	583.54	1037.40	A3GT-99C0-Y
1	Pushbutton	Momentary	Black	SW172-ND	25.94	583.54	1037.40	A3GT-99C0-B
1	Pushbutton	Alt Action	Red	SW173-ND	26.62	599.04	1064.96	A3GT-99D0-R
1	Pushbutton	Alt Action	Green	SW174-ND	26.62	599.04	1064.96	A3GT-99D0-G
1	Pushbutton	Alt Action	Yellow	SW175-ND	26.62	599.04	1064.96	A3GT-99D0-Y
1	Pushbutton	Alt Action	Black	SW176-ND	26.62	599.04	1064.96	A3GT-99D0-B
3	Mushroom Cap	Momentary	Red	SW177-ND	22.52	506.61	900.64	A3GT-99C2-R
3		Alt Action	Red	SW178-ND	23.54	529.72	941.72	A3GT-99D2-R
4	Selector	Momentary	Black	SW179-ND	33.80	760.50	1352.00	A3GT-S9C11
4	(2 Position)	Alt Action	Black	SW180-ND	35.10	789.75	1404.00	A3GT-S9C21
5	Key Switch	Momentary	Black	SW181-ND	54.60	1228.50	2184.00	A3GT-K9C11-C
5		Alt Action	Black	SW182-ND	54.60	1228.50	2184.00	A3GT-K9C21-C
Locking Ring Wrench for above switches				SW183-ND	5.80 each			A3B-3004
Replacement Key's for Keyswitch				SW265-ND	4.15	93.38	166.00	A3G-KEY

Basic Switch

Omron's "Z" Series switches feature 15A contacts which directly switches such loads as motors, halogen lamps and solenoids. Omron's "A" Series has the same body yet switches 20A loads with large inrush currents. All switches feature screw terminal connections and are UL listed CSA certified. Both series are momentary action, SPDT versions.

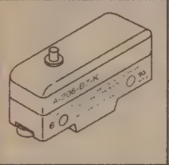


Fig. 1

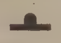


Fig. 2

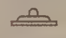


Fig. 3

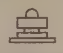


Fig. 4

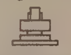


Fig. 5

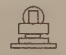


Fig. 6

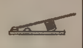


Fig. 7

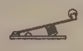


Fig. 8

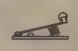
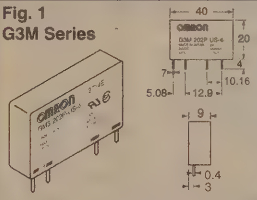


Fig. No.	Operating Force g max.	Switch Current (A)	Actuator Type	Actuator Length	Digi-Key Part No.	Pricing			Omron Part No.
						1	25	50	
1	350	15	Pin Plunger	—	SW190-ND	6.16	138.65	246.48	Z15G-B7-K
2	350	15	Spring Plunger	—	SW191-ND	8.14	183.11	325.52	Z15GD-B7-K
3	350	15	Panel Plunger	—	SW192-ND	9.37	210.89	374.92	Z15GQ-B7-K
4	350	15	Panel Roller	—	SW193-ND	16.26	365.92	650.52	Z15GQ21-B7-K
5	350	15	Panel Roller	—	SW194-ND	18.04	405.99	721.76	Z15GQ22-B7-K
6	70	15	Lever	2.500	SW195-ND	7.98	179.60	319.28	Z15GW-B7-K
7	100	15	Roller Lever	1.909	SW196-ND	10.09	226.98	403.52	Z15GW2-B7-K
8	160	15	Lever	1.047	SW197-ND	10.09	226.98	403.52	Z15GW22-B7-K
6	6	15	Low Force Lever	2.500	SW198-ND	8.79	197.73	351.52	Z15HW24-B7-K
1	625	20	Pin Plunger	—	SW230-ND	8.49	191.00	339.56	A20G-B7-K
6	70	20	Lever	2.500	SW231-ND	8.53	191.88	341.12	A20GV-B7-K
7	90	20	Roller Lever	1.909	SW232-ND	8.53	191.88	341.12	A20GV2-B7-K
3	625	20	Panel Plunger	—	SW233-ND	12.91	290.45	516.36	A20GQ-B7-K
8	160	20	Roller Lever	1.047	SW234-ND	9.17	206.21	366.60	A20GV22-B7-K
Phenolic Terminal Cover for A/Z Series					SW235-ND	.75	16.97	30.16	AP-B
Terminal Cover with Strain Relief for A/Z Series					SW236-ND	3.94	88.63	157.56	AP-Z

Solid State Relays

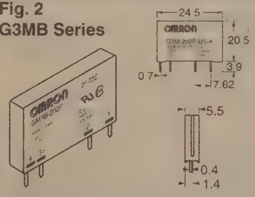
Fig. 1
G3M Series



Features: • Zero-cross type or random turn-on • Thin design for high-density PCB applications • DC input — AC output for 2 A load • Footprint compatible with industry standard I/O modules • Low cost

Characteristic Data: • Operate time: 1 ms max. • Output ON voltage drop: 1.6 V (RMS) max. • Leakage Current: 2mA max. (at 100 VAC); 5mA max. (at 200 VAC) • Operating Temperature: -30° to 80°C

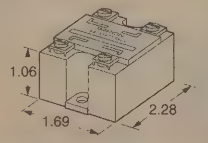
Fig. 2
G3MB Series



Features: • Low-cost, subminiature, PCB-mounting, solid-state relay switching 2A • DC input — AC output for 2A load at 25°C • Mono-block lead frame facilitates heat dissipation without use of heat sink.

Characteristic Data: • Leakage Current: 1.5mA max. • Operating Temperature: -30° to 80°C

Fig. 3
G3NA Series



Features: • Protective cover for greater safety is standard • Built-in varistor • Operation indicator (red LED) is standard • Zero-cross function

Characteristic Data: • Leakage Current: 5mA max. (at 100 VAC), 10mA max. (at 200 VAC) • Operating Temperature: -30° to 80°C

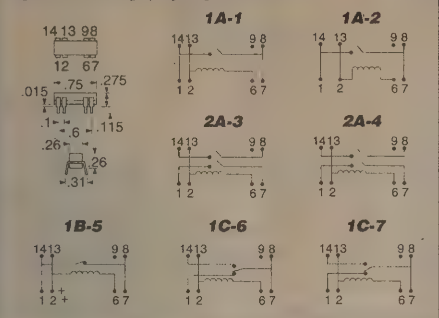
Omron's solid state relays feature zero-cross outputs for low inrush currents to the load or random turn-on for phase control applications.

Fig. No.	Input Voltage	Output Voltage	Output Current	Digi-Key Part No.	Pricing			Omron Part No.
					1	25	50	
Zero-Cross Output								
1	4 - 6 VDC	75 to 264VAC	.1 to 2A	Z900-ND	9.44	212.41	377.61	G3M-202P-US-4-DC5
1	9.6 - 14.4 VDC	75 to 264VAC	.1 to 2A	Z901-ND	9.44	212.41	377.61	G3M-202P-US-4-DC12
1	19.2 - 28.8 VDC	75 to 264VAC	.1 to 2A	Z902-ND	9.44	212.41	377.61	G3M-202P-US-4-DC24
Random Turn-on Output								
1	4 - 6 VDC	75 to 132VAC	.1 to 2A	Z903-ND	8.10	182.19	323.90	G3M-102PL-US-4-DC5
1	9.6 - 14.4 VDC	75 to 132VAC	.1 to 2A	Z904-ND	8.10	182.19	323.90	G3M-102PL-US-4-DC12
1	19.2 - 28.8 VDC	75 to 132VAC	.1 to 2A	Z905-ND	8.10	182.19	323.90	G3M-102PL-US-4-DC24
1	4 - 6 VDC	75 to 264VAC	.1 to 2A	Z906-ND	9.44	212.41	377.61	G3M-202PL-US-4-DC5
1	9.6 - 14.4 VDC	75 to 264VAC	.1 to 2A	Z907-ND	9.44	212.41	377.61	G3M-202PL-US-4-DC12
1	19.2 - 28.8 VDC	75 to 264VAC	.1 to 2A	Z908-ND	9.44	212.41	377.61	G3M-202PL-US-4-DC24
Zero-Cross Output								
2	4 - 6 VDC	75 to 264VAC	.1 to 2A	Z909-ND	7.72	173.66	308.73	G3MB-202P-DC5
2	9.6 - 14.4 VDC	75 to 264VAC	.1 to 2A	Z910-ND	7.72	173.66	308.73	G3MB-202P-DC12
2	19.2 - 28.8 VDC	75 to 264VAC	.1 to 2A	Z911-ND	7.72	173.66	308.73	G3MB-202P-DC24
Random Turn-on Output								
2	4 - 6 VDC	75 to 132VAC	.1 to 2A	Z912-ND	7.00	157.52	280.03	G3MB-102PL-DC5
2	9.6 - 14.4 VDC	75 to 132VAC	.1 to 2A	Z913-ND	7.00	157.52	280.03	G3MB-102PL-DC12
2	19.2 - 28.8 VDC	75 to 132VAC	.1 to 2A	Z914-ND	7.00	157.52	280.03	G3MB-102PL-DC24
2	4 - 6 VDC	75 to 264VAC	.1 to 2A	Z915-ND	7.72	173.66	308.73	G3MB-202PL-DC5
2	9.6 - 14.4 VDC	75 to 264VAC	.1 to 2A	Z916-ND	7.72	173.66	308.73	G3MB-202PL-DC12
2	19.2 - 28.8 VDC	75 to 264VAC	.1 to 2A	Z917-ND	7.72	173.66	308.73	G3MB-202PL-DC24
Zero-Cross Output								
3	4 - 32 VDC	19 to 264VAC	.1 to 10A	Z918-ND	18.23	410.23	729.30	G3NA-210B-DC5-24
3	75 - 132 VAC	19 to 264VAC	.1 to 10A	Z919-ND	22.91	515.51	916.47	G3NA-210B-AC100-120
3	150 - 264 VAC	19 to 264VAC	.1 to 10A	Z920-ND	22.91	515.51	916.47	G3NA-210B-AC200-240
3	4 - 32 VDC	19 to 264VAC	.1 to 25A	Z921-ND	23.73	533.87	949.11	G3NA-225B-DC5-24
3	75 - 132 VAC	19 to 264VAC	.1 to 25A	Z922-ND	28.57	642.89	1142.91	G3NA-225B-AC100-120
3	150 - 264 VAC	19 to 264VAC	.1 to 25A	Z923-ND	28.57	642.89	1142.91	G3NA-225B-AC200-240
Accessories								
Track mount heat sink for 10A relays (3.1" x 1.7")				Z924-ND	16.98	381.94	679.00	Y92B-N50
Track mount heat sink for 10A/25A relays (3.5" x 2.7")				Z925-ND	21.86	491.79	874.30	Y92B-N100
Track mount heat sink for 25A relays (3.5" x 3.9")				Z926-ND	26.50	596.14	1059.80	Y92B-N150
Chassis mount heat sink for 10A (3.5" x 1.9")				Z927-ND	14.89	335.08	595.70	Y92B-A100
Chassis mount heat sink for 25A (3.5" x 5.9")				Z928-ND	20.83	468.56	833.00	Y92B-A150N

UL and CSA approved

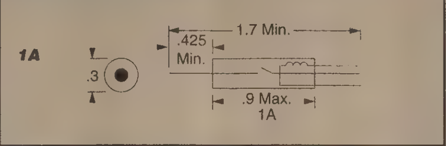
EAC Electronic Applications Company Reed Relays

Dip Reed Relays, Epoxy Molded



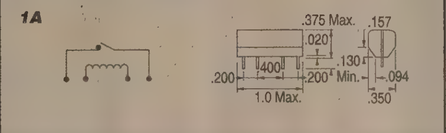
1A-1
1A-2
2A-3
2A-4
1B-5
1C-6
1C-7
14 13 9 8
12 67
.015
.75
.275
.1
.6
.115
.26
.26
.31
1413 98
1 2 6 7

Series 10 Reed Relays



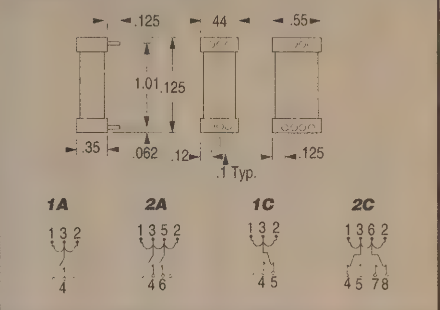
1A
.3
.425 Min.
1.7 Min.
.9 Max.
1A

Series 30 Reed Relays



1A
.375 Max.
.157
.020
.130
.200
.400
.200 Min.
.094
1.0 Max.
.350

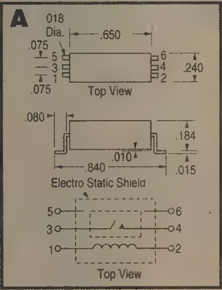
Open-Line Reed Relays



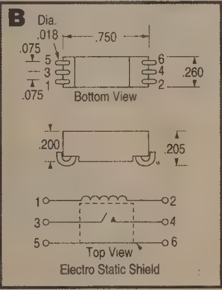
.125
.44
.55
1.01
.125
.35
.062
.12
.1 Typ.
.125
1A
2A
1C
2C
1 3 2
4
1 3 5 2
4 6
1 3 2
4 5
1 3 6 2
4 5 7 8

Coil Volt. (VDC)	Coil Res. (Ω)	Pickup/ Dropout (VDC)	Max. Volt. (VDC)	Cur. Rtg. (A)	Cont. Res. (Ω)	Oper./ Release / Bounce Time (msec.)	Power Rtg. (W)	Ins. Res. (Ω)	Digi-Key Part No.	Price Each 1	10	50	100	Contact Form	Mfg. Part No.
							Dip Reed Relays, Epoxy Molded								
5	500	4.0/0.5	100	.50	.20	.5/.5/.5	10	10^{10}	Z660-ND	5.59	4.47	3.66	3.28	1A-1	D1A05A
12	1000	9.6/1.2	100	.50	.20	.5/.5/.5	10	10^{10}	Z661-ND	5.55	4.44	3.63	3.26		D1A12A
24	2200	19.2/2.4	100	.50	.20	.5/.5/.5	10	10^{10}	Z612-ND	5.51	4.41	3.61	3.24	1A-2	D1A24A
5	150	4.0/0.5	100	.50	.20	.5/.5/.5	10	10^{10}	Z662-ND	8.74	6.99	5.71	5.13	2A-3	D2A05A
12	500	9.6/1.2	100	.50	.20	.5/.5/.5	10	10^{10}	Z614-ND	8.78	7.02	5.74	5.15	2A-4	D2A12A
24	1750	19.2/2.4	100	.50	.20	.5/.5/.5	10	10^{10}	Z615-ND	9.08	7.26	5.93	5.33		D2A24A
5	450	4.0/0.5	100	.50	.20	.35/.5/.5	10	10^{10}	Z616-ND	7.99	6.39	5.22	4.69	1B-5	D1B05A
12	450	9.6/1.2	100	.50	.20	.35/.5/.5	10	10^{10}	Z617-ND	8.36	6.69	5.47	4.91		D1B12A
24	1750	19.2/2.4	100	.50	.20	.35/.5/.5	10	10^{10}	Z618-ND	8.66	6.93	5.66	5.09		D1B24A
5	200	4.0/0.5	28	.25	.20	.5/.5/NO = .5, NC = 1.5	3	10^9	Z663-ND	10.24	8.19	6.69	6.01	1C-6	D1C05C
12	500	4.0/0.5	28	.25	.20	.5/.5/NO = .5, NC = 1.5	3	10^9	Z664-ND	10.43	8.34	6.82	6.12		D1C12C
24	1750	19.2/2.4	28	.25	.20	.5/.5/NO = .5, NC = 1.5	3	10^9	Z621-ND	11.03	8.82	7.21	6.47	1C-7	D1C24C
							Series 10 Reed Relays								
3	250	2.25/0.3	200	.5	.10	.5/.25/—	5	10^{10}	Z622-ND	3.90	3.52	3.13	2.74	1A	R1A3AHH
5	700	3.75/0.5	200	.5	.10	.5/.25/—	5	10^{10}	Z623-ND	3.79	3.42	3.03	2.66		R1A5AHH
12	2000	9.0/1.2	200	.5	.10	.5/.25/—	5	10^{10}	Z624-ND	4.04	3.64	3.23	2.83		R1A12AHH
24	4000	18.0/2.4	200	.5	.10	.5/.25/—	5	10^{10}	Z625-ND	6.94	6.26	5.56	4.86		R1A24AHH
3	30	2.25/0.3	300	2	.10	.5/.25/—	50	10^{10}	Z626-ND	4.18	3.76	3.30	2.93	1A	P1A3A
5	100	3.75/0.5	300	2	.10	.5/.25/—	50	10^{10}	Z627-ND	4.24	3.82	3.39	2.97		P1A5A
12	500	9.0/1.2	300	2	.10	.5/.25/—	50	10^{10}	Z628-ND	4.25	3.83	3.41	2.97		P1A12A
24	1000	18.0/2.4	300	2	.10	.5/.25/—	50	10^{10}	Z629-ND	4.95	4.45	3.96	3.46		P1A24A
							Series 30 Reed Relays								
5	500	3.8/0.5	200	.5	.20	0.4/0.1/0.3	10	10^9	Z530-ND	3.98	3.60	3.20	2.80	1A	SD1A05A
12	500	8.0/1.0	200	.5	.20	0.4/0.1/0.3	10	10^9	Z531-ND	4.01	3.63	3.22	2.82		SD1A12A
24	2000	16.0/2.0	200	.5	.20	0.4/0.1/0.3	10	10^9	Z532-ND	4.10	3.70	3.29	2.88		SD1A24A
5	500	3.8/0.5	250	1	.20	0.5/0.3/0.3	50	10^9	Z533-ND	4.27	3.86	3.42	3.00	1A	SD1A05D
12	500	8.0/1.0	250	1	.20	0.5/0.3/0.3	50	10^9	Z534-ND	4.33	3.91	3.47	3.04		SD1A12D
24	2000	16.0/2.0	250	1	.20	0.5/0.3/0.3	50	10^9	Z535-ND	4.59	4.14	3.68	3.22		SD1A24D
							Open-Line Reed Relays								
5	500	3.8/0.5	250	1	.10	0.4/0.2/0.25	20	10^{10}	Z638-ND	6.49	5.84	5.19	4.54	1A	20-1051-10
12	500	8.0/1.0	250	1	.10	0.4/0.2/0.25	20	10^{10}	Z639-ND	5.33	4.89	4.54	4.20		20-1121-10
24	2000	16.0/2.0	250	1	.10	0.4/0.2/0.25	20	10^{10}	Z640-ND	5.29	4.84	4.50	4.17		20-1241-10
5	200	3.8/0.5	250	1	.10	0.5/0.2/0.25	20	10^{10}	Z641-ND	7.28	6.55	5.82	5.10	2A	20-2051-10
12	440	8.0/1.0	250	1	.10	0.5/0.2/0.25	20	10^{10}	Z642-ND	7.30	6.56	5.84	5.11		20-2121-10
24	1750	16.0/2.0	250	1	.10	0.5/0.2/0.25	20	10^{10}	Z643-ND	7.68	6.92	6.15	5.38		20-2241-10
5	500	3.8/0.5	200	.5	.10	0.5/0.4/1.5	10	10^{10}	Z644-ND	13.84	12.47	11.08	9.69	1C	20-1051-30
12	500	8.0/1.0	200	.5	.10	0.5/0.4/1.5	10	10^{10}	Z645-ND	9.45	8.51	7.56	6.61		20-1121-30
24	2000	16.0/2.0	200	.5	.10	0.5/0.4/1.5	10	10^{10}	Z646-ND	9.10	8.20	7.29	6.38		20-1241-30
5	200	3.8/0.5	200	.5	.10	0.6/0.4/1.5	10	10^{10}	Z647-ND	14.26	12.83	11.41	9.98	2C	20-2051-30
12	310	8.0/1.0	200	.5	10	0.6/0.4/1.5	10	10^{10}	Z648-ND	14.31	12.88	11.45	10.01		20-2121-30
24	1250	16.0/2.0	200	.5	.10	0.6/0.4/1.5	10	10^{10}	Z649-ND	14.88	13.40	11.91	10.41		20-2241-30

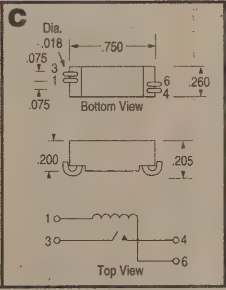
EAC Surface Mount Reed Relays



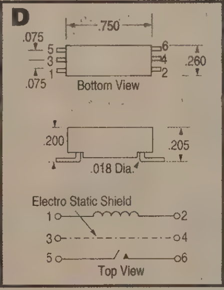
A
.018 Dia.
.650
.075
5
3
1
6
4
2
.240
.075
Top View
.080
.184
.010
.840
.015
Electro Static Shield
Top View



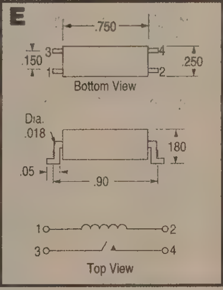
B
Dia.
.018
.750
.075
.260
.075
Bottom View
.200
.205
Top View
Electro Static Shield



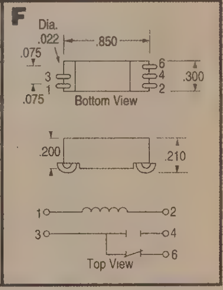
C
Dia.
.018
.750
.075
.260
.075
Bottom View
.200
.205
Top View



D
.750
.075
.260
.075
Bottom View
.200
.205
.018 Dia.
Electro Static Shield
Top View



E
.750
.150
.250
Bottom View
Dia.
.018
180
.05
.90
Top View



F
Dia.
.022
.850
.075
.300
.075
Bottom View
.200
.210
Top View

Fig.	Coil Voltage (VDC)	Coil Resisitance (Ω)	Pickup/ Dropout (VDC)	Maximum Voltage (VDC)	Current Rating mA	Cont. Resistance (Ω)	Operate Time (msec.)	Ins. Resistance (Ω)	Digi-Key Part No.	Price Each 1	10	50	Mfg. Part No.
A	4.5	150	3.5/0.5	250	500	.1	.35	$7x10^{12}$	Z650-ND	9.94	9.10	8.46	SMRR1-5-150C
B	5	150	3.75/0.4	200	500	.150	.35	$7x10^{12}$	Z651-ND	7.97	7.29	6.78	SMRR2-5-150C
C	5	150	3.75/0.4	200	500	.150	.35	$7x10^{12}$	Z652-ND	7.24	6.63	6.16	SMRR2-5-150E
D	5	150	3.8/0.5	250	500	.150	.35	$7x10^{12}$	Z653-ND	8.72	7.98	7.42	SMRR2-5-150F
E	5	250	3.75/0.4	200	500	.150	.35	$7x10^{12}$	Z654-ND	6.53	5.98	5.56	SMRR2-5-250
F	5	150	3.8/0.5	28	250	.2	.5	$7x10^{12}$	Z655-ND	9.92	9.08	8.44	SMRR3-5-150

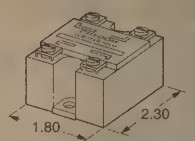
CRYDOM COMPANY

Solid State Relays

Fig. No.	Input Volt.	Operate Volt.	Release Volt.	Output Volt.	Load Current (Arms)	Digi-Key Part No.	Price Each				Crydom Part No.
							1	10	25	50	
Series 1 — DC Input, AC Output — SCR Type											
1	3-32VDC	3.0VDC	1.0VDC	24-140VAC	.04-2.5	CC1000-ND	18.24	17.98	16.33	15.48	D1202
	3-32VDC	3.0VDC	1.0VDC	24-140VAC	.04-10	CC1001-ND	26.89	24.99	24.30	22.82	D1210
	3-32VDC	3.0VDC	1.0VDC	24-140VAC	.04-25	CC1002-ND	27.32	25.36	23.77	23.24	D1225
	3-32VDC	3.0VDC	1.0VDC	24-140VAC	.04-40	CC1003-ND	34.01	30.61	29.34	26.10	D1240
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-2.5	CC1004-ND	20.32	18.47	17.57	16.72	D2402
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-10	CC1005-ND	30.50	27.60	26.27	25.00	D2410
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-10	CC1088-ND	29.44	29.01	26.36	24.99	D2410B
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-25	CC1006-ND	30.88	27.91	26.69	25.32	D2425
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-25	CC1089-ND	30.53	30.09	27.34	25.92	D2425B
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-40	CC1071-ND	31.54	31.08	28.24	26.77	D2440
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-40	CC1090-ND	33.27	32.78	29.78	28.24	D2440B
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-50	CC1007-ND	35.02	32.25	30.02	28.91	D2450
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-75	CC1008-ND	57.45	52.02	48.28	45.71	D2475
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-75	CC1091-ND	53.15	52.37	47.58	45.11	D2475B
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.04-90	CC1067-ND	63.17	57.33	54.57	51.97	D2490
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-25	CC1072-ND	34.63	34.12	31.00	29.39	D4825
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-40	CC1073-ND	39.48	38.90	35.34	33.51	D4840
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-50	CC1074-ND	38.46	37.89	34.43	32.64	D4850
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-75	CC1075-ND	56.24	55.41	50.34	47.73	D4875
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-90	CC1076-ND	62.13	61.22	55.62	52.73	D4890
	3.5-26VDC	3.5VDC	1.0VDC	24-140VAC	.04-10	CC1077-ND	29.67	29.24	26.56	25.18	D1210-10
	3.5-26VDC	3.5VDC	1.0VDC	24-140VAC	.04-40	CC1078-ND	32.48	32.00	29.07	27.56	D1240-10
	3.5-26VDC	3.5VDC	1.0VDC	48-280VAC	.04-10	CC1079-ND	30.32	29.88	27.15	25.74	D2410-10
	3.5-26VDC	3.5VDC	1.0VDC	48-280VAC	.04-25	CC1080-ND	30.61	30.16	27.40	25.98	D2425-10
	3.5-26VDC	3.5VDC	1.0VDC	48-280VAC	.04-40	CC1081-ND	34.26	33.76	30.67	29.08	D2440-10
	3.5-26VDC	3.5VDC	1.0VDC	48-280VAC	.04-50	CC1082-ND	35.28	34.76	31.58	29.94	D2450-10
	3.5-26VDC	3.5VDC	1.0VDC	48-280VAC	.04-90	CC1083-ND	59.99	59.11	53.71	50.92	D2490-10
	3.5-26VDC	3.5VDC	1.0VDC	80-530VAC	.04-25	CC1084-ND	36.27	35.74	32.47	30.78	D4825-10
	3.5-26VDC	3.5VDC	1.0VDC	80-530VAC	.04-40	CC1085-ND	40.98	40.38	36.68	34.78	D4840-10
	3.5-26VDC	3.5VDC	1.0VDC	80-530VAC	.04-75	CC1086-ND	57.24	56.40	51.24	48.58	D4875-10
	3.5-26VDC	3.5VDC	1.0VDC	80-530VAC	.04-90	CC1087-ND	62.97	62.05	56.38	53.45	D4890-10
Series 1 — AC Input, AC Output — SCR Type											
1	90-280VAC	90VAC	10VAC	24-140VAC	.04-2.5	CC1009-ND	22.69	20.43	19.84	18.67	A1202C
	90-280VAC	90VAC	10VAC	24-140VAC	.04-10	CC1010-ND	31.98	28.77	27.62	26.31	A1210C
	90-280VAC	90VAC	10VAC	24-140VAC	.04-25	CC1011-ND	31.86	28.72	27.90	26.58	A1225
	90-280VAC	90VAC	10VAC	24-140VAC	.04-40	CC1012-ND	36.02	32.47	31.08	29.66	A1240
	90-280VAC	90VAC	10VAC	48-280VAC	.04-10	CC1013-ND	32.52	29.28	28.12	26.80	A2410
	90-280VAC	90VAC	10VAC	48-280VAC	.04-25	CC1014-ND	33.10	29.81	28.60	28.01	A2425
	90-280VAC	90VAC	10VAC	48-280VAC	.04-50	CC1015-ND	37.57	33.79	32.42	30.93	A2450
	18-36VAC	18VAC	2VAC	48-280VAC	.04-50	CC1068-ND	37.57	33.79	32.42	30.93	A2450-E
	90-280VAC	90VAC	10VAC	48-280VAC	.04-75	CC1016-ND	60.43	54.38	52.22	49.82	A2475
	90-280VAC	90VAC	10VAC	80-530VAC	.04-25	CC1092-ND	39.48	38.90	35.34	33.51	A4825
	90-280VAC	90VAC	10VAC	80-530VAC	.04-40	CC1093-ND	43.41	42.78	38.86	36.85	A4840
	90-280VAC	90VAC	10VAC	80-530VAC	.04-50	CC1094-ND	45.11	44.45	40.38	38.28	A4850
	90-280VAC	90VAC	10VAC	80-530VAC	.04-90	CC1095-ND	65.13	64.17	58.30	55.27	A4890
Series HD — DC Input, AC Output — SCR Type											
1	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-12	CC1017-ND	37.34	33.57	32.30	27.69	HD4812
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-25	CC1018-ND	39.63	35.65	34.28	29.40	HD4825
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-50	CC1019-ND	44.02	39.57	38.03	32.61	HD4850
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-50	CC1096-ND	42.12	41.51	37.71	35.75	HD4850-10
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-75	CC1020-ND	70.18	63.07	60.57	51.99	HD4875
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-90	CC1021-ND	71.18	64.04	61.46	52.79	HD4890
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-25	CC1097-ND	36.97	36.43	33.10	31.38	HD6025
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-50	CC1098-ND	41.17	40.57	36.86	34.94	HD6050
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-90	CC1099-ND	54.28	53.48	48.59	46.07	HD6090
	3-32VDC	3.0VDC	1.0VDC	80-530VAC	.04-125	CC1100-ND	76.49	75.36	68.47	64.91	HD60125
Series HA — AC Input, AC Output — SCR Type											
1	90-280VAC	90VAC	10VAC	80-530VAC	.04-25	CC1022-ND	45.46	40.75	39.09	37.30	HA4825
	90-280VAC	90VAC	10VAC	80-530VAC	.04-50	CC1023-ND	52.88	46.42	44.63	42.55	HA4850
	90-280VAC	90VAC	10VAC	80-530VAC	.04-75	CC1024-ND	71.47	64.20	61.65	52.95	HA4875
	90-280VAC	90VAC	10VAC	80-530VAC	.04-90	CC1025-ND	74.90	67.15	64.46	61.49	HA4890
	90-280VAC	90VAC	10VAC	48-660VAC	.04-25	CC1101-ND	38.56	38.00	34.52	32.73	HA6025
	90-280VAC	90VAC	10VAC	48-660VAC	.04-50	CC1102-ND	42.76	42.13	38.28	36.29	HA6050
	90-280VAC	90VAC	10VAC	48-660VAC	.04-90	CC1103-ND	58.51	57.65	52.38	49.66	HA6090
	90-280VAC	90VAC	10VAC	48-660VAC	.04-125	CC1104-ND	78.07	76.93	69.89	66.26	HA60125
Series H12 — DC Input, AC Output — SCR Type											
1	4-32VDC	4.0VDC	1.0VDC	48-660VAC	.04-50	CC1032-ND	53.64	41.18	39.57	37.93	H12WD4850
	4-32VDC	4.0VDC	1.0VDC	48-660VAC	.04-90	CC1033-ND	71.42	54.34	52.10	50.10	H12WD4890
	4-32VDC	4.0VDC	1.0VDC	48-530VAC	.04-50	CC1105-ND	51.84	51.08	46.41	44.00	H12D4850
	4-32VDC	4.0VDC	1.0VDC	48-530VAC	.04-90	CC1106-ND	73.74	72.65	66.01	62.58	H12D4890
Series H12 — AC Input, AC Output — SCR Type											
1	90-140VAC	90VAC	10VAC	48-660VAC	.04-50	CC1034-ND	54.67	41.96	40.42	38.66	H12CA4850
	90-140VAC	90VAC	10VAC	48-660VAC	.04-90	CC1035-ND	72.83	55.37	53.11	51.04	H12CA4890
Series T — DC Input, AC Output — Triac Type											
1	3-32VDC	3.0VDC	1.0VDC	24-140VAC	.05-10	CC1026-ND	35.92	34.03	31.96	30.07	TD1210
	3-32VDC	3.0VDC	1.0VDC	24-140VAC	.05-25	CC1027-ND	39.86	38.36	37.78	36.84	TD1225
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.05-10	CC1028-ND	28.51	27.77	27.02	26.27	TD2410
	3-32VDC	3.0VDC	1.0VDC	48-280VAC	.05-25	CC1029-ND	33.15	32.29	31.40	29.65	TD2425
Series T — AC Input, AC Output — Triac Type											
1	90-280VAC	90VAC	10VAC	24-140VAC	.05-10	CC1107-ND	27.80	27.40	24.89	23.60	TA1210
	90-280VAC	90VAC	10VAC	24-140VAC	.05-25	CC1030-ND	32.59	31.21	30.74	29.97	TA1225
	90-280VAC	90VAC	10VAC	48-280VAC	.05-10	CC1108-ND	29.19	28.77	26.14	24.78	TA2410
	90-280VAC	90VAC	10VAC	48-280VAC	.05-25	CC1031-ND	28.83	28.08	27.32	25.78	TA2425
Series 1 -DC — DC Input, DC Output — MOSFET Type											
1	3.5-32VDC	3.5VDC	1.0VDC	0-100VDC	0-7	CC1036-ND	44.34	39.89	38.36	36.50	D1D07
	3.5-32VDC	3.5VDC	1.0VDC	0-100VDC	0-12	CC1037-ND	49.01	44.12	42.32	40.42	D1D12
	3.5-32VDC	3.5VDC	1.0VDC	0-100VDC	0-20	CC1038-ND	53.26	47.96	45.99	43.93	D1D20
	3.5-32VDC	3.5VDC	1.0VDC	0-100VDC	0-40	CC1039-ND	66.74	60.05	57.60	54.95	D1D40
	3.5-32VDC	3.5VDC	1.0VDC	0-200VDC	0-7	CC1040-ND	51.23	46.15	44.30	42.23	D2D07
	3.5-32VDC	3.5VDC	1.0VDC	0-200VDC	0-12	CC1041-ND	59.11	53.22	51.05	48.70	D2D12
	3.5-32VDC	3.5VDC	1.0VDC	0-400VDC	0-7	CC1042-ND	59.08	53.20	51.02	48.69	D4D07
	3.5-32VDC	3.5VDC	1.0VDC	0-400VDC	0-12	CC1109-ND	72.89	71.82	65.25	61.86	D4D12
Series CS — DC Input, AC Output — SCR Type											
1	3.5-15VDC	3.5VDC	1.0VDC	24-280VAC	.1-10	CC1043-ND	23.20	21.60	20.17	19.11	CSD2410
	3.5-15VDC	3.5VDC	1.0VDC	24-280VAC	.1-25	CC1044-ND	29.56	27.49	25.69	24.31	CSD2425
	3.5-15VDC	3.5VDC	1.0VDC	24-280VAC	.1-50	CC1045-ND	33.95	31.73	30.40	29.29	CSD2450
	3.5-15VDC	3.5VDC	1.0VDC	24-280VAC	.1-75	CC1046-ND	49.75	48.17	47.47	46.21	CSD2475
	15-32VDC	15VDC	1.0VDC	24-280VAC	.1-10	CC1110-ND	22.19	21.87	19.87	18.84	CSE2410
	15-32VDC	15VDC	1.0VDC	24-280VAC	.1-25	CC1111-ND	27.15	26.75	24.31	23.04	CSE2425
	15-32VDC	15VDC	1.0VDC	24-280VAC	.1-50	CC1112-ND	31.91	31.44	28.57	27.09	CSE2450

9213B-ND	Solid State Relay Design Guide	**$21.12**

Fig. 1



Series 1, HD, HA: • These SPST-NO relays deliver proven reliability in the most demanding applications. Output consists of an SCR AC switch, available in either zero voltage turn-on or random turn-on, phase controlled models. (-10 versions are phase controlled. Crydom part numbers ending in "B" are normally closed versions.)

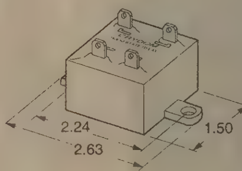
Series T: • Industry Standard Package • Snubbers are included for high DV/DT applications and inductive loads, together with zero-voltage switching to reduce inrush currents and electrical noise.

Series H12: • High voltage relays use IC driven circuits for switching loads up to 660 VAC with 1200 Volts blocking standard.

Series 1-DC: • Low On-State Resistance • Paralleling Capability for Higher Currents • DC output relays feature MOSFET technology for low on-state resistance, assuring easy paralleling and switching capabilities to 40 amps at 100 VDC.

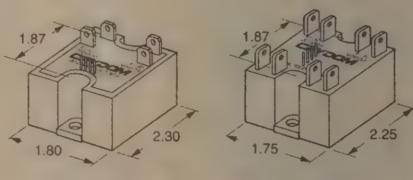
Series CS: • Low Leakage • SCR AC switch output models feature low off-state leakage (snubberless), zero-voltage switching and have a broadened operating range at both 120V/240VAC line voltages.

Fig. 2



Series EZ: • Low Leakage • Quick Connect Terminals • Offers a low profile package with the convenience of quick connect terminals • 4000 Vrms opto-isolation and low off-state leakage are standard.

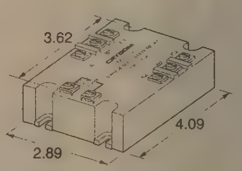
Fig. 3



Dual Relay **Quad Relay**

Two (Dual) or four (Quad) totally independent AC output relays come in a single standard panel-mount package. Utilizing an AC switch output with internal snubber, relays provide greater protection against false triggering.

Fig. 4



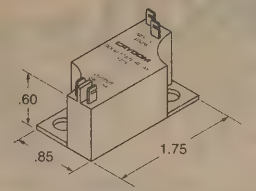
• SCR Output • AC or DC Control • LED Status Indicator

Three-phase solid state relays switch up to 530 Vrms directly to loads such as motors, transformers, heating elements, etc. Models are available with either AC or DC input (coil). For heatsink use part number CC1114-ND.

Fig. No.	Input Volt.	Operate Volt.	Release Volt.	Output Volt.	Load Current (Arms)	Digi-Key Part No.	Price Each				Crydom Part No.
							1	10	25	50	
Series DC60 — DC Input, DC Output — Bipolar Type											
1	3-32VDC	3.0VDC	1.0VDC	3-60VDC	.02-3	CC1126-ND	11.98	11.81	10.73	10.17	DC60S3
	3-32VDC	3.0VDC	1.0VDC	3-60VDC	.02-5	CC1127-ND	18.80	18.53	16.84	15.96	DC60S5
	3-32VDC	3.0VDC	1.0VDC	3-60VDC	.02-7	CC1128-ND	23.48	23.14	21.02	19.93	DC60S7
Series EZ — DC Input, AC Output — SCR Type											
2	4-15VDC	4.0VDC	1.0VDC	24-280VAC	.06-12	CC1047-ND	13.58	13.32	13.00	12.31	EZ240D12
	4-15VDC	4.0VDC	1.0VDC	24-280VAC	.06-18	CC1048-ND	17.50	17.03	16.61	15.70	EZ240D18
Dual-Quad DC Input, AC Output — SCR Type											
3	4-15VDC	4.0VDC	1.0VDC	24-280VAC	.05-25	CC1121-ND	50.15	49.42	44.90	42.56	D2425D
	4-15VDC	4.0VDC	1.0VDC	24-280VAC	.05-40	CC1122-ND	56.80	55.97	50.85	48.21	D2440D
	4-15VDC	4.0VDC	1.0VDC	24-280VAC	.05-20	CC1123-ND	79.17	78.01	70.87	67.19	TD2420Q
Series 53TP — DC Input, AC Output — SCR Type (for 3 Phase applications)											
4	3-32VDC	3.0VDC	1.0VDC	48-530VAC	.05-25	CC1135-ND	109.02	107.41	97.59	92.52	D53TP25D
	3-32VDC	3.0VDC	1.0VDC	48-530VAC	.05-50	CC1136-ND	119.30	117.55	106.79	101.25	D53TP50D
	90-280VAC	90VAC	10VAC	48-530VAC	.05-25	CC1137-ND	113.69	112.02	101.77	96.49	A53TP25D
	90-280VAC	90VAC	10VAC	48-530VAC	.05-50	CC1138-ND	123.97	122.15	110.98	105.21	A53PT50D
Heatsink for Solid State Relays up to 10A (3.3" x 4.1")						CC1113-ND	16.69	15.50	14.42	13.68	HS-1
Heatsink for Solid State Relays up to 25A (4.1" x 3.4")						CC1207-ND	17.94	16.67	15.50	14.70	HS-2
Heatsink for Solid State Relays up to 75A (5.5" x 4.8")						CC1208-ND	26.32	24.52	22.82	21.65	HE-54
Heatsink for Solid State Relays up to 90A						CC1114-ND	74.31	68.91	64.12	60.85	HE-90
Protective Cover for Series 1 Solid State Relays						CC1070-ND	2.35	2.23	2.15	2.02	KS-100
Series 2 — DC Input, AC Output											
5	3.5-8VDC	3.5VDC	1.0VDC	20-140VAC	.02-8	CC1129-ND	26.76	26.37	23.96	22.71	S218
	3.5-8VDC	3.5VDC	1.0VDC	40-280VAC	.02-8	CC1130-ND	28.17	27.76	25.22	23.91	S228
	3.5-8VDC	3.5VDC	1.0VDC	40-280VAC	.02-8	CC1131-ND	23.67	23.33	21.19	20.09	S228C
Series 3 — DC Input, AC Output											
6	3.5-8VDC	3.5VDC	1.0VDC	20-140VAC	.02-3	CC1132-ND	22.17	21.85	19.85	18.82	S312
	3.5-8VDC	3.5VDC	1.0VDC	20-140VAC	.02-3	CC1133-ND	21.15	20.84	18.94	17.95	S3012A
	3.5-8VDC	3.5VDC	1.0VDC	40-280VAC	.02-3	CC1134-ND	23.02	22.69	20.61	19.54	S3022A
Series AO241 — DC Input, AC Output — SCR Type Mini-SIP											
7	4-10VDC	4.0VDC	1.0VDC	24-280VAC	.02-1.0	CC1049-ND	6.73	6.37	6.21	5.78	AO241
	4-10VDC	4.0VDC	1.0VDC	24-280VAC	.02-1.0	CC1115-ND	7.11	7.01	6.37	6.04	AO241R
	4-10VDC	4.0VDC	1.0VDC	12-280VAC	.01-1.5	CC1050-ND	7.43	7.01	6.86	6.38	ASO241
	4-10VDC	4.0VDC	1.0VDC	12-280VAC	.01-1.5	CC1116-ND	7.87	7.76	7.05	6.68	ASO241R
Series DO061 — DC Input, DC Output — Bipolar Type Mini-SIP											
7	3-9VDC	3.0VDC	1.0VDC	3-60VDC	.02-1.0	CC1060-ND	7.96	7.16	6.90	6.47	DO061A
	1.7-9VDC	1.7VDC	0.8VDC	3-60VDC	.02-1.0	CC1061-ND	7.96	7.16	6.90	6.47	DO061B
Series D2W — DC Input, AC Output — Triac Type SIP											
8	3-32VDC	3.0VDC	1.0VDC	24-280VAC	.06-2.0	CC1069-ND	6.68	6.47	6.26	6.05	D2W202F
	3-32VDC	3.0VDC	1.0VDC	24-280VAC	.06-3.0	CC1118-ND	8.13	8.02	7.28	6.91	D2W203F
	3-32VDC	3.0VDC	1.0VDC	24-280VAC	.06-3.5	CC1062-ND	7.48	7.27	7.06	6 85	D2W203F-11
Series CX — DC Input, AC Output — SCR Type SIP											
8	3-15VDC	3.0VDC	1.0VDC	12-280VAC	.06-5.0	CC1063-ND	9.02	8.60	8.33	7.75	CX240D5
	15-32VDC	15VDC	1.0VDC	12-280VAC	.06-5.0	CC1064-ND	9.02	8.60	8.33	7.75	CXE240D5
	15-32VDC	15VDC	1.0VDC	12-280VAC	.06-5.0	CC1119-ND	11.82	11.65	10.58	10.03	CX240D5R
	4-13VDC	4.0VDC	1.0VDC	48-530VAC	.06-5.0	CC1120-ND	12.17	12.00	10.90	10.33	CX380D5
	3-10VDC	3.0VDC	1.0VDC	0-100VDC	0-6.0A	CC1124-ND	26.20	25.81	23.45	22.24	CMX100D6
	3-10VDC	3.0VDC	1.0VDC	0-60VDC	0-10A	CC1125-ND	26.20	25.81	23.45	22.24	CMX60D10
	4-13VDC	4.0VDC	1.0VDC	48-660VAC	.06-5.0	CC1065-ND	12.61	12.03	11.66	10.87	CX480D5
	15-32VDC	15VDC	1.0VDC	48-660VAC	.06-5.0	CC1066-ND	12.61	12.03	11.66	10.87	CXE480D5

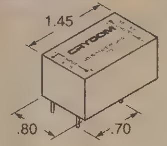
Fig. No.	Input Voltage	Input Current (mA)	Output Current @	Output Voltage	Turn On Time	Turn Off Time	Digi-Key Part No.	Price Each				Crydom Part No.
								1	10	25	50	
I/O Modules — 5VDC System Voltage												
9	90-140VAC	7	.1-100 mA	.4-30VDC	20 ms	20 ms	CC1200-ND	9.77	9.16	8.86	8.56	IAC-5
	180-280VAC	5	.1-100 mA	.4-30VDC	20 ms	20 ms	CC1201-ND	10.26	9.63	9.30	8.99	IAC-5A
	10-36VDC	8	.1-100 mA	.4-30VDC	5 ms	5 ms	CC1202-ND	9.77	9.16	8.86	8.56	IDC-5
	3-6VDC	19	.02-3A	12-140VAC	.5 cycle	.5 cycle	CC1203-ND	9.77	9.16	8.86	8.56	OAC-5
	3-6VDC	19	.02-3A	24-280VAC	.5 cycle	.5 cycle	CC1204-ND	10.26	9.63	9.30	8.99	OAC-5A
	3-6VDC	14	.02-3A	5-60VDC	.3 ms	.3 ms	CC1205-ND	9.77	9.16	8.86	8.56	ODC-5
	3-32VDC	13	.1-100mA	.4-30VDC	5 ms	5ms	CC1209-ND	9.63	8.97	8.35	7.92	IDC-5D
	10-36VDC	4	.1-100mA	.4-30VDC	5ms	5ms	CC1234-ND	11.51	10.68	9.94	9.43	DMP6101A
	90-140VDC	6	.1-100mA	.4-30VDC	20ms	20ms	CC1235-ND	11.70	10.86	10.10	9.59	DMP6201A
	180-280VDC	4	.1-100mA	.4-30VDC	20ms	20ms	CC1236-ND	12.64	11.73	10.91	10.36	DMP6202A
	3-6VDC	3	.02-3A	5-60VDC	.5ms	.5ms	CC1237-ND	11.82	10.97	10.21	9.68	DMP6301A
	3-6VDC	4	.02-3A	24-280VAC	.5 cycle	.5 cycle	CC1238-ND	12.64	11.73	10.91	10.36	DMP6402A
I/O Modules — 15VDC System Voltage												
9	90-140VAC	7	.1-100mA	.4-30VDC	20ms	20ms	CC1210-ND	11.92	11.11	10.34	9.81	IAC-15
	10-36VDC	8	.1-100mA	.4-30VDC	5ms	5ms	CC1211-ND	11.92	11.11	10.34	9.81	IDC-15
	9-18VDC	20	.02-3A	12-140VAC	.5 cycle	.5 cycle	CC1212-ND	11.92	11.11	10.34	9.81	OAC-15
	9-18VDC	14	.02-3A	5-60VDC	.3ms	.3ms	CC1213-ND	11.92	11.11	10.34	9.81	ODC-15
I/O Modules — 24VDC System Votage												
9	90-140VAC	7	.1-100mA	4-30VDC	20ms	20ms	CC1214-ND	11.92	11.11	10.34	9.81	IAC-24
	10-36VDC	8	.1-100mA	.4-30VDC	5ms	5ms	CC1215-ND	11.92	11.11	10.34	9.81	IDC-24
	18-28VDC	10	.02-3A	12-140VAC	.5 cycle	.5 cycle	CC1216-ND	11.92	11.11	10.34	9.81	OAC-24
	18-28VDC	10	.02-3A	5-60VDC	.3ms	.3ms	CC1217-ND	11.57	10.79	10.04	9.52	ODC-24
Series 6 — AC & DC Buffered Modules												
9	0-.8VDC	100µA	.02-3A	3-60VDC	100µS	100µS	CC1239-ND	19.17	17.78	16.54	15.70	6311
	2.4-6VDC	250µA	.02-3.5A	3-60VDC	100µS	100µS	CC1240-ND	19.60	18.18	16.92	16.05	6321
	0-.8VDC	100µA	.02-3A	12-140VAC	.5 cycle	.5 cycle	CC1241-ND	17.72	16.44	15.30	14.52	6411
	0-.8VDC	100µA	.02-3.5A	24-280VAC	.5 cycle	.5 cycle	CC1242-ND	19.70	18.27	17.00	16.13	6412
	2.4-6VDC	250µA	.02-3.5A	12-140VAC	.5 cycle	.5 cycle	CC1243-ND	17.51	16.24	15.11	14.34	6421
Mounting Board for 4-position Std. I/O Modules (Screw Terminals)							CC1206-ND	26.86	25.56	24.94	24.29	PB-4
Mounting Board for 4-position Std. I/O Modules (Screw Terminals)							CC1218-ND	29.32	27.91	27.22	26.52	PB-4R
Mounting Board for 8-position Std. I/O Modules (Card Edge Connector)							CC1219-ND	52.46	49.93	48.70	47.44	PB-8
Mounting Board for 16-position Std. I/O Modules (Screw Terminals)							CC1220-ND	121.61	115.75	112.90	109.96	PB-16T
Mounting Board for 16-position Std. I/O Modules (Card Edge Connector)							CC1221-ND	95.92	91.30	89.05	86.74	PB-16A
Mini I/O Module — 5VDC System Voltage												
9	90-140VAC	7	.1-100mA	.4-30VDC	20ms	20ms	CC1222-ND	11.98	11.11	10.34	9.81	MIAC-5
	10-36VDC	8	.1-100mA	.4-30VDC	5ms	5ms	CC1223-ND	11.98	11.11	10.34	9.81	MIDC-5
	3-6VDC	19	.02-3A	12-140VAC	.5 cycle	.5 cycle	CC1224-ND	11.98	11.11	10.34	9.81	MOAC-5
	3-6VDC	19	.02-3A	24-280VAC	.5 cycle	.5 cycle	CC1225-ND	12.58	11.67	10.86	10.31	MOAC-5A
	3-6VDC	14	.02-3A	5-60VDC	.3 ms	.3 ms	CC1226-ND	11.98	11.11	10.34	9.81	MODC-5
Mini I/O Module — 24VDC System Voltage												
9	10-36VDC	8	.1-100mA	.4-30VDC	5ms	5ms	CC1227-ND	11.98	11.11	10.34	9.81	MIDC-24
	18-28VDC	15	.02-3A	12-140VAC	.5 cycle	.5 cycle	CC1228-ND	11.98	11.11	10.34	9.81	MOAC-24
	18-28VDC	10	.02-3A	5-60VDC	.3 ms	.3 ms	CC1229-ND	11.98	11.11	10.34	9.81	MODC-24
Mounting Board for 4-position Mini I/O Modules (Screw Terminals)							CC1230-ND	26.86	25.56	24.94	24.29	MS-4
Mounting Board for 8-position Mini I/O Modules (Card Edge Connector)							CC1231-ND	52.46	49.93	48.70	47.44	MS-8H
Mounting Board for 16-position Mini I/O Modules (Card Edge Connector)							CC1232-ND	95.92	91.30	89.05	86.74	MS-16H
Mounting Board for 24-position Mini I/O Modules (Card Edge Connector)							CC1233-ND	162.25	154.42	150.62	146.71	MS-24H

Fig. 5



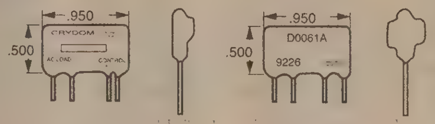
Relays combine small size and high ratings in a package designed for easy heat sink or panel mounting. Standard .187 push-on terminals assure quick connection and are arranged to provide maximum isolation between signal and power circuits. Model S228C is a snubberless design for applications that require low off-state leakage.

Fig. 6



These solid state relays combine small size and high ratings in a PC-board-mounted SPST-NO design. Available with (S30 types) or without snubber network (S3 types), Series 3 is an ideal replacement for power reed relays in microprocessor or computer-based logic level systems. Designed for long, reliable service in demanding industrial environments.

Fig. 7



Series AO241 *Series DO061*

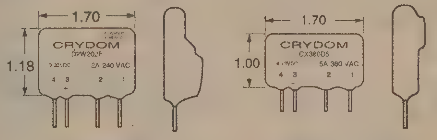
Series AO241

- SPST-NO miniature SIP solid state relays • Designed for switching highly inductive, low current loads such as solenoids. Also suitable for all loads up to 1.5A. R suffix are random turn-on versions.

Series DO061

- SPST-NO DC bipolar transistor output relays in epoxy-coated packages utilize the popular .10" grid lead spacing.

Fig. 8



Series D2W *Series CX - CMX*

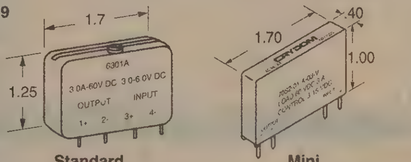
Series D2W

- Printed Circuit Board Mounting • Features an epoxy-coated package for exceptional environmental protection. Pinouts are compatible with OAC type I/O modules.

Series CX - CMX

- Ultra High Surge • Printed Circuit Board Mounting • SPST-NO relays achieve the highest power switching capability in a PC-mounted air-cooled package. Advanced features include exceptional steady state current, plus ultra-high surge ratings. New DC output SPST-NO solid state relays use MOSFET output for high switching capabilities in a PC-mount air-cooled package. Pinouts are compatible with Series 6 and ODC type I/O modules.

Fig. 9



Standard **Mini**

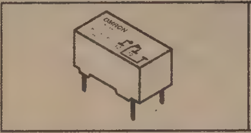
Series IAC, IDC, OAC, ODC

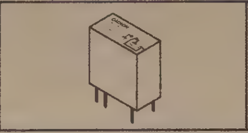
- Opto-Isolated • Solid state I/O switching modules deliver an electrically clean, photo-isolated, noise free "output" interface from logic level control systems to external loads such as motors, valves, solenoids, etc. DMP versions are epoxy conformal coated for fast heat transfer.

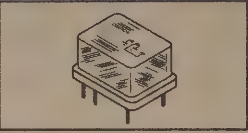
Series 6

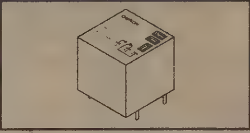
Series 6 buffered output modules contain additional internal amplification to reduce drive requirements to a level suitable for the Mos devices used in many microprocessor systems. Models are available with either inverting or no-inverting inputs, for 5 and 15 volt logic.

OMRON® Relays — Low Signal • Power PCB









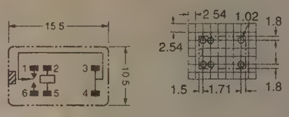
Omron Relay Data Book 9135B-ND $5.00

Contact Form	Coil Volt. (VDC)	Coil Res. (Ω)	Contact Rtg's. Resistive (A) 24 VDC	115 VAC	Oper. Volt. (% of Rated) Pull/Drop/Max. On/Out/Cont.	Oper./Rel. Time/Time (msec.)	Digi-Key Part No.	Pricing 1	25	50	100	Dim. (mm) H x L x W	Omron Part No.	Diagram
PC MOUNT LOW-SIGNAL RELAYS														
SPDT†	5	56	1	0.5	70/10/110	5/3	Z100-ND‡	3.27	75.34	141.35	250.03	11.5 x 15.5 x 10.5	G2E-184P-M-US-DC5	A
SPDT†	12	320	1	0.5	70/10/110	5/3	Z101-ND‡	3.42	78.82	147.87	261.56	11.5 x 15.5 x 10.5	G2E-184P-M-US-DC12	
SPDT†	24	1280	1	0.5	70/10/110	5/3	Z102-ND‡	3.47	79.93	149.96	265.25	11.5 x 15.5 x 10.5	G2E-184P-M-US-DC24	
DPDT†*	5	50	2	0.5	75/5/120	7/3	Z767-ND	3.02	69.73	130.81	231.39	11.5 x 20.5 x 10.1	G5V-2-DC5	B
DPDT†*	12	288	2	0.5	75/5/120	7/3	Z768-ND	3.02	69.73	130.81	231.39	11.5 x 20.5 x 10.1	G5V-2-DC12	
DPDT†*	24	1152	2	0.5	75/5/120	7/3	Z769-ND	3.02	69.73	130.81	231.39	11.5 x 20.5 x 10.1	G5V-2-DC24	
DPDT†*	5	69	2	0.5	75/5/120	7/3	Z770-ND	3.24	74.82	140.38	248.31	11.5 x 20.5 x 10.1	G5V-2-H-DC5	B
DPDT†*	12	400	2	0.5	75/5/120	7/3	Z771-ND	3.24	74.82	140.38	248.31	11.5 x 20.5 x 10.1	G5V-2-H-DC12	
DPDT†*	24	1600	2	0.5	75/5/120	7/3	Z772-ND	3.24	74.82	140.38	248.31	11.5 x 20.5 x 10.1	G5V-2-H-DC24	
SPDT†	5	167	1	0.5	80/10/200	5/5	Z773-ND	2.45	56.52	106.04	187.58	10 x 12.5 x 7.5	G5V-1-DC5	C
SPDT†	12	960	1	0.5	80/10/200	5/5	Z774-ND	2.45	56.52	106.04	187.58	10 x 12.5 x 7.5	G5V-1-DC12	
SPDT†	24	3840	1	0.5	80/10/200	5/5	Z775-ND	2.45	56.52	106.04	187.58	10 x 12.5 x 7.5	G5V-1-DC24	
DPDT†*	5	125	1	0.6	70/10/150	5/5	Z105-ND	4.92	113.51	212.95	376.69	8.4 x 20.3 x 10.1	G6A-234P-ST-US-DC5	B
DPDT†*	12	720	1	0.6	70/10/150	5/5	Z106-ND	4.92	113.51	212.95	376.69	8.4 x 20.3 x 10.1	G6A-234P-ST-US-DC12	
DPDT†*	24	2880	1	0.6	70/10/150	5/5	Z107-ND	4.92	113.51	212.95	376.69	8.4 x 20.3 x 10.1	G6A-234P-ST-US-DC24	
DPDT	5	125	1	0.5	70/10/150	5/5	Z706-ND	4.27	98.48	184.76	326.81	7.9 x 16.0 x 9.9	G5A-237P-DC5	D
DPDT	12	720	1	0.5	70/10/150	5/5	Z707-ND	4.27	98.48	184.76	326.81	7.9 x 16.0 x 9.9	G5A-237P-DC12	
DPDT	24	2880	1	0.5	70/10/150	5/5	Z708-ND	4.39	101.33	190.10	336.26	7.9 x 16.0 x 9.9	G5A-237P-DC24	
DPDT	5	125	1	0.5	70/10/150	5/5	Z942-ND	4.73	106.31	189.00	340.20	8.0 x 16.0 x 9.9	G5A-234P-DC5	D
DPDT	12	720	1	0.5	70/10/150	5/5	Z943-ND	4.73	106.31	189.00	340.20	8.0 x 16.0 x 9.9	G5A-234P-DC12	
DPDT	24	2880	1	0.5	70/10/150	5/5	Z944-ND	4.73	106.31	189.00	340.20	8.0 x 16.0 x 9.9	G5A-234P-DC24	
SPDT	5	63	2	0.4	70/10/190	5/5	Z761-ND	3.95	91.04	170.80	302.12	8.0 x 16.0 x 9.9	G6E-134P-L-ST-US-DC5	E
SPDT	12	360	2	0.4	70/10/190	5/5	Z762-ND	3.95	91.04	170.80	302.12	8.0 x 16.0 x 9.9	G6E-134P-L-ST-US-DC12	
SPDT	24	1440	2	0.4	70/10/190	5/5	Z763-ND	3.95	91.04	170.80	302.12	8.0 x 16.0 x 9.9	G6E-134P-L-ST-US-DC24	
SPDT†*	5	125	2	0.4	70/10/190	5/5	Z830-ND	4.11	94.74	177.75	314.42	7.9 x 16.0 x 9.9	G6E-134P-ST-US-DC5	E
SPDT†*	12	720	2	0.4	70/10/190	5/5	Z831-ND	4.11	94.74	177.75	314.42	7.9 x 16.0 x 9.9	G6E-134P-ST-US-DC12	
SPDT†*	24	2880	2	0.4	70/10/190	5/5	Z832-ND	4.11	94.74	177.75	314.42	7.9 x 16.0 x 9.9	G6E-134P-ST-US-DC24	
4PDT†*	5	139	1	0.3	70/10/150	7/5	Z940-ND	10.87	244.46	434.60	782.28	8.4 x 35.4 x 10.1	G6A-434P-STUS-DC5	F
4PDT†*	12	400	1	0.3	70/10/150	7/5	Z206-ND	10.65	245.55	460.68	814.88	8.4 x 35.4 x 10.1	G6A-434P-ST-US-DC12	
4PDT†*	24	1800	1	0.3	70/10/150	7/5	Z941-ND	10.87	244.46	434.60	782.28	8.4 x 35.4 x 10.1	G6A-434P-STUS-DC24	
PC MOUNT LOW-SIGNAL RELAYS — LATCHING TYPE														
DPDT*	5	139	1	0.3	70/70/200	5/5	Z749-ND	6.18	142.46	267.28	472.78	8.4 x 20.2 x 10.1	G6AK-234P-ST-US-DC5	G
DPDT*	12	800	1	0.3	70/70/200	5/5	Z750-ND	6.18	142.46	267.28	472.78	8.4 x 20.2 x 10.1	G6AK-234P-ST-US-DC12	
DPDT*	24	3200	1	0.3	70/70/200	5/5	Z751-ND	6.18	142.46	267.28	472.78	8.4 x 20.2 x 10.1	G6AK-234P-ST-US-DC24	
SPDT†*	5	125	1	0.3	70/70/190	5/5	Z833-ND	5.32	122.77	230.34	407.44	7.9 x 16.0 x 9.9	G6EK-134P-ST-US-DC5	—
SPDT†*	12	720	1	0.3	70/70/190	5/5	Z834-ND	5.32	122.77	230.34	407.44	7.9 x 16.0 x 9.9	G6EK-134P-ST-US-DC12	
SPDT†*	24	2880	1	0.3	70/70/190	5/5	Z835-ND	5.51	127.18	238.60	422.04	7.9 x 16.0 x 9.9	G6EK-134P-ST-US-DC24	
DPDT†	5	250	1	0.5	75/75/190	3/2	Z965-ND	5.22	117.39	208.69	375.64	5.0 x 14.0 x 9	G6HK-2-DC5	H
DPDT†	12	1440	1	0.5	75/75/190	3/2	Z966-ND	5.22	117.39	208.69	375.64	5.0 x 14.0 x 9	G6HK-2-DC12	
DPDT†	24	3840	1	0.5	75/75/190	3/2	Z967-ND	5.62	126.38	224.68	404.42	5.0 x 14.0 x 9	G6HK-2-DC24	
HIGH EFFICIENCY POWER RELAYS (Low Power Consumption with High Coil Resistance)														
SPST-NO†	5	125	8	8	70/15/130	10/10	Z712-ND	5.28	121.73	228.39	403.99	9.9 x 20.0 x 9.9	G6B-1174P-US-DC5	I
SPST-NO†	12	720	8	8	70/15/130	10/10	Z713-ND	5.28	121.73	228.39	403.99	9.9 x 20.0 x 9.9	G6B-1174P-US-DC12	
SPST-NO†	24	2880	8	8	70/15/130	10/10	Z714-ND	5.46	126.01	236.40	418.16	9.9 x 20.0 x 9.9	G6B-1174P-US-DC24	
SPST-NO†	5	125	10	10	70/15/130	10/10	Z715-ND	5.30	122.21	229.28	405.56	10.2 x 20.0 x 15.0	G6C-1114P-US-DC5	J
SPST-NO†	12	720	10	10	70/15/130	10/10	Z716-ND	5.30	122.21	229.28	405.56	10.2 x 20.0 x 15.0	G6C-1114P-US-DC12	
SPST-NO†	24	2880	10	10	70/15/130	10/10	Z948-ND	5.59	125.69	223.44	402.19	10.2 x 20.0 x 15.0	G6C-1114P-US-DC24	

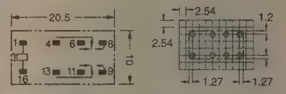
All Relays UL/CSA approved; † Sealed case; * Meets FCC Part 68 standards. ‡ Not Reccomended for New Design.

Mounting Hole Pattern & Connection Diagram
"Bottom view unless otherwise noted"

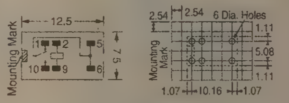
A



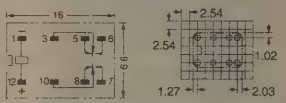
Pin #1 is Positive **B**



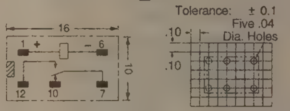
C



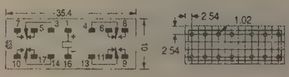
D



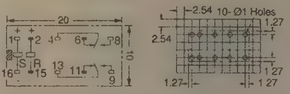
E



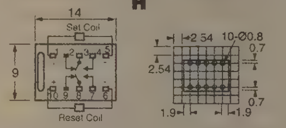
F



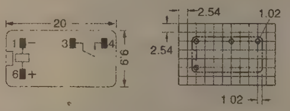
G



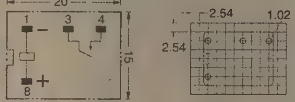
H



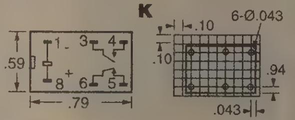
I



J



K



OMRON® Relays — Low Signal • Power PCB

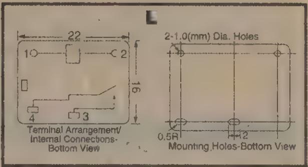
Mounting Hole Pattern & Connection Diagram
"Bottom view unless otherwise noted"

Omron Relay Data Book 9135B-ND $5.00

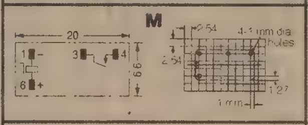
Contact Form	Coil Volt. (VDC)	Coil Res. (Ω)	Contact Rtg's. Resistive (A) 24 VDC	Contact Rtg's. Resistive (A) 115 VAC	Oper. Volt. (% of Rated) Pull/Drop/Max. On/Out/Cont.	Oper./Rel. Time/Time (msec.)	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 50	Pricing 100	Dim. (mm) H x L x W	Omron Part No.	Diagram
SPST-NO/NC	5	125	8	8	75/10/130	10/10	Z949-ND	6.24	140.33	249.48	449.06	9.9 x 20.0 x 15.0	G6C-2114P-US-DC5	K
SPST-NO/NC	12	720	8	8	75/10/130	10/10	Z950-ND	6.24	140.33	249.48	449.06	9.9 x 20.0 x 15.0	G6C-2114P-US-DC12	
SPST-NO/NC	24	2880	8	8	75/10/130	10/10	Z951-ND	6.44	144.82	257.46	463.43	9.9 x 20.0 x 15.0	G6C-2114P-US-DC24	
SPST-NO*	5	166	10	15	75/10/130	15/10	Z960-ND	3.53	79.34	141.04	253.87	11 x 22 x 16	G5CE-1-DC5	L
SPST-NO*	12	720	10	15	75/10/130	15/10	Z779-ND	3.46	79.69	149.50	264.45	11 x 22 x 16	G5CE-1-DC12	
SPST-NO*	24	2880	10	15	75/10/130	15/10	Z780-ND	3.58	82.47	154.72	273.68	11 x 22 x 16	G5CE-1-DC24	
SPST-NO†*	5	125	5	5	80/10/110	10/10	Z945-ND	4.50	101.35	180.18	324.32	9.9 x 20.1 x 9.9	G6B-1114P-US-DC5	M
SPST-NO†*	6	180	5	5	80/10/110	10/10	Z752-ND	4.41	101.80	190.99	337.84	9.9 x 20.1 x 9.9	G6B-1114P-US-DC6	
SPST-NO†*	12	720	5	5	80/10/110	10/10	Z753-ND	4.41	101.80	190.99	337.84	9.9 x 20.1 x 9.9	G6B-1114P-US-DC12	
SPST-NO†*	24	2880	5	5	80/10/110	10/10	Z754-ND	4.54	104.65	196.33	347.29	9.9 x 20.1 x 9.9	G6B-1114P-US-DC24	
DPST-NO/NC†*	5	83	5	5	80/10/110	10/10	Z946-ND	5.50	123.80	220.08	396.14	9.9 x 20.1 x 9.9	G6B-2114P-US-DC5	N
DPST-NO/NC†*	6	120	5	5	80/10/110	10/10	Z755-ND	5.39	124.35	233.28	412.65	9.9 x 20.1 x 9.9	G6B-2114P-US-DC6	
DPST-NO/NC†*	12	480	5	5	80/10/110	10/10	Z756-ND	5.39	124.35	233.28	412.65	9.9 x 20.1 x 9.9	G6B-2114P-US-DC12	
DPST-NO/NC†*	24	1920	5	5	80/10/110	10/10	Z757-ND	5.64	130.04	243.97	431.55	9.9 x 20.1 x 9.9	G6B-2114P-US-DC24	
DPST-NO†*	5	83	5	5	80/10/110	10/10	Z947-ND	5.50	123.80	220.08	396.14	9.9 x 20.1 x 9.9	G6B-2214P-US-DC5	N
DPST-NO†*	6	120	5	5	80/10/110	10/10	Z758-ND	5.39	124.35	233.28	412.65	9.9 x 20.1 x 9.9	G6B-2214P-US-DC6	
DPST-NO†*	12	480	5	5	80/10/110	10/10	Z759-ND	5.39	124.35	233.28	412.65	9.9 x 20.1 x 9.9	G6B-2214P-US-DC12	
DPST-NO†*	24	1920	5	5	80/10/110	10/10	Z760-ND	5.64	130.04	243.97	431.55	9.9 x 20.1 x 9.9	G6B-2214P-US-DC24	
SPST-NO†	5	125	5	5	70/10/130	10/10	Z856-ND	4.72	108.88	204.26	361.31	12.5 x 17.5 x 6.5	G6D-1A-DC5	—
SPST-NO†	12	720	5	5	70/10/130	10/10	Z857-ND	4.50	103.78	194.70	344.40	12.5 x 17.5 x 6.5	G6D-1A-DC12	
SPST-NO†	24	2,880	5	5	70/10/130	10/10	Z858-ND	5.07	116.98	219.47	388.22	12.5 x 17.5 x 6.5	G6D-1A-DC24	
TELECOM — MEETS 2.5kV BELLCORE SURGE														
DPDT†	5	178	1	0.5	75/10/200	3/2	Z824-ND	4.52	104.24	195.57	345.94	11.0 x 15.0 x 7.5	G6N-2Y-DC5	P
DPDT†	12	1028	1	0.5	75/10/200	3/2	Z825-ND	4.52	104.24	195.57	345.94	11.0 x 15.0 x 7.5	G6N-2Y-DC12	
DPDT†	24	2880	1	0.5	75/10/170	3/2	Z826-ND	5.15	118.84	222.95	394.37	11.0 x 15.0 x 7.5	G6N-2Y-DC24	
ULTRACOMPACT, ULTRASENSITIVE DPDT RELAYS (Low Power Consumption with High Coil Resistance)														
DPDT*	5	178	1	0.5	75/10/170	2/1	Z740-ND	4.22	97.29	182.53	322.88	5.0 x 14.0 x 9.0	G6H-2-DC5	Q
DPDT*	12	1028	1	0.5	75/10/170	2/1	Z741-ND	4.22	97.29	182.53	322.88	5.0 x 14.0 x 9.0	G6H-2-DC12	
DPDT*	24	2880	1	0.5	75/10/170	2/1	Z742-ND	5.29	122.08	229.03	405.13	5.0 x 14.0 x 9.0	G6H-2-DC24	
SURFACE MOUNTABLE (IR, VAPOR PHASE & DWS SOLDERABLE) L-STYLE LEADS														
DPDT†*	5	125	1	0.2	75/10/130	5/3	Z709-ND•	6.04	139.22	261.18	462.00	8.0 x 16.0 x 10.0	G6G-234FL-DC5	R
DPDT†*	12	720	1	0.2	75/10/130	5/3	Z710-ND•	6.04	139.22	261.18	462.00	8.0 x 16.0 x 10.0	G6G-234FL-DC12	
DPDT†*	24	2880	1	0.2	75/10/130	5/3	Z711-ND•	6.37	146.87	275.55	487.41	8.0 x 16.0 x 10.0	G6G-234FL-DC24	
DPDT	5	178	0.5A@125VAC & 1A@30VDC		75/10/120	3/2	Z827-ND	6.50	149.88	281.19	497.38	5.2 x 14.0 x 9.0	G6H-2F-DC5	S
DPDT	12	1028			75/10/120	3/2	Z828-ND	6.50	149.88	281.19	497.38	5.2 x 14.0 x 9.0	G6H-2F-DC12	
DPDT	24	2880			75/10/120	3/2	Z829-ND	6.83	157.52	295.53	522.75	5.2 x 14.0 x 9.0	G6H-2F-DC24	
DPDT	5	178	0.5A@125VAC 2A@30VDC		75/10/200	4/4	Z888-ND	4.82	108.39	192.70	346.86	7.3 x 14.8 x 9.2	G6S-2F-DC5	T
DPDT	12	1028			75/10/200	4/4	Z889-ND	4.82	108.39	192.70	346.86	7.3 x 14.8 x 9.2	G6S-2F-DC12	
DPDT	24	2880			75/10/200	4/4	Z890-ND	5.69	128.00	227.55	409.59	7.3 x 14.8 x 9.2	G6S-2F-DC24	
DPDT	5	178	0.5A@125VAC 2A30VDC		75/10/200	4/4	Z891-ND	4.82	108.39	192.70	346.86	7.3 x 14.8 x 9.2	G6S-2G-DC5	T
DPDT	12	1028			75/10/200	4/4	Z892-ND	4.82	108.39	192.70	346.86	7.3 x 14.8 x 9.2	G6S-2G-DC12	
DPDT	24	2880			75/10/200	4/4	Z893-ND	5.69	128.00	227.55	409.59	7.3 x 14.8 x 9.2	G6S-2G-DC24	
HIGH FREQUENCY — ISOLATION OF 68dB (typ.), INSERTION LOSS OF .20dB (typ.) VSWR OF 1.30 (typ.) @ 900MHz														
SPDT†*	5	83	0.1@30AC/DC		75/10/130	10/5	Z723-ND	6.60	152.19	285.53	505.07	10.0 x 20.5 x 11.5	G5Y-1-DC5	U
SPDT†*	12	480	0.1@30AC/DC		75/10/130	10/5	Z724-ND	6.60	152.19	285.53	505.07	9.0 x 20.5 x 11.5	G5Y-1-DC12	
SPDT†*	24	1920	0.1@30AC/DC		75/10/130	10/5	Z725-ND	6.60	152.19	285.53	505.07	9.0 x 20.5 x 11.5	G5Y-1-DC24	
DPDT†*	5	69.5	0.1@30AC/DC		75/10/120	10/5	Z703-ND	11.47	264.61	496.43	878.13	10.5 x 32.5 x 12.5	G5Y-254P-DC5	V
DPDT†*	12	400	0.1@30AC/DC		75/10/120	10/5	Z704-ND	11.47	264.61	496.43	878.13	10.5 x 32.5 x 12.5	G5Y-254P-DC12	
DPDT†*	24	1600	0.1@30AC/DC		75/10/120	10/5	Z705-ND	11.47	264.61	496.43	878.13	10.5 x 32.5 x 12.5	G5Y-254P-DC24	

All Relays UL/CSA approved; † Sealed case; * Meets FCC. Part 68 standards. • Not Recommended for New Design

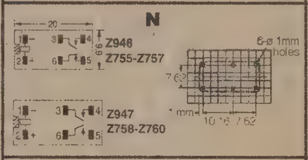
L


22
2-1.0(mm) Dia. Holes
16
Terminal Arrangement/ Internal Connections- Bottom View
0.5R
12
Mounting Holes-Bottom View

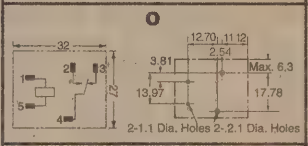
M



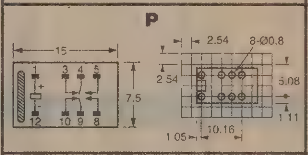
N



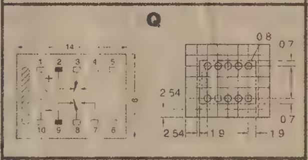
O



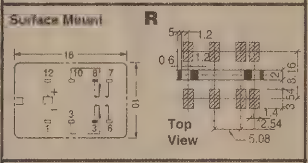
P



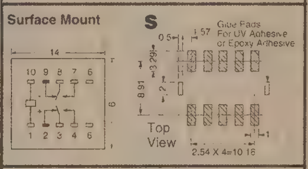
Q



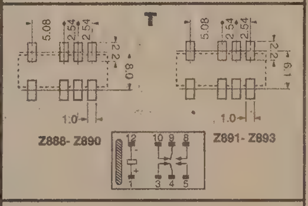
Surface Mount R



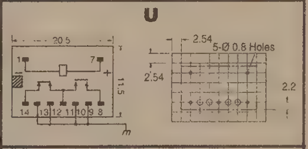
Surface Mount S



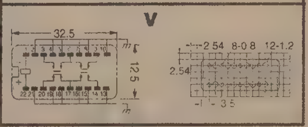
T



U



V



1-800-344-4539
Easy To Remember: 1-800-DIGI-KEY

OMRON® Relays — Low Signal • Power PCB

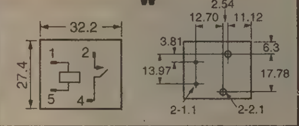
Omron Relay Data Book 9135B-ND $5.00

Contact Form	Coil Volt. (VDC)	Coil Res. (Ω)	Contact Rtg's. Resistive (A) 24 VDC	Contact Rtg's. Resistive (A) 115 VAC	Oper. Volt. (% of Rated) Pull/Drop/Max. On/Out/Cont.	Oper./Rel. Time/Time (msec.)	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 50	Pricing 100	Dim. (mm) H x L x W	Omron Part No.	Diagram
PC MOUNT POWER RELAYS WITH QUICK-CONNECT TERMINALS														
SPST-NO†	5	27	20	30	75/10/120	15/10	Z937-ND	4.91	110.47	196.39	353.50	28.2 x 27.4 x 27.4	G7G-1A4-CB-DC5	W
SPST-NO†	12	155	20	30	75/10/120	15/10	Z938-ND	5.38	121.08	215.25	387.45	28.2 x 27.4 x 27.4	G7G-1A4-CB-DC12	
SPST-NO†	24	660	20	30	75/10/120	15/10	Z939-ND	5.38	121.08	215.25	387.45	28.2 x 27.4 x 27.4	G7G-1A4-CB-DC24	
SPDT†	5	27	20	20	75/10/120	15/10	Z764-ND	5.65	130.19	244.25	432.04	28.2 x 32.2 x 27.4	G7G-1C4-CB-DC5	O
SPDT†	12	155	20	20	75/10/120	15/10	Z765-ND	6 19	142.70	267.71	473.55	28.2 x 32.2 x 27.4	G7G-1C4-CB-DC12	
SPDT†	24	660	20	20	75/10/120	15/10	Z766-ND	6.19	142.70	267.71	473.55	28.2 x 32.2 x 27.4	G7G-1C4-CB-DC24	
SPST-NO	12	160	20	20	75/10/110	20/10	Z952-ND	5.96	133.99	238.21	428.78	23.5 x 30.5 x 16	G4A-1A-DC12	X
SPST-NO	24	640	20	20	75/10/110	20/10	Z953-ND	5.96	133.99	238.21	428.78	23.5 x 30.5 x 16	G4A-1A-DC24	
SPDT	12	135	15	15	80/10/110	20/20	Z956-ND	9.93	223.48	397.29	715.12	29 x 50 x 29	G4B-112T1CUS-DC12	Y
SPDT	24	480	15	15	80/10/110	20/20	Z957-ND	9.93	223.48	397.29	715.12	29 x 50 x 29	G4B-112T1CUS-DC24	
SPDT	24VAC	—	15	15	80/10/110	20/20	Z958-ND	9.93	223.48	397.29	715.12	29 x 50 x 29	G4B-112T1CUS-AC24	
SPDT	120VAC	—	15	15	80/10/110	20/20	Z959-ND	9.93	223.48	397.29	715.12	29 x 50 x 29	G4B-112T1CUS-AC120	
SPDT	5	47	10	10	70/15/110	15/5	Z850-ND	5.18	119.53	224.25	396.68	29 x 29 x 13	G2R-1S-DC5	—
SPDT	12	275	10	10	70/15/110	15/5	Z851-ND	5.18	119.53	224.25	396.68	29 x 29 x 13	G2R-1S-DC12	
SPDT	24	1100	10	10	70/15/110	15/5	Z852-ND	5.18	119.53	224.25	396.68	29 x 29 x 13	G2R-1S-DC24	
SPDT	24VAC	37.5	10	10	80/30/110	15/5	Z853-ND	6.90	159.14	298.57	528.13	29 x 29 x 13	G2R-1S-AC24	
SPDT	120VAC	7.5	10	10	80/30/110	15/5	Z854-ND	7.55	174.20	326.82	578.10	29 x 29 x 13	G2R-1S-AC120	
—	Track Mounted Socket for G2R-1S Series						Z855-ND	3.71	85.48	160.37	283.67	59 x 85 x 15	P2RF-05-E	—
PC MOUNT POWER RELAYS														
SPDT†	5	47	10	10	70/15/110	15/5	Z743-ND	3.65	84.09	157.76	279.06	25.5 x 29 x 13	G2R-14-DC5	Z
SPDT†	12	275	10	10	70/15/110	15/5	Z744-ND	3.63	83.63	156.89	277.52	25.5 x 29 x 13	G2R-14-DC12	
SPDT†	24	1100	10	10	70/15/110	15/5	Z745-ND	3.63	83.63	156.89	277.52	25.5 x 29 x 13	G2R-14-DC24	
SPDT†	24VAC	37.5	10	10	80/30/110	15/5	Z843-ND	6.16	142.00	266 41	471.24	25.5 x 29 x 13	G2R-14-AC24	
SPDT†	120VAC	7.5	10	10	80/30/110	15/5	Z844-ND	6.77	156.13	292.92	518.14	25.5 x 29 x 13	G2R-14-AC120	
DPDT†	5	47	5	5	70/15/110	15/5	Z746-ND	4.21	97.06	182.10	322.11	25.5 x 29 x 13	G2R-24-DC5	AA
DPDT†	12	275	5	5	70/15/110	15/5	Z747-ND	4.21	97.06	182.10	322.11	25.5 x 29 x 13	G2R-24-DC12	
DPDT†	24	1100	5	5	70/15/110	15/5	Z748-ND	4.21	97.06	182.10	322.11	25.5 x 29 x 13	G2R-24-DC24	
DPDT	24VAC	37.5	5	5	80/30/110	15/5	Z845-ND	7.03	162.16	304 22	538.13	25.5 x 29 x 13	G2R-24-AC24	
DPDT	120VAC	7.5	5	5	80/30/110	15/5	Z846-ND	7.67	176 98	332.03	587.33	25.5 x 29 x 13	G2R-24-AC120	
SPDT	5	47	16	16	70/15/110	15/5	Z847-ND	3.73	85.94	161.24	285.21	25.5 x 29 x 13	G2R-1-E-DC5	BB
SPDT	12	275	16	16	70/15/110	15/5	Z848-ND	3.73	85 94	161.24	285.21	25.5 x 29 x 13	G2R-1-E-DC12	
SPDT	24	1100	16	16	70/15/110	15/5	Z849-ND	3.73	85.94	161 24	285.21	25.5 x 29 x 13	G2R-1-E-DC24	
SPST	12	160	20	20	75/10/110	20/10	Z954-ND	6.39	143.68	255.43	459.77	23.5 x 30.5 x 16	G4A-1A-P-DC12	CC
SPST	24	640	20	20	75/10/110	20/10	Z955-ND	6.39	143.68	255.43	459.77	23.5 x 30.5 x 16	G4A-1A-P-DC24	
SPDT	6	100	10	5	80/10/130	10/5	Z400-ND	2.82	65.00	121.95	215.72	16.51 x 22.61 x 16.51	G4S-112P-US-B-DC6	
SPDT	24	1600	10	5	80/10/130	10/5	Z402-ND	3.02	69.60	130.58	230 97	16.51 x 22.61 x 16.51	G4S-112P-US-B-DC24	
SPST-NO†	12	180	15	15	80/10/110	20/5	Z961-ND	5.67	127.54	226.73	408.11	30.5 x 30.5 x 19.5	G4W1114PUSTV8HPDC12	DD
SPST-NO†	24	720	15	15	80/10/110	20/5	Z962-ND	5.67	127.54	226.73	408.11	30.5 x 30.5 x 19.5	G4W1114PUSTV8HPDC24	
DPST-NO†	12	180	15	15	80/10/110	20/5	Z963-ND	6.43	144.60	257.07	462.73	30.5 x 30.5 x 19.5	G4W-2214PUSHP-DC12	EE
DPST-NO†	24	720	15	15	80/10/110	20/5	Z964-ND	6.43	144.60	257.07	462.73	30.5 x 30.5 x 19.5	G4W-2214PUSH-DC24	
SPDT†*	5	63	10	10	75/10/130	10/5	Z776-ND	2.29	52.82	99.09	175.28	19.0 x 22.5 x 15.5	G5LE-114P-PS-DC5	FF
SPDT†*	12	360	10	10	75/10/130	10/5	Z777-ND	2.29	52.82	99.09	175.28	19.0 x 22.5 x 16.5	G5LE-114P-PS-DC12	
SPDT†*	24	1440	10	10	75/10/130	10/5	Z778-ND	2.29	52.82	99.09	175.28	19.0 x 22.5 x 16.5	G5LE-114P-PS-DC24	
SPDT	5	63	5	5	75/10/130	10/5	Z720-ND	1.85	42.62	79.97	141.45	19.0 x 22.5 x 16.5	G5L-112P-PS-DC5	FF
SPDT	12	360	5	5	75/10/130	10/5	Z721-ND	1.85	42.62	79.97	141.45	19.0 x 22.5 x 16.5	G5L-112P-PS-DC12	
SPDT	24	1440	5	5	75/10/130	10/5	Z722-ND	1.85	42.62	79.97	141.45	19.0 x 22.5 x 16.5	G5L-112P-PS-DC24	
SPDT†	5	63	5	5	75/10/130	10/5	Z730-ND	2.00	46.10	86.49	152.98	19.0 x 22.5 x 16.5	G5L-114P-PS-DC5	FF
SPDT†	12	360	5	5	75/10/130	10/5	Z731-ND	2.00	46.10	86.49	152.98	19.0 x 22.5 x 16.5	G5L-114P-PS-DC12	
SPDT†	24	1440	5	5	75/10/130	10/5	Z732-ND	2.00	46.10	86.49	152.98	19.0 x 22.5 x 16.5	G5L-114P-PS-DC24	
SPDT†	5	125	5	8	70/10/110	15/5	Z968-ND	5.95	133.95	238.14	428.65	14.5 x 30 x 10	G6R-1-DC5	GG
SPDT†	12	721	5	8	70/10/110	15/5	Z969-ND	5.95	133.95	238.14	428.65	14.5 x 30 x 10	G6R-1-DC12	
SPDT†	24	2860	5	8	70/10/110	15/5	Z970-ND	5.95	133.95	238.14	428.65	14.5 x 30 x 10	G6R-1-DC24	

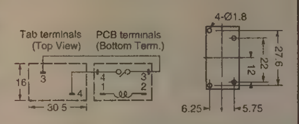
All Relays UL/CSA approved; † Sealed case; * Meets FCC Part 68 standards.

Mounting Hole Pattern & Connection Diagram
"Bottom view unless otherwise noted"

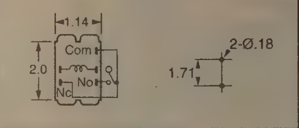
W



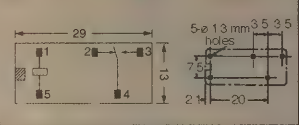
X



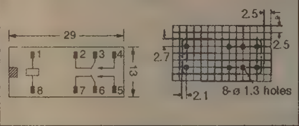
Y



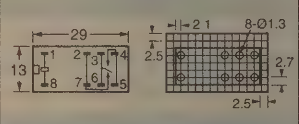
Z



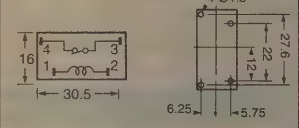
AA



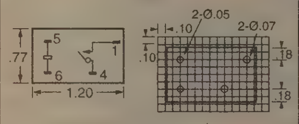
BB



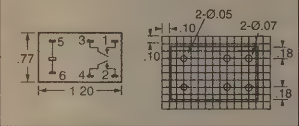
CC



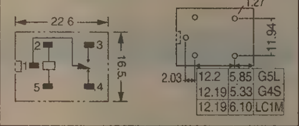
DD



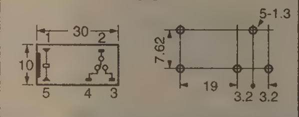
EE



FF



GG



OMRON® Relays — Low Signal • Power PCB

Omron Relay Data Book 9135B-ND $5.00

Contact Form	Coil Volt.	Coil Res. (Ω)	Contact Rtg's. Resistive (A)	Oper. Volt. (% of Rated) Pull/Drop/Max. On/Out/Cont.	Oper./Rel. Time/Time (msec.)	Digi-Key Part No.	Pricing				Omron Part No.	Diagram
							1	25	50	100		
POWER RELAYS — PLUG IN TERMINALS												
SPDT	120AC	4430	15A @ 110VAC 15A @ 24VDC	80/30/110	25/25	Z781-ND	7.14	164.70	309.00	546.58	LY1-AC110120	A
SPDT	120AC	4430		80/30/110	25/25	Z782-ND	7.25	167.25	313.78	555.04	LY1F-AC110/120	
SPDT	24AC	180		80/30/110	25/25	Z783-ND	7.14	164.70	309.00	546.58	LY1-AC24	
SPDT	24DC	650		80/10/110	25/25	Z784-ND	6.81	157.06	294.66	521.21	LY1-DC24	
SPDT	12DC	160		80/10/110	25/25	Z785-ND	6.81	157.06	294.66	521.21	LY1-DC12	
DPDT	120AC	4430	10A @ 24VDC	80/30/110	25/25	Z786-ND	8.01	184.63	346.38	612.69	LY2-AC110120	A
DPDT	120AC	4430		80/30/110	25/25	Z787-ND	8.19	188.79	354.20	626.53	LY2F-AC110/120	
DPDT	24AC	180		80/30/110	25/25	Z788-ND	8.01	184.63	346.38	612.69	LY2-AC24	
DPDT	24DC	650		80/10/110	25/25	Z789-ND	8.01	184.63	346.38	612.69	LY2-DC24	
DPDT	12DC	160		80/10/110	25/25	Z790-ND	8.01	184.63	346.38	612.69	LY2-DC12	
POWER RELAYS — PC MOUNT												
SPDT	120AC	4430	15A @ 110VAC 15A @ 110VAC	80/10/110	25/25	Z971-ND	7.29	163.97	291.51	524.72	LY1-0-AC110/120	A
SPDT	24AC	180		80/10/110	25/25	Z972-ND	7.29	163.97	291.51	524.72	LY1-0-AC24	
SPDT	24DC	650		80/10/110	25/25	Z973-ND	7.29	163.97	291.51	524.72	LY1-0-DC24	
SPDT	12DC	160		80/10/110	25/25	Z974-ND	7.29	163.97	291.51	524.72	LY1-0-DC12	
DPDT	120AC	4430	10A @ 110VAC 10A @ 24VDC	80/30/110	25/25	Z975-ND	8.17	183.81	326.77	588.19	LY2-0-AC110/120	A
DPDT	24AC	180		80/30/110	25/25	Z976-ND	8.17	183.81	326.77	588.19	LY2-0-AC24	
DPDT	24DC	650		80/30/110	25/25	Z977-ND	8.17	183.81	326.77	588.19	LY2-0-DC24	
DPDT	12DC	160		80/30/110	25/25	Z978-ND	8.17	183.81	326.77	588.19	LY2-0-DC12	
DPDT	100DC	6900		80/30/110	25/25	Z979-ND	8.54	192.11	341.53	614.75	LY2-0-DC100/110	
POWER RELAYS — PLUG IN TERMINALS												
DPDT	120AC	2300	10A @ 220VAC 10A @ 28VDC	80/30/110	20/20	Z797-ND	10.98	253.19	475.02	840.24	MK2P-S-AC120	B
DPDT	24AC	88		80/30/110	20/20	Z798-ND	10.10	232.81	436.77	772.59	MK2P-S-AC24	
DPDT	24DC	430		80/10/110	30/20	Z799-ND	10.10	232.81	436.77	772.59	MK2P-S-DC24	
DPDT	12DC	95		80/10/110	30/20	Z800-ND	10.10	232.81	436.77	772.59	MK2P-S-DC12	
3PDT	120AC	2300	10A @ 220VAC 10A @ 28VDC	80/30/110	20/20	Z801-ND	12.36	284.93	534.56	945.56	MK3P5-S-AC120	B
3PDT	24AC	88		80/30/110	20/20	Z802-ND	11.54	266.17	499.36	883.29	MK3P5-S-AC24	
3PDT	24DC	430		80/10/110	30/20	Z803-ND	11.54	266.17	499.36	883.29	MK3P5-S-DC24	
3PDT	12DC	95		80/10/110	30/20	Z804-ND	11.54	266.17	499.36	883.29	MK3P5-S-DC12	
4PDT	120AC	4430	3A @ 220VAC 3A @ 24VDC	80/30/110	20/20	Z807-ND	6.77	156.13	292.92	518.14	MY4-AC110/120	C
4PDT	24AC	180		80/30/110	20/20	Z808-ND	6.77	156.13	292.92	518.14	MY4-AC24	
4PDT	24DC	650		80/10/110	20/20	Z809-ND	6.77	156.13	292.92	518.14	MY4-DC24	
4PDT	12DC	160		80/10/110	20/20	Z842-ND	6.50	149.88	281.19	497.38	MY4-DC12	
SPST	120AC	5260	30A @ 220VAC	65/15/110	30/30	Z814-ND	11.95	275.66	517.17	914.81	G7L-1A-TUB-J-CB-AC100/120	D
SPST	220AC	21000		70/20/120	30/30	Z816-ND	12.64	291.42	546.73	967.09	G7L-1A-TUB-J-CB-AC200/240	
SPST	24AC	303		75/15/110	30/30	Z815-ND	11.95	275.66	517.17	914.81	G7L-1A-TUB-J-CB-AC24	
SPST	24DC	303		75/15/110	30/30	Z817-ND	11.15	257.13	482.41	853.31	G7L-1A-TUB-J-CB-DC24	
DPST	120AC	5260	25A @ 220VAC	65/15/110	30/30	Z818-ND	12.39	285.62	535.86	947.87	G7L-2A-TUB-J-CB-AC100/120	D
DPST	220AC	21000		70/20/120	30/30	Z819-ND	13.00	299.76	562.37	994.76	G7L-2A-TUB-J-CB-AC200/240	
DPST	24AC	303		75/15/110	30/30	Z820-ND	12.39	285.62	535.86	947.87	G7L-2A-TUB-J-CB-AC24	
DPST	24DC	303		75/15/110	30/30	Z821-ND	11.58	267.09	501.09	886.37	G7L-2A-TUB-J-CB-DC24	
POWER RELAYS — PC MOUNT												
SPST	5DC	27	30A@250VAC 20A@28VDC	75/10/120	15/10	Z933-ND	3.20	71.96	127.92	230.26	G8P-1111P-US-DC5	E
SPST	12DC	155		75/10/120	15/10	Z934-ND	3.35	75.41	134.07	241.33	G8P-1111P-US-DC12	
SPST	24DC	660		75/10/120	15/10	Z935-ND	3.35	75.41	134.07	241.33	G8P-1111P-US-DC24	
Dust Cover for Open Frame G8P Series Above						Z936-ND	.24	5.32	9.45	17.01	R99-C01-G8P	
SPST-NO	5DC	27	30A@250VAC	75/10/120	15/10	Z211-ND	4.30	99.15	186.01	329.03	G8P-1114P-US-DC5	E
SPST-NO	12DC	155	20A@28VDC	75/10/120	15/10	Z212-ND	4.70	108.41	203.39	359.78	G8P-1114P-US-DC12	
SPST-NO	24DC	660	1hp@125VAC & 2hp@250VAC	75/10/120	15/10	Z213-ND	4.70	108.41	203.39	359.78	G8P-1114P-US-DC24	
SPDT	12DC	155	10A @ 250VAC	75/10/120	15/10	Z822-ND	4.70	108.41	203.39	359.78	G8P-114P-US-DC12	
SPDT	24DC	660	10A @ 28VDC	75/10/120	15/10	Z823-ND	4.70	108.41	203.39	359.78	G8P-114P-US-DC24	

All Relays UL/CSA approved

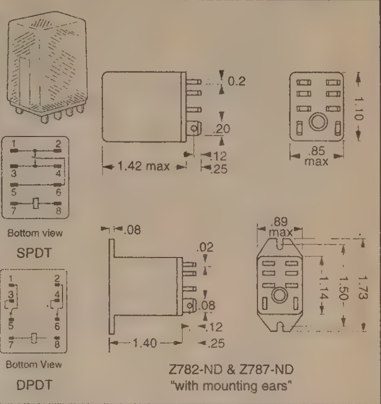
Relay Sockets and Accessories

Use With Series	Description	Digi-Key Part No.	Pricing				Omron Part No.	Diagram
			1	25	50	100		
LY	Track mounted relay socket	Z791-ND	4.57	105.40	197.74	349.78	PTF08A-E	F
LY	Back connecting socket - PCB mount	Z792-ND	1.83	42.17	79.12	139.95	PT08-0	—
LY	Back connecting socket - solder ear	Z793-ND	1.83	42.17	79.12	139.95	PT08	—
LY/MY	Socket mounting plate for back connect sockets	Z794-ND	.28	6.49	12.17	21.53	PYP-1	—
LY/MY	Relay hold-down clip for track mounted sockets	Z795-ND	.28	6.49	12.17	21.53	PYC-A1	—
LY/MY	Relay hold-down clip for back connecting sockets	Z796-ND	.28	6.49	12.17	21.53	PYC-P	—
MY	4PDT track mounted relay sockets	Z811-ND	7.19	165.86	311.17	550.43	PYF14A-E	—
MY	4PDT back connecting socket -panel mount	Z812-ND	1.83	42.16	79.10	139.91	PY14	—
MY	4PDT back connecting socket - PCB mount	Z813-ND	1.83	42.16	79.10	139.91	PY14-02	—
MK	DPDT track mounted relay sockets	Z805-ND	4.70	108.41	203.39	359.78	PF083A-E	—
MK	DPDT connecting socket - panel mount	Z836-ND	1.76	40.54	76.06	134.53	PL08	—
MK	DPDT connecting socket - PCB mount	Z837-ND	2.93	67.64	126.90	224.48	PLE08-0	—
MK	3PDT track mounted relay sockets	Z806-ND	6.75	155.67	292.05	516.60	PF113A-E	—
MK	3PDT connecting socket - panel mount	Z838-ND	2.08	47.95	89.96	159.13	PL11	—
MK	3PDT connecting socket - PCB mount	Z839-ND	2.93	67.64	126.90	224.48	PLE11-0	—
MY/LY/MK	40" socket mounting track	Z840-ND	8.81	203.16	381.14	674.19	PFP100N	G
MY/LY/MK	20" socket mounting track	Z841-ND	5.28	121.85	228.60	404.36	PFP50N	G

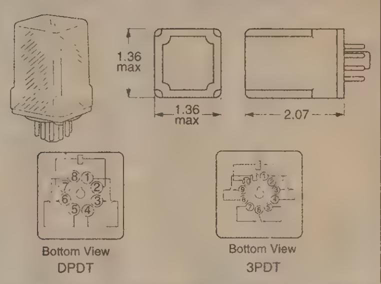
Max. Operating Voltage:

LY SERIES: 250VAC/125VDC
MK SERIES: 500VAC/250VDC
MY SERIES: 250VAC/125VDC
G7L SERIES: 250VAC
G8P SERIES: 250VAC/28VDC

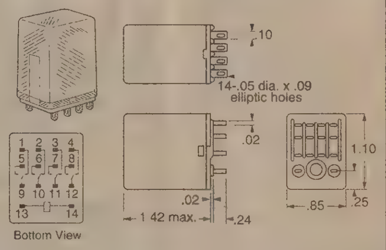
A



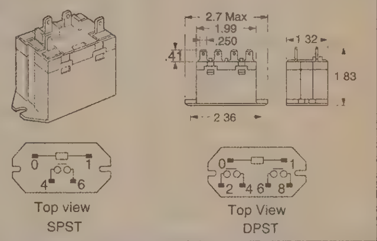
B



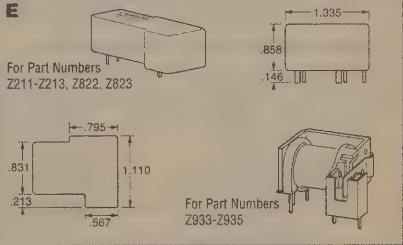
C



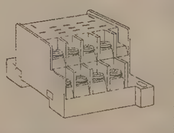
D



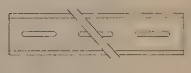
E



F



G



SIEMENS Electromechanical Components Inc. Potter & Brumfield Products Div. Relays

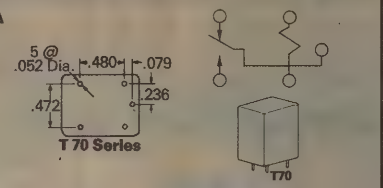
Diagram	Comments	Contact Form	Coil Volt. (VDC)	Coil Res. (Ω)	Contact Rtg. (A)	Dimensions (in.) H x L x W	Digi-Key Part No.	Pricing				Potter & Brumfield Part No.
								1	10	100	250	
T 70 Series — Economical, P.C. Terminals (Ideal for Appliance and Automotive Applications)												
A	1	SPDT	5	70	3 •*	.945 x .881 x .645	PB221-ND	2.94	28.25	220.35	508.50	T70L5D131-5
A	1	SPDT	6	100	3 •*	.945 x .881 x .645	PB100-ND	2.94	28.25	220.35	508.50	T70L5D131-6
A	1	SPDT	12	400	3 •*	.945 x .881 x .645	PB101-ND	2.94	28.25	220.35	508.50	T70L5D131-12
A	1	SPDT	24	1600	3 •*	.945 x .881 x .645	PB102-ND	3.22	31.00	241.80	558.00	T70L5D131-24
A	1	SPDT	5	70	5 •*	.945 x .881 x .645	PB218-ND	3.20	30.75	239.85	553.50	T70L5D164-5A
A	1	SPDT	12	400	5 •*	.945 x .881 x .645	PB219-ND	3.20	30.75	239.85	553.50	T70L5D164-12
A	1	SPDT	24	1600	5 •*	.945 x .881 x .645	PB220-ND	3.38	32.50	253.50	585.00	T70L5D164-24
T 90 Series — Low Cost, DC Coil PC Board Relay												
B	2	SPST-NO	5	27	30 •*	.665 x 1.2 x .95	PB103-ND	3.38	32.50	253.50	585.00	T90N1D12-5
B	2	SPST-NO	12	155	30 •*	.665 x 1.2 x .95	PB104-ND	3.38	32.50	253.50	585.00	T90N1D12-12
B	2	SPST-NO	24	660	30 •*	.665 x 1.2 x .95	PB105-ND	3.38	32.50	253.50	585.00	T90N1D12-24
B	2	SPDT	5	27	20 •*	.665 x 1.2 x .95	PB106-ND	3.59	34.50	269.10	621.00	T90N5D12-5
B	2	SPDT	12	155	20 •*	.665 x 1.2 x .95	PB107-ND	3.59	34.50	269.10	621.00	T90N5D12-12
B	2	SPDT	24	660	20 •*	.665 x 1.2 x .95	PB108-ND	3.59	34.50	269.10	621.00	T90N5D12-24
Dust cover for open style T 90 Series						.719 x 1.254 x 1.059	PB216-ND	.62	6.00	46.80	108.00	35C620A
B	2	SPST-NO	5	27	30 •*	.8 x 1.3 x 1.08	PB109-ND	4.84	46.50	362.70	837.00	T90S1D12-5
B	2	SPST-NO	12	155	30 •*	.8 x 1.3 x 1.08	PB110-ND	4.84	46.50	362.70	837.00	T90S1D12-12
B	2	SPST-NO	24	660	30 •*	.8 x 1.3 x 1.08	PB111-ND	4.84	46.50	362.70	837.00	T90S1D12-24
B	2	SPDT	5	27	20 •*	.8 x 1.3 x 1.08	PB113-ND	5.02	48.25	376.35	868.50	T90S5D12-5
B	2	SPDT	12	155	20 •*	.8 x 1.3 x 1.08	PB114-ND	5.02	48.25	376.35	868.50	T90S5D12-12
B	2	SPDT	24	660	20 •*	.8 x 1.3 x 1.08	PB115-ND	5.02	48.25	376.35	868.50	T90S5D12-24
R 10 Series — Compact and Versatile Relays (Solder Terminals)												
C	3	DPDT	6	52	3 •*	1.187 x .95 x .735	PB116-ND	13.16	126.50	986.70	2277.00	R10-E1Y2-V52
C	3	DPDT	12	185	3 •*	1.187 x .95 x .735	PB117-ND	11.39	106.26	839.96	1960.75	R10-E1Y2-V185
C	3	DPDT	24	700	3 •*	1.187 x .95 x .735	PB118-ND	11.39	106.26	839.96	1960.75	R10-E1Y2-V700
C	3	DPDT	48	2500	3 •*	1.187 x .95 x .735	PB119-ND	11.39	106.26	839.96	1960.75	R10-E1Y2-V2.5K
C	3	4PDT	6	52	3 •*	1.187 x 1.165 x .735	PB120-ND	13.50	126.00	996.00	2325.00	R10-E1Y4-V52
C	3	4PDT	12	185	3 •*	1.187 x 1.165 x .735	PB121-ND	13.50	126.00	996.00	2325.00	R10-E1Y4-V185
C	3	4PDT	24	700	3 •*	1.187 x 1.165 x .735	PB122-ND	13.50	126.00	996.00	2325.00	R10-E1Y4-V700
C	3	4PDT	48	2500	3 •*	1.187 x 1.165 x .735	PB123-ND	13.50	126.00	996.00	2325.00	R10-E1Y4-V2.5K
C	3	DPDT	6	52	5 •*	1.187 x .95 x .735	PB124-ND	12.44	116.13	917.98	2142.88	R10-E1X2-V52
C	3	DPDT	12	185	5 •*	1.187 x .95 x .735	PB125-ND	12.44	116.13	917.98	2142.88	R10-E1X2-V185
C	3	DPDT	24	700	5 •*	1.187 x .95 x .735	PB126-ND	12.44	116.13	917.98	2142.88	R10-E1X2-V700
C	3	DPDT	48	2500	5 •*	1.187 x .95 x .735	PB127-ND	12.44	116.13	917.98	2142.88	R10-E1X2-V2.5K
C	3	4PDT	12	185	5 •*	1.187 x 1.165 x .735	PB129-ND	15.35	143.22	1132.12	2642.75	R10-E1X4-V185
C	3	4PDT	24	700	5 •*	1.187 x 1.165 x .735	PB130-ND	15.35	143.22	1132.12	2642.75	R10-E1X4-V700
C	3	4PDT	48	2500	5 •*	1.187 x 1.165 x .735	PB131-ND	15.35	143.22	1132.12	2642.75	R10-E1X4-V2.5K
KHA Series — Low Cost Relays, 4PDT, Slightly Larger than a Cubic Inch Package												
D	4	4PDT	24AC	160	3 •*	1.355 x 1.105 x .85	PB139-ND	8.78	81.90	647.40	1511.25	KHAU-17A11-24
D	4	4PDT	120AC	3900	3 •*	1.355 x 1.105 x .85	PB140-ND	9.20	85.89	678.94	1584.88	KHAU-17A11-120
D	4, 6	4PDT	120AC	3900	3 •*	1.58 x 1.105 x .85	PB141-ND	12.85	119.91	947.86	2212.63	KHAU-17A11N-120
D	4	4PDT	12	160	3 •*	1.355 x 1.105 x .85	PB142-ND	7.99	74.55	589.30	1375.63	KHAU-17D11-12
D	4	4PDT	24	650	3 •*	1.355 x 1.105 x .85	PB143-ND	7.99	74.55	589.30	1375.63	KHAU-17D11-24
KUP Series — Enclosed Relays												
E	4, 5	DPDT	24AC	85	10 •*	1.906 x 1.531 x 1.406	PB151-ND	12.89	120.33	951.18	2220.38	KUP-11A15-24
E	4, 5	DPDT	120AC	2250	10 •*	1.906 x 1.531 x 1.406	PB152-ND	12.89	120.33	951.18	2220.38	KUP-11A15-120
E	4, 5	DPDT	12	120	10 •*	1.906 x 1.531 x 1.406	PB153-ND	12.24	114.24	903.04	2108.00	KUP-11D15-12
E	4, 5	DPDT	24	472	10 •*	1.906 x 1.531 x 1.406	PB154-ND	12.24	114.24	903.04	2108.00	KUP-11D15-24
E	4, 7	DPDT	12	120	10 •*	1.906 x 1.531 x 1.406	PB155-ND	12.65	118.02	932.92	2177.75	KUP-11D55-12
E	4, 7	DPDT	24	472	10 •*	1.906 x 1.531 x 1.406	PB156-ND	12.65	118.02	932.92	2177.75	KUP-11D55-24
E	4, 7	DPDT	24	85	10 •*	1.906 x 1.531 x 1.406	PB222-ND	15.60	150.00	1170.00	2700.00	KUP-11A55-24
E	4, 7	SPDT	24	472	10 •*	1.906 x 1.531 x 1.406	PB223-ND	15.13	145.50	1134.90	2619.00	KUGP-5D55-24
E	4, 5	3PDT	24AC	72	10 •*	1.906 x 1.531 x 1.406	PB157-ND	14.40	134.40	1062.40	2480.00	KUP-14A15-24
E	4, 5	3PDT	120AC	1700	10 •*	1.906 x 1.531 x 1.406	PB158-ND	14.40	134.40	1062.40	2480.00	KUP-14A15-120
E	4, 5	3PDT	12	120	10 •*	1.906 x 1.531 x 1.406	PB159-ND	14.04	131.04	1035.84	2418.00	KUP-14D15-12
E	4, 5	3PDT	24	472	10 •*	1.906 x 1.531 x 1.406	PB160-ND	14.04	131.04	1035.84	2418.00	KUP-14D15-24
E	4, 8	3PDT	120AC	1700	10 •*	1.906 x 1.531 x 1.406	PB161-ND	17.42	162.54	1284.84	2999.25	KUP-14A35-120
E	4, 9	3PDT	120AC	1700	10 •*	1.906 x 1.531 x 1.406	PB162-ND	19.17	178.92	1414.32	3301.50	KUP-14A45-120
E	4, 7	3PDT	24AC	72	10 •*	1.906 x 1.531 x 1.406	PB163-ND	14.81	138.18	1092.28	2549.75	KUP-14A55-24
E	4, 7	3PDT	120AC	1700	10 •*	1.906 x 1.531 x 1.406	PB164-ND	14.81	138.18	1092.28	2549.75	KUP-14A55-120
KRPA Series — Multicontact Arrangement, Octal Plug Termination, Clear Dust Cover												
F	10	DPDT	24AC	85	10 •*	2.0 x 1.406 x 1.406	PB167-ND	17.87	166.74	1318.04	3076.75	KRPA-11AG-24
F	10	DPDT	120AC	2250	10 •*	2.0 x 1.406 x 1.406	PB168-ND	17.87	166.74	1318.04	3076.75	KRPA-11AG-120
F	10	DPDT	12	120	10 •*	2.0 x 1.406 x 1.406	PB169-ND	17.87	166.74	1318.04	3076.75	KRPA-11DG-12
F	10	DPDT	24	472	10 •*	2.0 x 1.406 x 1.406	PB170-ND	17.87	166.74	1318.04	3076.75	KRPA-11DG-24
F	10	3PDT	24AC	85	10 •*	2.0 x 1.406 x 1.406	PB171-ND	21.98	205.17	1621.82	3785.88	KRPA-14AG-24
F	10	3PDT	120AC	2250	10 •*	2.0 x 1.406 x 1.406	PB172-ND	21.98	205.17	1621.82	3785.88	KRPA-14AG-120
F	10	3PDT	12	120	10 •*	2.0 x 1.406 x 1.406	PB173-ND	21.83	203.70	1610.20	3758.75	KRPA-14DG-12
F	10	3PDT	24	472	10 •*	2.0 x 1.406 x 1.406	PB174-ND	21.83	203.70	1610.20	3758.75	KRPA-14DG-24
F	10	DPDT	120AC	2250	10 •*	2.0 x 1.406 x 1.406	PB175-ND	20.32	189.63	1498.98	3499.13	KRPA-11AN-120
F	10	3PDT	120AC	2250	10 •*	2.0 x 1.406 x 1.406	PB176-ND	24.80	231.42	1829.32	4270.25	KRPA-14AN-120
VF4 Series — Automotive Relays												
—	—	SPDT	12	90	40	.987 x 1.12 x 1.12	PB224-ND	5.51	53.00	413.40	954.00	VF4-15F11
—	—	SPST	12	90	40	.987 x 1.12 x 1.12	PB225-ND	5.43	52.25	407.55	940.50	VF4-41F11
—	—	SPDT	12	90	40	.987 x 1.12 x 1.12	PB226-ND	5.75	55.25	430.95	994.50	VF4-45F11
G	12	SPDT	12	90	40	.987 x 1.12 x 1.12	PB227-ND	6.89	66.25	516.75	1192.50	VF4-65F11
G	11	SPDT	12	90	40	.987 x 1.12 x 1.12	PB228-ND	5.75	55.25	430.95	994.50	VF4-85F11
G	13	SPST	12	90	40	.987 x 1.12 x 1.12	PB229-ND	5.23	50.25	391.95	904.50	VF4-11F13
G	13	SPDT	12	90	40	.987 x 1.12 x 1.12	PB230-ND	5.51	53.00	413.40	954.00	VF4-15F13
G	—	SPDT	24	360	40	.987 x 1.12 x 1.12	PB231-ND	5.51	53.00	413.40	954.00	VF4-15H11

• Denotes UL. * Denotes CSA. **1. UL:** E29244; **CSA:** LR15734 **2. UL:** E22575, E29244; **CSA:** LR15734 **3. UL:** E42810, E29244 **4. UL:** E22575; **CSA:** LR15734 **5.** Socket **6.** W/Neon Lamp **7.** Side-Flange **8.** Lamp **9.** Button/Lamp **10. UL:** E22575 **11.** W/Bracket **12.** Weather proof w/Bracket **13.** PC Mount

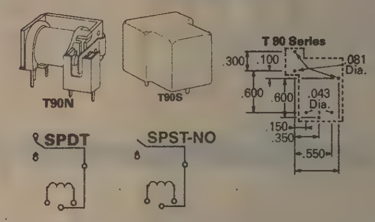
Relay Sockets and Accessories

Diagram	Description	Use With Series	Digi-Key Part No.	Pricing				Potter & Brumfield Part No.
				1	10	100	250	
C	Solder Socket, 2 Pole	R10	PB132-ND	1.40	13.02	102.92	240.25	27E125
C	Solder Socket, 4 Pole	R10	PB133-ND	1.76	16.38	129.48	302.25	27E126
C	P.C. Board Socket, 2 Pole	R10	PB134-ND	1.40	13.02	102.92	240.25	27E128
C	P.C. Board Socket, 4 Pole	R10	PB135-ND	1.76	16.38	129.48	302.25	27E129
C	Wire Hold Down Spring, 2 Pole	R10	PB136-ND	.25	2.31	18.26	42.63	20C249
C	Wire Hold Down Spring, 4 Pole	R10	PB137-ND	.25	2.31	18.26	42.63	20C250
C	Wire Hold Down Strap (for P.C. Socket Only), all poles	R10	PB138-ND	.25	2.31	18.26	42.63	20C259
—	4PDT Solder Terminal Socket	KHA	PB144-ND	1.71	15.96	126.16	294.50	27E006
—	4PDT P.C. Terminal Socket	KHA	PB145-ND	1.76	16.38	129.48	302.25	27E007
—	Socket Retainer For 27E006	KHA	PB217-ND	.23	2.25	17.55	40.50	24A032
—	Hold Down Springs for PB139-PB143	KHA	PB146-ND	.47	4.41	34.86	81.38	20C217
—	Screw Terminal Socket	KHA	PB147-ND	12.04	112.35	888.10	2073.13	27E166
—	DIN Rail Mount Socket	KHA	PB148-ND	14.60	136.29	1077.34	2514.88	27E894
E	Screw Terminal Socket with Quick Connect Terminals	KUP	PB165-ND	7.88	73.50	581.00	1356.25	27E121
E	DIN Rail Mount Socket with Quick Connect Terminals	KUP	PB166-ND	9.59	89.46	707.16	1650.75	27E893
	8-Pin Octal Socket, Screw Terminal	KRPA	PB177-ND	5.11	47.67	376.82	879.63	27E122F
F	11-Pin Octal Socket, Screw Terminal	KRPA	PB178-ND	7.47	69.72	551.12	1286.50	27E123
—	Spacer for KRPA Series Relay	KRPA	PB179-ND	.72	6.72	53.12	124.00	21B212
—	VF4 Relay Socket PC Mount	VF4	PB232-ND	1.56	15.00	117.00	270.00	VCF4-1000

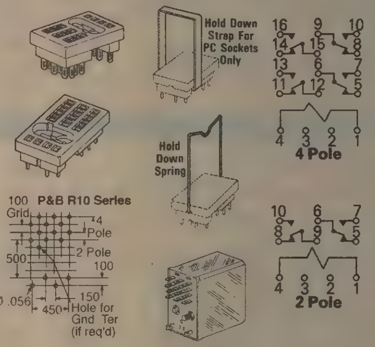
A



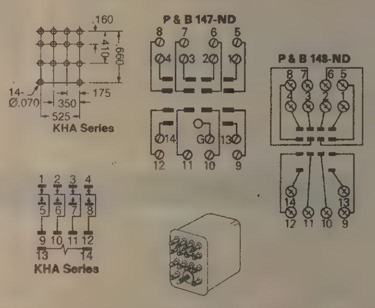
B



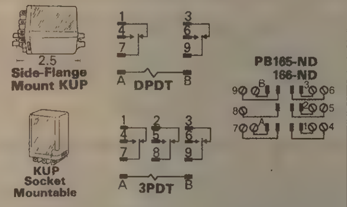
C



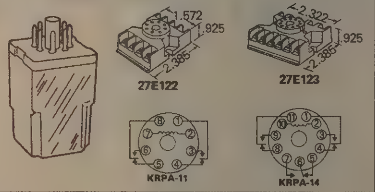
D



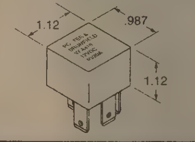
E



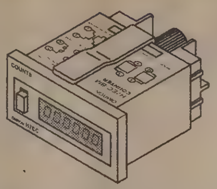
F



G



OMRON. Totalize Counter



Omron's self-powered totalizing counters feature either no-voltage inputs, DC voltage only or combined AC/DC voltage inputs. Offered in both 1KHz input for high speed, no chatter input signals or 30/20Hz inputs for relay and switch (high chatter) inputs. Available with electrical reset or manual-electrical reset.

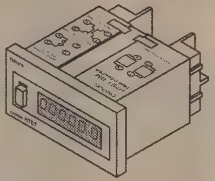
- Operating mode: up count • Display: LCD Digital, 0.2 in. high

Specifications:

- Supply voltage: Not required (powered by built-in battery)
- Input: AC/DC voltage — 24 to 240VAC ±10%, 50/60 Hz, or 6 to 240 VDC ±10% at "High" (logic) level, 0 to 1.5VAC ±10%, 50/60 Hz, or 0 to 2 VDC at "Low" (logic) level; DC voltage — 4.5 to 30VDC at "High" (logic) level, 0 to 2 VDC at "Low" (logic) level; No-voltage — Maximum short-circuit impedance: 10kΩ max. Short-circuit residual voltage: 0.5 Vmax. Minimum open impedance: 500kΩ min. • Reset time: External and manual reset types (6-digit models): 20 ms reset signal. External reset types (7-digit models): 20 ms reset signal
- Approvals: UL File No. E41515, CSA File No. LR22310. Instruction Sheet Included.

No. of Digits	Type of Input	Counting Speed	Terminal Type	Reset Type	Digi-Key Part No.	Pricing 1	25	50	Omron Part No.
7	No-voltage	1 kcps	WW	Electrical	Z860-ND	46.20	1069.50	1996.40	H7EC
7	No-voltage	1 kcps	Screw	Electrical	Z861-ND	46.20	1069.50	1996.40	H7EC-B
7	No-voltage	30 cps	Screw	Electrical	Z862-ND	47.21	1092.75	2039.80	H7EC-BL
6	No-voltage	1 kcps	Screw	Elec./Manual	Z863-ND	47.21	1092.75	2039.80	H7EC-BM
6	No-voltage	30 cps	Screw	Elec./Manual	Z864-ND	47.21	1092.75	2039.80	H7EC-BLM
6	DC only	1 kcps	Screw	Elec./Manual	Z865-ND	47.21	1092.75	2039.80	H7EC-BVM
6	DC only	30 cps	Screw	Elec./Manual	Z866-ND	47.21	1092.75	2039.80	H7EC-BVLM
7	AC/DC volt.	20 cps	Screw	Electrical	Z867-ND	47.21	1092.75	2039.80	H7EC-FBV
7	No-voltage	1 kcps	PC Mount	Electrical	Z868-ND	47.21	1092.75	2039.80	H7EC-P

Timer Counter



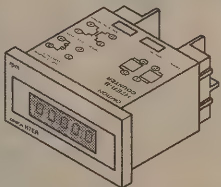
Omron's self-powered time totalizers displays cumulative time by counting the output signals received from a sensor. When the proper input has been applied, the timing circuit is enabled allowing the timer to start, disabling the inputs will stop the timing sequence. Available with electrical reset or manual-electrical reset.

Specifications:

- Supply voltage: Not required (powered by built-in battery)
- Input: AC/DC voltage — 24 to 240VAC, or 6 to 240 VDC at "High" (logic) level, 0 to 1.5VAC, or 0 to 2 VDC at "Low" (logic) level; DC voltage — 4.5 to 30VDC at "High" (logic) level, 0 to 2 VDC at "Low" (logic) level; No-voltage — Maximum short-circuit impedance: 10kΩ max. Short-circuit residual voltage: 0.5 Vmax. Minimum open impedance: 500kΩ min. • Reset time: External and manual reset types (6-digit models): 20 ms reset signal. External reset types (7-digit models): 20 ms reset signal • Screw type terminal
- Approvals: UL File No. E41515, CSA File No. LR22310. Instruction Sheet Included.

Type of Input	Time Range	Reset Type	Digi-Key Part No.	Pricing 1	25	50	Omron Part No.
No-voltage	0 to 999999.9h	Electrical	Z870-ND	54.24	1255.50	2343.60	H7ET-B
No-voltage	0 to 99999.9h	Elec./Manual	Z871-ND	54.24	1255.50	2343.60	H7ET-BM
DC voltage only	0 to 999999.9h	Electrical	Z872-ND	54.24	1255.50	2343.60	H7ET-BV
No-voltage	0 to 99h.59m.59.9s	Electrical	Z873-ND	53.23	1232.25	2300.20	H7ET-B1
AC/DC voltage	0 to 99h.59m.59.9s	Electrical	Z874-ND	67.29	1557.75	2907.80	H7ET-FBV1
AC/DC voltage	0 to 999999.9h	Electrical	Z875-ND	67.29	1557.75	2907.80	H7ET-FBV

Tachometer Counter



Omron's self-powered tachometer is completely selectable for RPM or RPS measurement. On board rotary switches allow you to set your divider/multiplier network . Tachometer reads up to 10KHz maximum.

- Operating Mode: UP Type • Display: LCD digital, 0.2" high
- Count Input: DC voltage input

Specifications:

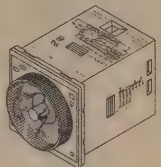
- Supply voltage: 5 to 24 VDC ±10%, Ripple (p-p): 5% max. DC voltage and No-voltage input types: Not required (powered by built-in battery) • Input: DC voltage — 4.5 to 30 VDC at "High" (logic) level. 0 to 2 VDC at "Low" (logic) level; No-voltage — Maximum short-circuit impedance: 10kΩ max. Short-circuit residual voltage: 0.5V max. Minimum open impedance: 500 kΩ min. • Max. counting speed: 1kcps - Gate time: 1 second. 10 kcps - Gate time: 1 second. Instruction Sheet Included.

9248B-ND Omron Counters Full Line Catalog $2.00

Max. Counting Speed	Number of Digits	Terminal Type	Digi-Key Part No.	Pricing 1	25	50	Omron Part No.
10 kcps	5	Screw	Z869-ND	87.38	2022.75	3775.80	H7ER-SBV

Solid State Timers

Series H3CR — Fig. 1



Features:

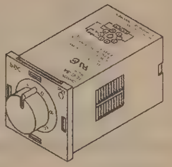
- Field-selectable time ranges from 0.05 second to 300 hours
- Wide range AC supply voltage models (100 to 240 VAC) fits most applications and reduces spare parts inventories • Three external signal inputs for remote control of the timer. • Timing functions: ON-delay, Repeat cycle (B, B2), Signal ON/OFF delay. Signal OFF-delay, Interval

Specifications:

- Supply voltage: 100 to 240 VAC, 50/60Hz • Operating voltage: 85% to 110% of rated supply voltage • Timing functions: ON-delay, Repeat cycle signal OFF start, Repeat cycle signal ON start, Signal ON/OFF delay, Signal OFF-delay, Interval • Control output: Type - DPDT relay, Max. load - 5A, 250VAC, Min. load - 10mA, 5VDC • Repeat Accuracy: ±0.3% full scale max., except in 1.2 s range ±0.3%, ±10ms

Approvals: UL File No. E41515, CSA File No. LR22310

Series H3G — Fig. 2



Features:

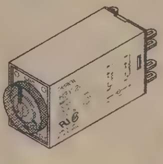
- DPDT contact Form • Fits standard 8-pin sockets • Ideal replacement for time relays • LED power-ON indicator • On-delay only

Specifications:

- Supply Voltage: 100/110/120 VAC • Operating Voltage: 85 to 110% of rated voltage • Timing Functions: ON-delay
- Control Output, DPDT: Max. load - 5A, 125/250 VAC (resistive lead), Min. load - 100mA, 5 VDC • Repeat accuracy: ±2% max. • Indicators: Power ON (LED) • Operating Temperature: 14° to 131°F • Variation due to voltage change: ±2% max. • Variation due to temperature change: ±5% max. • Mechanical Service Life: 10 million operations min.
- Electrical Service Life: 100,000 operations min. at maximum ratings.

Approvals: UL File No. E41515, CSA File No. LR22310

Series H3Y — Fig. 3



Features:

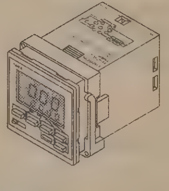
- Outstanding repeat accuracy of ±2% • Ideal for sequence control • Large time setting knob • LED power-ON and time-up indicators • DPDT Contact Form • On-delay only

Specifications:

- Supply voltage: 120VAC, 60Hz • Power consumption: 2VAC • Control Output: Max. load - 5A, 220VAC, Min. load - 1mA, 5VDC • Repeat Accuracy: ±2% max. • Indicators: Power ON(LED), Time UP(LED) • Operating Temperature: 14° to 122°F • Variation due to voltage change: ±2% max. • Variation due to temperature change: ±5% max. • Mechanical Service Life: 10 million operations, no load

Approvals: UL File No. E41515, CSA File No. LR22310

Series H5CR — Fig. 4



Features:

- Nine field-selectable output modes accommodate a wide variety of applications • All parameters set by scroll-through menus accessed from the front panel • Field-selectable time ranges from 0.001 second to 9999 hours • High-visibility alphanumeric LCD display has 8 mm high characters and built-in backlight • Precision control possible to 0.001 second
- 10-year battery back-up • Selectable elapsed time (UP) and time remaining (DOWN) display • Timing functions: 9 selectable, including ON-delay, repeat cycle, OFF-delay, interval, and one-shot • Contact type: SPDT relay

Specifications:

- Supply voltage: 100 to 240 VAC, 50/60Hz • Operating voltage: 85% to 110% of rated voltage • Relay control output: Max. load - 5A, 250VAC; Min. load - 10mA, 5VDC • Repeat accuracy: Power start - ±0.01%, Signal start - ±0.005% • Indicators: H5CR-L: 4-digit LCD alphanumeric display, 8mm; H5CR-B: 4-digit LCD alphanumeric display with backlighting, 8mm • Memory function: Retains preset values for 10 years at 25°C • Operating Temperature: 14° to 131°F • Mechanical service life: 10 million operations minimum
- Electrical service life: 100,000 operations minimum at 5A, 240VAC, resistive load (p.f. = 1)

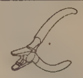
Approvals: UL File No. E41515, CSA File No. LR22310, SEV File No. 1021

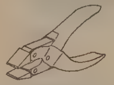
9249B-ND Omron Solid State Timers Catalog $2.00

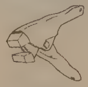
Fig. No.	Description	Digi-Key Part No.	Pricing 1	25	50	Omron Part No.
1	Analog Timer 120/240Vac Time Select DPDT	Z876-ND	48.99	1134.00	2116.80	H3CR-A-AC100-240
2	Analog Timer 120Vac 1-10 Second DPDT	Z877-ND	30.13	697.50	1302.00	H3G8CAC100/110/12010
3	Analog Timer 120Vac .2-5 Second DPDT	Z878-ND	39.17	906.75	1692.60	H3Y-2-5S-AS120
3	Analog Timer 120Vac 1-30 Second DPDT	Z879-ND	39.17	906.75	1692.60	H3Y-2-30S-AC120
4	Digital Timer 120/240Vac Time Select SPDT	Z880-ND	118.52	2743.50	5121.20	H5CR-L-AC100-240
4	Digital Timer w/ backlight 120/240Vac Time Select	Z881-ND	129.57	2999.25	5598.60	H5CR-B-AC100-240
	Solid State Timer Accessories					
—	Track Mount Relay Socket for H3Y Series	Z882-ND	4.89	110.01	195.57	PYF08A-E
—	Back Mount Relay Socket for H3G/H5CR Series	Z883-ND	8.40	189.00	336.00	P3G-08
—	Track Mount Relay Socket for H3CR Series	Z884-ND	7.42	166.95	296.80	P2CF-11
—	Panel Mount Adapter for H3CR/H5CR Series	Z885-ND	5.02	116.25	217.00	Y92F-30
—	Panel Mount Adapter for H3G Series	Z886-ND	3.01	69.75	130.20	Y92F-31
—	End Stop Plate for Din Track Rail	Z887-ND	.76	17.04	30.30	PFP-M

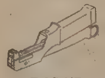
3M Scotchlok™ Brand Discrete Connectors and Tools

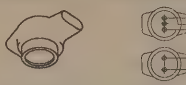
Tools

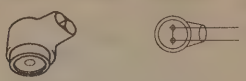

E-9Y-ND

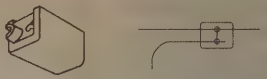

E-9E-ND

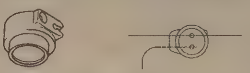

E-9BM-ND

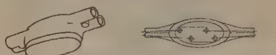

E-9C-ND

A


B


C


D


E


3M Insulated Terminal Kit — 650 assorted terminals (14 sizes), 200 cable ties (100 each, 2 sizes), one wire marker dispenser, one crimping tool, one reusable metal box, one reordering information card

923000-I-ND **$108.10**

Fig.	Color	Max. Insul. O.D. (mm)	Cable Type			How Packaged	Digi-Key Part No.	Pricing			E-9Y-ND $22.19	E-9E-ND $21.10	E-9BM-ND $56.46	E-9C-ND $102.94
			PIC-Unfilled AWG	PIC-Filled AWG	Pulp or Paper AWG			1	10	100				
A	Red	1.67	19-26	22-26*	19-26	Loose	UR20074-ND	.28	2.11	15.19	✓ (2 Wire)	✓ (3 Wire)	—	—
	Grey	2.08 (out.)	19-24	19-24	19-24	Loose	UAL27827-ND	.36	2.72	19.53	✓ (2 Wire)	✓ (3 Wire)	✓	✓
	Grey	1.93 (cntr.)	17-20	19-24	19-24	Cartridge	UAL27828-ND	—	3.06	22.18	—	—	—	✓
	Green	2.08 (out.)	19-24	19-24	19-24	Loose	ULG30198-ND	.36	2.70	19.53	✓ (2 Wire)	✓ (3 Wire)	✓	✓
	Green	1.93 (cntr.)	19-24	19-24	19-24	Cartridge	ULG30199-ND	—	2.73	19.74	—	—	—	✓
B	Yellow	1.52	22-26	22-26	22-26	Loose	UY14911-ND	.25	1.88	13.03	✓	✓	✓	✓
C	Blue	1.27	22-26	24-26#	22-26	Loose	UB30201-ND	.31	2.38	17.36	✓	✓	✓	—
D	Green	1.67	19-26	22-26	19-26	Loose	UG20082-ND	.32	2.39	17.32	✓	✓	✓	—
E	Red	3.18	19-24	19-24	19-24	Loose	U1R20017-ND	2.43	21.06	182.25	—	—	✓	—

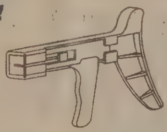
* Can be used on 19AWG (.9mm) Foam Insulated Cable. # Can be used on 22AWG (.7mm) Form Insulated Cable.

Richco

Wrap-It-Ties

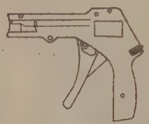
- Easy to use permanent lock.
- Strong, one piece construction.
- UL recognized #E71558.
- Serviceable to 185° F (85°C).
- Material: Nylon 6/6, UV Stabilized Nylon 6/6.
- Color: Natural or Black

Wire Tie Gun ***NEW!***



RPWTA-ND **$10.88**

Economy Installation Tool

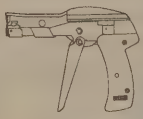


RPWTG-ND **$47.52**

Max. Bundle Dia. (In.)	Approx. Length (In.)	Tensile Strength (Lbs.)	Approx. Width (In.)	Digi-Key Part No.	Pricing 100	1,000	5,000	Richco Part No.
				Nylon				
0.6	3.25	18	.10	RP101-ND	2.69	16.16	13.03/M	WIT-18SF
0.7	4.5	18	.10	RP102-ND	2.95	17.71	14.27/M	WIT-18R
1.3	5.75	18	.10	RP213-ND ***NEW!***	3.55	21.28	17.14/M	WIT-18L
2.1	8.0	18	.10	RP103-ND	4.64	27.83	22.42/M	WIT-18V
1.2	5.75	30	.14	RP104-ND	5.63	33.77	27.21/M	WIT-30R
1.8	7.3	30	.14	RP105-ND	6.05	36.32	29.27/M	WIT-30L
0.7	4.5	40	.14	RP214-ND ***NEW!***	5.46	32.76	26.39/M	WIT-40S
1.2	5.75	40	.14	RP106-ND	6.52	39.10	31.50/M	WIT-40R
1.8	7.3	40	.14	RP107-ND	8.12	48.71	39.24/M	WIT-40L
3.1	11.1	40	.15	RP215-ND ***NEW!***	14.14	84.85	68.36/M	WIT-40VL
1.5	6.0	50	.19	RP108-ND	6.64	39.82	32.08/M	WIT-50S
2.0	8.0	50	.19	RP109-ND	7.56	45.36	36.54/M	WIT-50R
4.5	15.3	50	.18	RP110-ND	13.49	80.93	65.20/M	WIT-50L
2.7	10.7	60	.18	RP216-ND ***NEW!***	11.63	69.77	56.21/M	WIT-60R
4.2	15.06	120	.30	RP111-ND	31.45	188.71	152.02/M	WIT-120R
				Ultra Violet – Exterior or Outdoor Use (Black)				
0.6	3.25	18	.10	RP201-ND	2.96	17.78	14.33/M	WIT-18SF-UVB
0.7	4.5	18	.10	RP202-ND	3.25	19.48	15.69/M	WIT-18R-UVB
2.1	8.0	18	.10	RP203-ND	5.10	30.60	24.65/M	WIT-18V-UVB
1.2	5.75	30	.14	RP204-ND	6.19	37.15	29.93/M	WIT-30R-UVB
1.8	7.3	30	.14	RP205-ND	6.67	40.00	32.22/M	WIT-30L-UVB
1.2	5.75	40	.14	RP206-ND	7.17	43.02	34.66/M	WIT-40R-UVB
1.8	7.3	40	.14	RP207-ND	8.93	53.57	43.16/M	WIT-40L-UVB
1.5	6.0	50	.19	RP208-ND	7.30	43.78	35.27/M	WIT-50S-UVB
2.0	8.0	50	.19	RP209-ND	8.32	49.90	40.20/M	WIT-50R-UVB
4.5	15.3	50	.18	RP210-ND	14.84	89.06	71.75/M	WIT-50L-UVB
4.2	15.06	120	.30	RP211-ND	34.60	207.58	167.22/M	WIT-120R-UVB
				Release Tab Wrap It Ties (WIT-RT)				
1.25	5.5	40	.21	RP217-ND ***NEW!***	14.24	85.43	68.82/M	WIT-RT-0550
2	8.0	40	.21	RP218-ND ***NEW!***	15.70	94.18	75.87/M	WIT-RT-0800
2.5	10.5	40	.21	RP219-ND ***NEW!***	23.72	142.31	114.64/M	WIT-RT-1050
4.25	15.5	40	.21	RP220-ND ***NEW!***	35.15	210.92	169.92/M	WIT-RT-1550
4	15.25	250	.52	RP221-ND ***NEW!***	128.12	768.71	619.24/M	WIT-RT-1525
6	21.5	250	.52	RP222-ND ***NEW!***	153.74	922.46	743.10/M	WIT-RT-2150
8	27.75	250	.52	RP223-ND ***NEW!***	175.57	1053.40	848.57/M	WIT-RT-2775
				Wrap-It-Ties, Size 10/Screw Mount				
1.5	6.75	50	.19	RP224-ND ***NEW!***	15.32	91.94	74.07/M	WITSH-50MS
2	8.69	50	.19	RP225-ND ***NEW!***	17.32	103.90	83.70/M	WITSH-50MRL
3	11.25	50	.19	RP226-ND ***NEW!***	18.35	110.12	88.72/M	WITSH-50MR

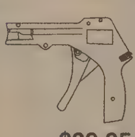
TETRA TECHNOLOGY

Economy Installation Tool



TS1C-ND **$34.95**

Hand Operated Cable Tie Tool



TS2C-ND **$39.95**

Cable Ties Nylon and Ultraviolet Stable Ⓤ

Standard natural nylon tie wraps meet the normal service temperature range of –40°F to 185°F. These ties can be easily hand installed or used in conjunction with the Tetra Technology Model TS1C hand operated installation tool which tensions and cuts ties off flush. These tools handle miniature, intermediate and standard cross-section ties. Tetra cable ties are injection molded of 6/6 natural nylon, are UL recognized and have a UL 94V-2 flammability rating.

Max. Bundle Dia. (Inches)	Approx. Length (Inches)	Tensile Strength (Lbs.)	Approx. Width (Inches)	Digi-Key Part No.	Pricing 100	1,000	5,000
				Nylon			
0.7	3.2	18	0.09	TT101-ND	2.69	16.16	13.03/M
0.9	4.0	18	0.09	TT102-ND	2.95	17.68	14.24/M
1.6	6.3	18	0.09	TT110-ND	5.65	33.91	27.32/M
2.0	7.9	18	0.09	TT109-ND	4.64	27.83	22.42/M
1.4	5.5	40	0.14	TT103-ND	8.44	50.62	40.78/M
2.0	7.9	40	0.14	TT104-ND	10.51	63.04	50.78/M
3.0	11.8	40	0.14	TT111-ND	14.14	84.82	68.33/M
4.0	14.6	40	0.14	TT112-ND	24.02	144.14	116.12/M
1.5	6.3	50	0.19	TT113-ND	8.90	53.42	43.04/M
2.0	7.9	50	0.19	TT105-ND	7.56	45.36	36.54/M
3.0	11.8	50	0.19	TT106-ND	21.30	127.80	102.95/M
4.0	14.6	50	0.19	TT107-ND	15.06	90.36	72.79/M
3.0	10.5	120	0.25	TT108-ND	33.60	201.60	162.40/M
4.0	14.5	120	0.30	TT114-ND	51.43	308.59	248.59/M
				Ultra Violet — Exterior or Outside Use (Black)			
0.9	4.0	18	0.09	TT102UV-ND	3.24	19.44	15.66/M
2.0	7.9	18	0.09	TT109UV-ND	5.10	30.60	24.65/M
1.4	5.5	40	0.14	TT103UV-ND	9.28	55.69	44.87/M
2.0	7.9	40	0.14	TT104UV-ND	11.56	69.34	55.86/M
2.0	7.9	50	0.19	TT105UV-ND	8.34	50.04	40.31/M
3.0	11.8	50	0.19	TT106UV-ND	23.43	140.58	113.25/M
4.0	14.6	50	0.19	TT107UV-ND	16.57	99.40	80.07/M
4.0	14.5	120	0.30	TT114UV-ND	56.57	339.44	273.45/M

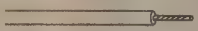
CAROL Hook-Up Wire

Conductor: • Fully annealed tinned copper per ASTM B-33. Insulation: • Premium grade color coded PVC. • Temperature range: -40°C to +80°C. • Voltage Rating: 300 volts. • 0.016 Nom. Insulation Thickness. Industry Approvals: • UL Style 1007. • CSA TR-64. • Passes UL VW-1 Vertical Flame Test. • OSHA acceptable.

Cond. Size	Cond. Strand	Ins. O.D. Inches	Digi-Key* Part No. for 100 ft.	Price 100 ft.	Carol Part No.
Solid Conductors					
24	Solid	0.052	C2003☐-100-ND	6.26	C2003
22	Solid	0.057	C2004☐-100-ND	6.64	C2004
20	Solid	0.064	C2028☐-100-ND	7.40	C2028
18	Solid	0.072	C2052☐-100-ND	8.46	C2052
16	Solid	0.083	C2053☐-100-ND	9.63	C2053
Stranded Conductors					
24	7/32	0.056	C2015☐-100-ND	6.73	C2015
22	7/30	0.062	C2016☐-100-ND	7.13	C2016
20	10/30	0.070	C2040☐-100-ND	7.61	C2040
18	16/30	0.080	C2064☐-100-ND	8.80	C2064
16	26/30	0.092	C2065☐-100-ND	10.80	C2065

Cond. Size	Cond. Strand	Ins. O.D. Inches	Digi-Key* Part No. for 1000 ft.	Price 1000 ft.	Carol Part No.
Solid Conductors					
24	Solid	0.052	C2003☐-1000-ND	30.31	C2003
22	Solid	0.057	C2004☐-1000-ND	34.13	C2004
20	Solid	0.064	C2028☐-1000-ND	41.78	C2028
18	Solid	0.072	C2052☐-1000-ND	52.36	C2052
16	Solid	0.083	C2053☐-1000-ND	64.06	C2053
Stranded Conductors					
24	7/32	0.056	C2015☐-1000-ND	35.03	C2015
22	7/30	0.062	C2016☐-1000-ND	39.08	C2016
20	10/30	0.070	C2040☐-1000-ND	43.81	C2040
18	16/30	0.080	C2064☐-1000-ND	55.73	C2064
16	26/30	0.092	C2065☐-1000-ND	76.16	C2065

Hookup Wire, Stranded, PVC Insulation UL Style 1015, TEW, PVC, 600V 105°C, VW-1



Conductor AWG	Conductor Strand	Nom. O.D. Inches	Insulation Thick.	Digi-Key* Part No. for 100 ft.	Price 100 ft.	Carol Part No.
24	7/32	0.088	0.031	C2100☐-100-ND	7.13	C2100
22	7/30	0.094	0.031	C2101☐-100-ND	7.79	C2101
20	10/30	0.102	0.031	C2102☐-100-ND	8.37	C2102
18	16/30	0.112	0.031	C2103☐-100-ND	10.15	C2103
16	26/30	0.124	0.031	C2104☐-100-ND	12.13	C2104

Conductor AWG	Conductor Strand	Nom. O.D. Inches	Insulation Thick.	Digi-Key* Part No. for 1000 ft.	Price 1000 ft.	Carol Part No.
24	7/32	0.088	0.031	C2100☐-1000-ND	39.49	C2100
22	7/30	0.094	0.031	C2101☐-1000-ND	46.01	C2101
20	10/30	0.102	0.031	C2102☐-1000-ND	51.86	C2102
18	16/30	0.112	0.031	C2103☐-1000-ND	69.64	C2103
16	26/30	0.124	0.031	C2104☐-1000-ND	89.44	C2104

Hookup Wire, Solid, PVC Insulation UL Style 1015, TEW, PVC, 600V 105°C, VW-1

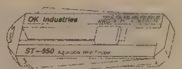
Conductor AWG	Conductor Strand	Nom. O.D. Inches	Insulation Thick.	Digi-Key* Part No. for 100 ft.	Price 100 ft.	Carol Part No.
22	1	0.089	0.031	C2117☐-100-ND	7.27	C2117
20	1	0.096	0.031	C2118☐-100-ND	8.10	C2118
18	1	0.104	0.031	C2119☐-100-ND	8.98	C2119

Conductor AWG	Conductor Strand	Nom. O.D. Inches	Insulation Thick.	Digi-Key* Part No. for 1000 ft.	Price 1000 ft.	Carol Part No.
22	1	0.089	0.031	C2117☐-1000-ND	40.43	C2117
20	1	0.096	0.031	C2118☐-1000-ND	48.76	C2118
18	1	0.104	0.031	C2119☐-1000-ND	57.94	C2119

*For ☐ in Digi-Key Part No. choose letter which represents color of your choice: **B**=Black; **W**=White; **R**=Red; **G**=Green; **A**=Orange; **Y**=Yellow; **L**=Blue; **N**=Brown; **S**=Slate Gray; **V**=Violet.

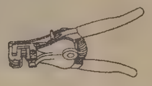
- Wire is ordered per EIA-359-A color specification which allows for some variation in shade.

OK Industries Inc. WIRE STRIPPERS



- 18 TO 28 AWG. • Calibrated wire stop. • Single action squeeze-pull motion. • Clean, precise strip of any insulation type. • Shirt-pocket size and light-weight (<1 oz.).

K276-ND **$52.06**

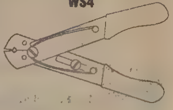


This easy-to-use tool strips 14 to 22 AWG solid and stranded wire cleanly and quickly.

K275-ND **$27.22**

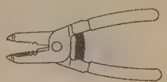
Clauss WIRE STRIPPERS

WS4



WS4 STRIPPER: Handy, lightweight, universal stripping tool cuts and strips common wire sizes. Hardened blades. Vinyl grips. Spring action to speed work. Full length: 4"/102mm.

WS5, WS6, WS7



WS5, WS6, WS7 WIRE STRIPPER: Strip and cut commonly used wire, single or stranded, AWG or metric. Each tool will strip several different wire sizes. Plier nose is an extra feature along with cushion grips and spring release. Hardened pivot joint for longer life. A perfect tool for solder benches or assembly areas.

WS4-ND	AWG 10 - 22	**$5.74**
WS5-ND	AWG 10 - 20 (Yellow)	**$11.89**
WS6-ND	AWG 16 - 26 (Red)	**$11.89**
WS7-ND	AWG 22 - 30 (Blue)	**$13.39**

AMP CABLE STRIPPER

A1110-ND Cable Stripping Tool for RG/58, 59 .... **$60.92**

CAROL Multiconductor Cable

LL46351 E26174

UL Style 2464
80° 300/V.

- **Temperature Range:** -20°C to +80°C (UL +80°C).
- **Voltage Rating:** 150 volts (UL)
- Each conductor stranded tinned copper.
- Color coded polyvinylchloride insulation.
- Nominal Ins. Thickness: .010" (.25mm).
- Gray polyvinylchloride jacket.
- **Conductors:** 22AWG 7 x 30 Tinned Copper; 24AWG 3 x 32 Tinned Copper.
- **Insulation:** SR PVC.
- **Construction:** Conductors cabled with Foil Shield 22/24AWG Stranded Tin drain wire.
- **Jacket:** Chrome Vinyl 80°C.
- **Application:** For use with computers and instrumentation. 80°C, 300 V, CSA, SR-PC,. Also for use in Class 2 and 3 circuits as described in Art of NEDC.

COLOR CODES

CHART NO. 1

No.	Color	No.	Color
1	Black	16	White/Black
2	White	17	White/Red
3	Red	18	White/Green
4	Green	19	White/Yellow
5	Brown	20	White/Blue
6	Blue	21	White/Brown
7	Orange	22	White/Orange
8	Yellow	23	White/gray
9	Violet	24	White/Violet
10	Gray	25	Wht/Blk/Red
11	Pink	26	Wht/Blk/Grn
12	Tan	27	Wht/Blk/Yel
13	Red/Green	28	Wht/Blk/Blu
14	Red/Yellow	29	Wht/Blk/Brn
15	Red/Black	30	Wht/Blk/Org

CHART NO. 2

No.	Color	No.	Color
1	Black	16	Black/Red
2	White	17	White/Red
3	Red	18	Orange/Red
4	Green	19	Blue/Red
5	Orange	20	Red/Green
6	Blue	21	Orange/Green
7	White/Black	22	Blk/Wht/Red
8	Red/Black	23	Wht/Blk/Red
9	Green/Black	24	Red/BlkWht
10	Orange/Black	25	Grn/Blk/Wht
11	Blue/Black	26	Org/Blk/Wht
12	Black/White	27	Blu/Blk/Wht
13	Red/White	28	Blk/Red/Grn
14	Green/White	29	Wht/Red/Grn
15	Blue/White	30	Red/Blk/Grn

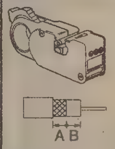
No. of Cond.	Jacket Thick. (In.)	Nom. O.D. (In.)	Color Code Chart	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll *Price Per Roll 100 ft.	500 ft.	1,000 ft.	Carol Part No.
Unshielded — 22AWG-7/30 Stranded								
2	0.032	0.168	Red/Blk	W120-X-ND	12.20	36.90	70.20	C6348-X-10
3	0.032	0.172	Blk/Rd/Grn	W121-X-ND	15.89	55.80	107.10	C4062-X-10
4	0.032	0.189	1	W122-X-ND	17.96	67.05	127.80	C4063-X-10
5	0.032	0.203	1	W123-X-ND	19.33	73.35	141.53	C4064-X-10
6	0.032	0.218	1	W124-X-ND	21.56	74.60	145.60	C4066-X-10
7	0.032	0.218	1	W125-X-ND	24.26	86.60	169.60	C4088-X-10
8	0.032	0.234	1	W126-X-ND	26.10	94.80	186.00	C4065-X-10
9	0.032	0.249	1	W127-X-ND	30.60	130.05	254.25	C4070-X-10
10	0.032	0.268	1	W128-X-ND	33.26	127.60	249.60	C4071-X-10
12	0.032	0.276	1	W129-X-ND	36.00	135.20	270.40	C4067-X-10
15	0.032	0.303	2	W130-X-ND	52.47	210.20	416.80	C4073-X-10
20	0.032	0.334	2	W131-X-ND	71.17	295.80	583.00	C4075-X-10
25	0.032	0.368	2	W132-X-ND	84.67	357.00	703.00	C4076-X-10
30	0.032	0.389	2	W133-X-ND	107.46	464.20	905.60	C4077-X-10
Overall Foil Shielded — 22AWG-7/30 Stranded								
4	0.032	0.190	2	W504-X-ND*	20.75	80.78	155.70	C0762-X-10
6	0.032	0.219	2	W506-X-ND*	24.91	90.40	175.40	C0763-X-10
8	0.032	0.235	2	W508-X-ND*	32.69	118.00	244.60	C0764-X-10
10	0.032	0.269	2	W510-X-ND*	38.41	151.00	295.40	C0765-X-10
15	0.032	0.304	2	W515-X-ND*	54.74	221.00	437.00	C0766-X-10
20	0.032	0.335	2	W520-X-ND*	72.81	305.20	597.60	C0767-X-10
25	0.032	0.369	2	W525-X-ND*	86.78	367.00	721.80	C0768-X-10
Overall Foil Shielded — 24AWG-7/32 Stranded								
4	0.032	0.175	1	W404-X-ND*	18.05	67.95	128.70	C0742-X-10
6	0.032	0.201	1	W406-X-ND*	21.13	82.58	159.53	C0743-X-10
8	0.032	0.215	1	W408-X-ND*	27.41	88.80	197.60	C0744-X-10
10	0.032	0.245	1	W410-X-ND*	30.33	114.60	223.60	C0745-X-10
15	0.032	0.276	2	W415-X-ND*	45.79	181.80	315.88	C0746-X-10
20	0.032	0.303	2	W420-X-ND*	60.95	251.00	495.80	C0747-X-10
25	0.032	0.333	2	W425-X-ND*	74.03	309.80	608 40	C0748-X-10
30	0.032	0.351	2	W430-X-ND*	94.37	400.60	789.20	C0749-X-10

***Shield:** 100% Aluminum Mylar Foil.

Weidmüller Paladin Tools

Cable Stripping Tools

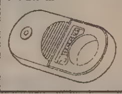
FIG. 1



Coaxial stripping tool producing 2 and 3 level strips in cables from .100 dia. to .315 dia. Replacement blades and easy adjustment, make this tool the perfect choice.

Cassette Type	Dimensions A	Dimensions B
Green Cassette	.279	.201
Brown Cassette	.295	.137

FIG. 2



Simply insert cable and rotate. One or two level stripping. No adjustment necessary. Hardened steel blades for long life.

Fig. No.	Description	Digi-Key Part No.	Price 1
3 Level Coaxial Cable Stripper			
1	Adj. w/ green cassette	PA1240-ND	59.17
1	Adj. w/ brown cassette	PA1243-ND	59.17
—	Repl. Blade for PA1240	PA2240-ND	22.57
—	Repl. Blade for PA1243	PA2243-ND	22.57
2 Level Coaxial Cable Stripper			
2	Cable Stripper RG59	PA1226-ND	29.25
2	Cable Stripper RG174	PA1231-ND	29.25

Wire Cutter

Precision hardened cutting blades. 6 and 2 AWG copper and aluminum.

PAL900265-ND	6 AWG	**$23.25**
PAL900266-ND	2 AWG	**$21.88**

3M Foil Shielding Tape

Scotch® EMI/RFI Copper Foil Shielding Tapes provide an easy-to-apply, time saving, cost-effective way to shield against EMI/RFI radiation. Foil tapes are conductive through the adhesive, and offer mechanical, electrical and thermal values to meet your shielding effectiveness/frequency requirements.

Description	Digi-Key Part No.	Pricing 1	5
EMI/RFI Foil Shielding Tape (1/4" x 18 yds.)	3M1181A-ND	10.29	44.10
EMI/RFI Foil Shielding Tape (1/2" x 18 yds.)	3M1181B-ND	20.56	88.13
EMI/RFI Foil Shielding Tape (1" x 18 yds.)	3M1181C-ND	41.14	176.33

PATCO SERVICE INC. THERMAL WIRE STRIPPERS

PTS-10-ND
PTS-20-ND
PTS-50-ND

PTS-30-ND

- Nichrome, heating element: 450°F in less than 5 seconds. • Teflon stripper 1700°F in less than 5 seconds. • Eliminates nicks and broken strands of conductors. • Handles solid, stranded and shielded wires. • Does not burn skin. • AC line power or rechargeable battery power versions. • Complete with cleaning brush and operating instructions.

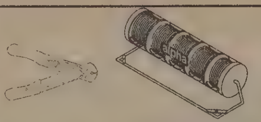
⋆ Will not strip Teflon wire.

⋆ **PTS-20-ND**	Thermal Wire Stripper, Battery Powered with Cleaning Brush	**$93.00**
PTS-201-ND	Replacement Blade for PTS-20	**$3.60**
PTS-00-ND	Cleaning Brush	**$6.50**
⋆ **PTS-10-ND**	Thermal Wire Stripper with Cleaning Brush	**$55.00**
PTS-101-ND	Replacement Blade for PTS-10-ND	**$3.75**
PTS-30-ND	Teflon Wire Stripper for 16-30 AWG	**$89.00**
PTS-302-ND	Replacement Blade for PTS-30-ND	**$3.90**
⋆ **PTS-50-ND**	Thermal Coax Stripper for RG 58, RG 59, RG 62	**$93.00**
PTS-501-ND	Replacement Blade for PTS-50-ND	**$4.80**

Hook-Up Wire

‡ **HU-KIT-20-ND** 5 - 100ft spools, 22AWG (Black, White, Red, Green & Blue) Comes in convenient wall dispenser and includes wire cutter.............. **$57.00**

§ **HU-KIT-40-ND** 5 - 100ft spools, 24AWG (Black, White, Red, Green & Blue) Comes in convenient wall dispenser and includes wire cutter.............. **$57.00**



Description: • Conductor: Stranded tinned copper • Insulation: Color coded PVC • Flammability: Passes UL VW-1 flame test

*For ☐ in Digi-Key Part No. choose letter which represents color of your choice: **B**=Black; **W**=White; **R**=Red; **G**=Green; **A**=Orange; **Y**=Yellow; **L**=Blue; **N**=Brown; **S**=Gray; **V**=Violet.

† MIL-W-76B Type HW, UL1015, CSA TEW-105 • UL1007, CSA TR-64

• Wire is ordered per EIA-359-A color specifications which allows for some variation in shade.

Cond. Size	Cond. Strand	Insulation Thickness Inches	Diameter Inches	Digi-Key Part No. for 100 ft.	Price 100 ft.	Alpha Part No.
300 Volt Rating, -40°C to +80°C (UL 80°C, CSA 90°C) •						
24	7/32	0.016	0.057	A2015☐-100-ND§	8.35	3050-100
22	7/30	0.016	0.065	A2016☐-100-ND‡	8.93	3051-100
20	10/30	0.016	0.071	A2040☐-100-ND	10.13	3053-100
18	16/30	0.016	0.080	A2064☐-100-ND	17.55	3055-100
16	26/30	0.016	0.095	A2065☐-100-ND	25.30	3057-100
600 Volt Rating, -20°C to +80°C (MIL)†, -20°C to +105°C (UL, CSA)†						
22	7/30	0.032	0.094	A2101☐-100-ND	14.63	3071-100
20	10/30	0.032	0.100	A2102☐-100-ND	10.10	3073-100
18	16/30	0.032	0.112	A2103☐-100-ND	12.30	3075-100
16	26/30	0.032	0.124	A2104☐-100-ND	14.40	3077-100

Cond. Size	Cond Strand	Insulation Thickness Inches	Diameter Inches	Digi-Key Part No. for 1000 ft.	Price 1000 ft.	Alpha Part No.
300 Volt Rating, -40°C to +80°C (UL 80°C, CSA 90°C) •						
24	7/32	0.016	0.057	A2015☐-1000-ND	41.49	3050-1000
22	7/30	0.016	0.065	A2016☐-1000-ND	41.63	3051-1000
20	10/30	0.016	0.071	A2040☐-1000-ND	43.88	3053-1000
18	16/30	0.016	0.080	A2064☐-1000-ND	61.88	3055-1000
16	26/30	0.016	0.095	A2065☐-1000-ND	84.93	3057-1000
600 Volt Rating, -20°C to +80°C (MIL)†, -20°C to +105°C (UL, CSA)†						
22	7/30	0.032	0.094	A2101☐-1000-ND	56.25	3071-1000
20	10/30	0.032	0.100	A2102☐-1000-ND	59.00	3073-1000
18	16/30	0.032	0.112	A2103☐-1000-ND	75.00	3075-1000
16	26/30	0.032	0.124	A2104☐-1000-ND	99.00	3077-1000

Multiconductor Cable

Fig. 1

Color Code	
No.	**Color**
1	Black
2	Red
3	White
4	Green
5	Orange
6	Blue
7	Brown
8	Yellow
9	Violet
10	Gray
11	Pink
12	Tan
13	Red/Green
14	Red/Yellow
15	Red/Black

Multiconductor Unshielded Cable Ⓤ

Description: 22 AWG (0.35mm²), 7/30 (7 x 0.25mm), Insulation thickness 0.010" (0.25mm) • Conductor: Stranded tinned copper • Insulation: Color coded PVC • Tape: Clear polyester wrap • Jacket: Gray PVC

Characteristics: • Temperature Range: -20°C to +80°C - AWM, 75°C - CL2 • Voltage Rating: 150 Volt - AWM, CL2 • Flammability; Passes UL Subject 13 Vertical Tray Flame Test

Fig. 2

Color Code	
No.	**Color**
1	Red/Black
2	Green/White

Multipair Individually Shielded

Description: • CL2 rated, 75°C, 150V • 22AWG (0.36 mm²), 7/30 (7x0.25mm), Insulation Thickness: 0.008" (0.20mm) • Conductor: Stranded Tinned Copper • Insulation: Polyproylene (PP) • Shield: Aluminum/polyester tape • Drain Wire: Stranded tinned copper each pair No. 24 • Jacket: Gray PVC

Characteristics: • Temperature Range: -20°C to +105°C • Voltage Rating: 400 Volts

Fig. 3

Individually Foil Shielded Ⓤ

Description: 22 AWG (0.35mm²), 7/30 (7x0.25mm), Insul. Thickness 0.010" (0.25mm) • Conductor: Stranded tinned copper • Insulation: Color coded Polypropylene (PP) • Shield: (Individual pairs) Aluminum/ polyester tape, foil facing inward • Drain Wire: 22 AWG stranded tinned copper • Jacket: Gray PVC

Characteristics: • Temperature Range: -40°C to +60°C - AWM, CL2 • Voltage Rating: 300 Volt, 150 Volt - CL2 • Flammability: Passes UL Subject 13 Vertical Tray Flame Test

Color Code Chart

No.	Color	No.	Color	No.	Color
1	Black paired with Red	10	Red paired with Blue	19	White paired with Blue
2	Black paired with White	11	Red paired with Yellow	20	White paired with Brown
3	Black paired with Green	12	Red paired with Brown	21	White paired with Orange
4	Black paired with Blue	13	Red paired with Orange	22	White paired with Yellow
5	Black paired with Brown	14	Green paired with Blue	23	Blue paired with Brown
6	Black paired with Yellow	15	Green paired with White	24	Blue paired with Orange
7	Black paired with Orange	16	Green paired with Brown	25	Blue paired with Yellow
8	Red paired with Green	17	Green paired with Orange	26	Brown paired with Orange
9	Red paired with White	18	Green paired with Yellow	27	Brown paired with Yellow

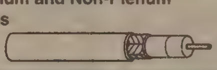
Fig. No.	No. of Cond.	Jacket Thick. (In.)	Diameter Thick. (In.)	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll Price per roll 100 ft.	500 ft.	1000 ft.	Alpha Part No.
Multiconductor Unshielded Cable								
1	2	0.032	0.16	A120-X-ND	14.63	55.31	85.50	1172C
1	3	0.032	0.17	A121-X-ND	23.02	74.39	114.75	1173C
1	4	0.032	0.19	A122-X-ND	24.46	84.58	139.64	1174C
1	5	0.032	0.20	A123-X-ND	30.08	107.93	204.17	1175C
1	6	0.032	0.21	A124-X-ND	40.46	123.91	217.62	1176C
1	7	0.032	0.21	A125-X-ND	48.67	131.24	250.83	1177C
1	8	0.032	0.22	A126-X-ND	47.52	139.73	282.92	1178C
1	9	0.032	0.25	A127-X-ND	51.46	165.38	330.59	1179C
1	10	0.032	0.26	A128-X-ND	52.83	191.90	383.72	1180C
1	12	0.032	0.28	A129-X-ND	51.23	211.23	449.26	1181C
1	15	0.032	0.30	A130-X-ND	89.75	335.93	626.69	1181/15C

Fig. No.	No. of Pair	Jacket Thick. (In.)	Diameter Thick. (In.)	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll Price per roll 100 ft.	500 ft.	1000 ft.	Alpha Part No.
Multipair Individually Shielded								
2	—	0.019	0.16	A131-X-ND	21.17	76.75	134.40	2466C
Individually Foil Shielded								
3	3	0.045	0.31	A132-X-ND	38.40	137.92	236.80	6010C
3	6	0.045	0.39	A133-X-ND	62.40	242.67	464.00	6012C
3	9	0 045	0.46	A134-X-ND	131.20	592.00	1238.40	6014C
3	11	0 045	0.48	A135-X-ND	156.00	713.60	1424.00	6016C
3	12	0.045	0.48	A136-X-ND	168.00	760.00	1512.00	6017C
3	15	0.060	0.56	A137-X-ND	206.40	942.40	1875.20	6018C
3	17	0 060	0.61	A138-X-ND	246.40	1308.88	2248.00	6019C
3	19	0.060	0.63	A139-X-ND	273.60	1248.00	2492.80	6020C
3	27	0.060	0.68	A140-X-ND	358.40	1968.45	3539.20	6022C

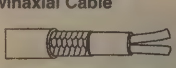
Coaxial, Ethernet, Thinnet, Twinaxial Cable

Coaxial Cables, Non-Plenum Coaxial and Data Systems

Thinnet — Plenum and Non-Plenum Ethernet Cables



Non-Plenum Twinaxial Cable



RG Type	AWG Strand.	Inner Cond. Strand.	Inner Cond. Material†	Dielec. Dia. (Inch)	Dielec. Material†	Shield Nom. Coverage	Shield Material†	Jacket Dia. (Inch)	Jacket Material†	Impe-dance ohms	Cap tance pF/ft	Temp. Rate °C	Volt Rate	NEC/UL (See Below)	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll Price per roll 100 ft.	500 ft.	1000 ft.	Alpha Part No.
Coaxial Cable																			
58 A/U	20	19/0.0071"	TC	0.116	PE	95%	TC Braid	0.195	V Black	50	30.5	60	150	1	A305-X-ND	42.00	112.52	180.00	9058AC-X
58 C/U	20	19/0.0071"	TC	0.116	PE	95%	TC Braid	0 195	NCV Black	50	30.5	60	—	—	A306-X-ND	67.98	130.00	247.00	9058C-X
59/U	22	Solid	CW	0.146	PE	95%	C Braid	0 242	V Black	75	21.4	60	150/CL2, 30/AWM	1, 8	A301-X-ND	49.20	—	171.00	9059C-X
62 A/U	22	Solid	CW	0.146	SSP	95%	C Braid	0.242	V Black	93	13.2	60	150/CL2, 30/AWM	1, 9	A302-X-ND	65.00	130.00	260.00	9062AC-X
174/U	26	7/34	CW	0.060	PE	88%	TC Braid	0.100	V Black	50	31.1	—	—	10	A307-X-ND	47.38	105.00	159.60	9174-X
214/U	13	7/0.0296"	SC	0.285	PE	99%	SC Braid Dbl	0 425	NCV Black	50	30.8	—	—	—	A308-X-ND•	625.74	1920.00	3800 00	9214-X
223/U	19	Solid	SC	0.116	PE	99%	SC Braid Dbl	0.212	NCV Black	50	31.5	—	—	—	A309-X-ND•	260.00	720.00	1402.20	9223-X
Ethernet Cable																			
Thinnet**	20	19/0.0075"	TC	0.119	PE	95%	A/M/A + TC Braid	0.200	V Black	50	30.5	60	300	2, 5, 6	A310-X-ND	—	—	324.00	9871C-X
Thinnet**	20	19/0.0075"	TC	0.112	FEP Teflon	95%	A/M/A + TC Braid	0.182	F Gray	50	30.5	125	300	3, 5. 7	A311-X-ND*	—	459.80	836.00	9871F-X
Thinnet‡	20	19/32	TC	0.102	FPE	95%	A/M/A + TC Braid	0 180	V Black	50	25.5	60	300	2, 5, 6	A312-1000-ND	—	—	297.00	9881C-1000
Thinnet‡	20	19/32	TC	0.099	FEP Teflon	95%	A/M/A + TC Braid	0.155	Plenum-PVC Gray	50	25.0	125	300	4, 5, 6, 7	A313-X-ND*	—	102.00	398.00	9881F-X
Twinaxial Cable																			
Twinax #	20	7/28	C/TC	0.236	PE	95%	TC Braid	0.330	V Black	100	15.5	75/CL2, 80/AWM	150/CL2, 30/AWM	1 11	A303-X-ND	—	264.54	502.00	9818C-X
Twinax	16	Solid	C	0.150	FPE	90%	A/M/A + TC Braid	0.440	V Black	124	10.9	60	150/CL2, 30/AWM	1, 12	A314-X-ND	140.00	—	1040.00	9820C-X

† **Code Description:** **C** — Bare Copper, **SC** — Silver Coated Copper, **TC** — Tinned Copper, **CW** — Copper Coated Steel, **PE** — Solid Polyethylene, **SSP** — Semi-solid Polyethylene, **V** — Polyvinylchloride - Type I, **NCV** — Non-cotaminating Polyvinylchloride - Type II, **A/M/A** — Aluminum/Polyester/Aluminum Tape, **FEP** — Fluorinated ethylene-propylene, **FPE** — Cellular (foam) Polyethyene, **F** — Fluoropolymer

* Plenum ** ETHERNET IEEE 802.3 10base2 10Mbps. ‡ THIN-NET 10Mbps. # IBM SYSTEM (34/36/38/AS 400). • MIL-C-170D Type

NEC Rating — 1. CL2 **2.** CM **3.** CMP **4.** CL2P **5.** [illegible]XC **6.** FT4 **7.** FT6

UL Style — 8. UL AWM 1354 **9.** UL AWM 1478 **10.** UL 1354 **11.** UL AWM 2498 **12.** UL AWM 2704

CAROL

Instrumentation Control Cable

Color Code Chart
For C1352-X-ND

No. of Pairs	Color
1	Black, Red
2	Green, White

Color Code Chart
For C2534-X-ND

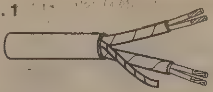
No. of Pairs	Color
1	Black
2	Natural

Color Code Chart For C6040-X-ND

No. of Pairs	Color
1	Black paired with Red
2	Black paired with White
3	Black paired with Green

Multi-Paired Individually Shielded

Fig. 1

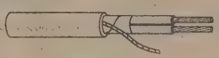


60°C 300 Volts UL2835 NEC Type CL2 and CM.

Fig. No.	No. of Pairs	AWG Size	Cond. Strand.	Nom. Jack. Thick. (in.)	Nom. O.D. (in.)	Nom. Cap. ft.	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll 100 ft.	500 ft.	1,000 ft.
1	2	22	7 / 30	0.032	0.197	25.5	C1352-X-ND	19.35	77.40	141.75

Multi-Conductor Foil Shield

Fig. 2

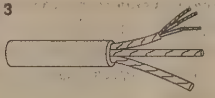


60°C 300 Volts NEC Type CL2 and CM, UL 2092. Drain wire size is 20 AWG.

Fig. No.	No. of Cond.	AWG Size	Cond. Strand.	Nom. O.D. (in.)	Nom. Cap. ft.	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll 100 ft.	500 ft.	1,000 ft.
2	2	18	16 / 30	0.231	24.11	C2534-X-ND	21.40	83.48	162.23

Multi-Paired Individually Foil Shield

Fig. 3



60°C 30 Volts UL 2493 NEC Type CL2 and CM, UL 2493

Fig. No.	No. of Pairs	AWG Size	Cond. Strand.	Nom. Jacket Thickness (in.)	Nom. Cap. ft.	Digi-Key Part No.	Note: X in Part No. = Ft. Per Roll 100 ft.	500 ft.	1,000 ft.
3	3	22	7 / 30	0.032	24.40	C6040-X-ND	35.78	155.25	306.00

Plenum Cable Unshielded

Power limited remote control signal cable.

Features: Installation in air plenums without the use of conduit. Outstanding oil and moisture resistance.

Industry Approvals: UL listed for low smoke and fire characteristics per NEC Code Article 725-2 (b). UL Subject 13 and 910, CL2P.

No. of Cond.	AWG Size	Cond. Strand.	Nom. Jacket Thickness (in.)	Nom. O.D. (in.)	Digi-Key Part No.	Pricing 1,000 ft.
2	22	7 / 30	0.008	.085	C3105-1000-ND	118.13
4	22	7 / 30	0.008	.117	C3106-1000-ND	166.05
2	18	7 / 26	0.008	.120	C3102-1000-ND	181.13
4	18	7 / 26	0.008	.166	C3103-1000-ND	278.33
2	18	7 / 26	0.008	.120	C9522-1000-ND	257.40
4	18	7 / 26	0.008	.166	C9524-1000-ND	394.20

Plenum Cable Shielded

Fig. 1

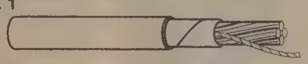


Fig. 2

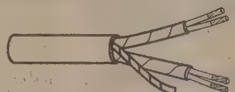
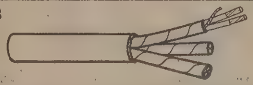


Fig. 3



Applications: • Power limited circuits. • Communication and signal applications. • Cash registers. • Computer systems interfaces. • Intercom systems. • Burglar alarms. • Remote controls. • Low voltage applications.

Features: Installation in air plenums without the use of conduit.

Industry Approvals: UL listed for low smoke and fire characteristics per NEC Code Article 725-2 (b) CL2P.

Color Code Chart for
C3156-1000-ND and C3157-1000-ND

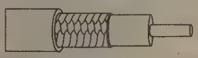
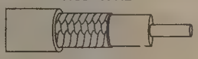
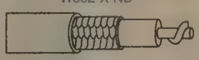
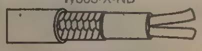
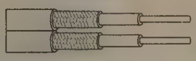
No. of Pairs	Color
1	Black & Red
2	Black & White
3	Black & Green

Fig. No.	No. of Cond.	No. of Pairs	AWG Size	Cond. Strand.	Nom. Jack. Thick. (in.)	Nom. O.D. (in.)	Nom. Cap. ft.	Digi-Key Part No.	Pricing 1,000 ft.
Multi-Conductor, Foil Shielded									
1	4	—	22	7 / 30	0.008	0.125	35	C3155-1000-ND	188.78
1	2	—	18	7 / 26	0.008	0.154	54	C3162-1000-ND	235.58
1	4	—	18	7 / 26	0.008	0.176	43	C3163-1000-ND	334.80
1	2	—	16	7 / .0192	0.008	0.177	35	C3169-1000-ND	274.95
Multi-Paired, Individually Shielded									
2	—	2	22	7 / 30	0.008	0.145	31	C3156-1000-ND	357.75
3	—	3	22	7 / 30	0.008	0.160	31	C3157-1000-ND	572.40

CAROL

Coaxial Cable

- For CATV, MATV, CB and HAM applications.
- All jackets are made of black PVC.

Digi-Key Part No.	RG Type	AWG Strand.	Dielec. O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap./Ft.	Nom. MHz*	Atten. dB**
W300-X-ND 	58/U	20AWG Solid BC	Poly .116	1 TC Braid 95%	.195	53.5	66%	28.5	50 100 200 400 900	3.0 4.5 6.2 9.5 14.5
W301-X-ND 	59/U	22AWG Solid BC Clad Steel	Poly .144	1 Mil. C17 BC Braid 95%	.242	73	66%	21.0	50 100 200 400 900	2.4 3.4 4.8 7 1 10.9
W302-X-ND 	62A/U	22AWG Solid BC Clad Steel	Semi Poly .146	1 BC Braid 95%	.242	93	84%	13.5	50 100 200 400 900	1.9 2.7 3.8 5.4 8.3
W303-X-ND  IBM Eqv: #7362211	Twin Coaxial	20AWG 7 x 28 Solid 1 BC 1TC	Poly .240	1 TC Braid 95%	.320 .320	100	66%	15.5	— —	— —
C8005-ND 	59/U Dual	.023 AWG Solid Bare Copper- weld	Poly .144	100% Flexfoil over Dielectric & TC 85%	.242 .478	75	66%	20.5	100 200 400 700 900 1000	3.5 5.1 7.5 11.4 12.0 12.7

(X = No. of Feet Per Roll)

Digi-Key Part No.	Price Per Roll 100 ft.	500 ft.	1,000 ft.	Carol Part No.
W300-X-ND	24.39	99.45	192.15	C1166
W301-X-ND	24.55	97.88	193.73	C1104
W302-X-ND	27.11	110.25	219.38	C1164
W303-X-ND	44.37	175.00	344.80	C8000
C8005-X-ND	—	234.23	456.53	C8005

See "How to Order" for note concerning shipping charges on prepaid orders.

*Percent signal remaining ** loss per 100 ft.

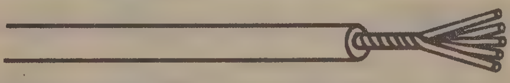
db	1	2	3	4-1/2	6	8	10-1/2	14	20
%	90	80	70	60	50	40	30	20	10

DABURN Plastic Kinkless Test Lead Wire

Ft.	Size	Strand	Ins.	O.D. Nom.	Digi-Key Part Number Red	Black	Yellow	Green	Price Per Roll
100	22	26/36	.032≤	.100≤	W2722R-100-ND	W2722B-100-ND	W2722Y-100-ND	W2722G-100-ND	12.95
1000	22	26/36	.032<	.100≤	W2722R-1000-ND	W2722B-1000-ND	W2722Y-1000-ND	W2722G-1000-ND	85.60
100	18	65/36	.032≤	.112≤	W2718R-100-ND	W2718B-100-ND	W2718Y-100-ND	W2718G-100-ND	22.02
1000	18	65/36	.032≤	.112≤	W2718R-1000-ND	W2718B-1000-ND	W2718Y-1000-ND	W2718G-1000-ND	164.65

Soft formulation vinyl maximum flexibility. Temperature stability from –80°C to +105°C. Exceed requirements for MIL-I-3930A Type JP(PVC). Suitable for text leads, etc. Resistant to gasoline and oil. Excellent abrasion resistance. **Description:** One conductor tinned copper stranded, special formulation vinyl insulation - smooth surface. **Operating Temperature:** —80°C to +105°C, 5000V rating.

DABURN Rubber Kinkless Test Lead Wire



Ft.	Size	Nom. Strand	Breakdown Insul. Wall	Voltage	O.D. Voltage	Nom.	Digi-Key Part Number Red	Black	Price Per Roll
100	20	41/36	3/64≤	12,000V	3,000	.137≤	W2715R-100-ND	W2715B-100-ND	41.16
1000	20	41/36	3/64≤	12,000V	3,000	.137≤	W2715R-1000-ND	W2715B-1000-ND	271.95

Suitable as Test Lead Wire in analyzers, instruments, oscillators, meters, etc. Wherever extra flexibility and limpness are necessary. Single conductor, extra flexible stranded soft tinned copper, color-coded rubber, smooth wax finish. **Operating Temperature:** –20°C to +60°C.

CAROL Multi-Paired Individually Shielded Cable

COLOR CODE CHART

No.	Color	No.	Color
1	Black paired with Red	15	Green paired with Blue
2	Black paired with White	16	Green paired with Yellow
3	Black paired with Green	17	Green paired with Brown
4	Black paired with Blue	18	Green paired with Orange
5	Black paired with Yellow	19	White paired with Blue
6	Black paired with Brown	20	White paired with Yellow
7	Black paired with Orange	21	White paired with Brown
8	Red paired with White	22	White paired with Orange
9	Red paired with Green	23	Blue paired with Yellow
10	Red paired with Blue	24	Blue paired with Brown
11	Red paired with Yellow	25	Blue paired with Orange
12	Red paired with Brown	26	Brown paired with Yellow
13	Red paired with Orange	27	Brown paired with Orange
14	Green paired with White		

- **Conductor:** Fully annealed stranded tinned copper per ASTM B-33 Twisted Pairs (22 AWG)
- **Insulation:** Premium grade color coded polypropylene Color Code: See chart at right
- **Shield:** Individually shielded pairs; 100% Flexfoil aluminum/polyester 25% overlap, foil facing in; Stranded tinned copper drain wire each pair
- **Jacket:** PVC, chrome gray
- **Temperature Range:** -20°C to +60°C
- **Voltage Rating:** 30 Volts (UL style #2493), 300 Volts (UL style #2835)

Equipment:

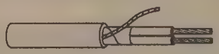
- **Interfaces:** SWEDA 625 systems & SWEDA 800 systems
- **Features:** Excellent high frequency properties; Mechanical durability

Industry:

- **Approvals:** NEC Article 725 Type CL2; NEC Article 800 Type CM; UL Style # listed; Passes UL 70,000 BTU Vertical Flame Test; OSHA acceptable
- **Nominal Insulation Thickness:** 0.010 in.
- **Nominal Cap. pF/ft. Cond./Shield:** 30/55
- **UL Style Number:** 2493

No. Of Pair	Nominal Jacket Thickness (In.)	Nominal O.D. (In.)	Digi Key Part No.	(X = No. of Ft. Per Roll) Price Per Roll 500 ft.	1000 ft.	Carol Cable Part No.
6	0.045	0.380	C6041-X-ND	209.10	389.70	C6041
9	0.045	0.430	C6042-X-ND	312.75	587.70	C6042
11	0.045	0.465	C6043-X-ND	374.85	712.50	C6043
12	0.045	0.480	C6059-X-ND	557.10	1060.80	C6059
15	0.060	0.565	C6044-X-ND	549.00	1045.50	C6044
19	0.060	0.620	C6045-X-ND	665.55	1272.60	C6045
27	0.060	0.700	C6046-X-ND	866.85	1648.05	C6046

CAROL Shielded Microphone Cable



- **Conductor: Type 1**: Fully annealed stranded tinned copper/ ASTM B-33. **Type 2:** Fully annealed stranded bare copper per ASTM B-33.
- **Insulation: Type 1**: Premium grade color coded polypropylene. **Type 2:** Premium grade color coded polyethylene. **Type 3:** Premium grade color coded rubber.
  Color Codes: See chart.
- **Shield: Type 1:** Conductive tape applied over the core; 100% Flexfoil aluminum/polyester 25% overlap, foil facing in stranded tinned copper drain wire. **Type 2:** 85% spiral tinned copper. **Type 3:** 80% tinned copper braid.
- **Jacket: Type 1:** PVC, Black -20°C to +75°C, 200 voltage rating **Type 2:** PVC, Black -20°C to +80°C, 300 voltage rating **Type 3:** Flexlife PVC, Silver Gray -20°C to +60°C, 1000 volt. rating **Type 4:** Black Rubber -20°C to +60°C, 300 voltage rating **Type 5:** Carolprene, Black -20°C to +60°C, 300 voltage rating

- **FEATURES**

Note 1: Excellent shielding to reduce noise

Note 2: Spiral shield provides extra limpness and flexibility

Note 3: Flexlife jacket provides extreme flexability

Note 4: High abrasion resistance & outstanding appearance

Note 5: Precision engineered to transmit clear, noise-free signals

Note 6: Eliminates hum pick-up

Note 7: Resistant to oil, acid, sunlight, abrasion, and aging

Note 8: Extreme noise reflection

Note 9: Provides extra limpness

Note 10: Low impedance

Note 11: High impedance

COLOR CODE CHART NO. 1

Conductor	Color
1	Black
2	Red

COLOR CODE CHART NO. 2

Conductor	Color
1	White
2	Green
3	Brown

COLOR CODE CHART NO. 3

Conductor	Color
1	White
2	Black

Cond. Type	Cond. Awg.	Cond. Strand	Insul. Type	Color Chart #	Shield Type	Jacket Type	Features Note No.	No. of Cond.	Nominal Jacket Thickness (In.)	Nominal Insulation Thickness (In.)	Nominal O.D. (In.)	Nom. Cap. pF/ft. A/B	Digi-Key Part No.	(X = No. of Ft. Per Roll) Price Per Roll 100 ft.	500 ft.	1000 ft.	Carol Cable Part No.
1	24	19/36	1	1	1	1	1	2	0.020	0.008	0.135	30/58	C1228-X-ND	19.34	56.40	110.55	C1228
2	24	105/44	2	2	2	2	1,2	2	0.031	0.012	0.176	40/110	C1226-X-ND	25.30	79.95	155.25	C1226
2	22	16/34	2	3	3	3	3, 4, 10	2	0.025	0.025	0.235	B = 31	C1322-X-ND*	35.48	103.05	231.60	C1322
2	20	26/34	3	3	3	4	5, 6, 9, 11	1	0.035	0.040	0.230	B = 42	C1300-X-ND*	29.48	87.00	186.60	C1300
2	20	26/34	3	3	3	4	5, 6, 9, 10	2	0.035	0.020	0.270	B = 50	C1302-X-ND*	38.92	127.95	257.40	C1302
2	18	41/34	3	3	3	5	5, 6, 7, 8, 11	1	0.035	0.040	0.240	B = 46	C1201-X-ND*	29.52	96.30	186.90	C1201
2	18	41/34	3	3	3	5	5, 6, 7, 8, 10	2	0.035	0.020	0.295	B = 61	C1202-X-ND*	40.74	133.35	271.05	C1202
2	16	65/34	3	3	3	5	5, 6, 7, 8, 10	2	0.035	0.025	0.335	B = 55	C1602-X-ND*	50.14	222.00	338.85	C1602

*High and low impedance cable. A = conductor to conductor. B = One conductor and other conductor connected to shield.

CAROL PVC Coated Speaker Cable

- **Conductor:**
  Fully annealed 1 bare, 1 tin stranded copper per ASTM B-174
  Fully annealed stranded bare copper per ASTM B-33 (C1364 style only)**
- **Insulation:**
  Premium grade PVC
  Premium grade Superflex PVC (C1364 style only)**
- **Jacket:** PVC Clear
- **Temperature Range:** -20°C to +60°C
- **Voltage Rating:** 90 Volts (UL)*, 300 Volts SPT-1
- **Industry Approvals:**
  UL wires misc. 90 volts* (except C1364 series)
  UL recognized 300 volts SPT-1 (except C1364 series)
  OSHA acceptable (except C1364 series)

No. of Cond.	Awg. Size	Strand	Insul-ation Color	Nom. Insulation Thickness (In.)	Nominal O.D. (In.)	Suggested Working Voltage	Digi-Key Part No.	(X = No. of Ft. Per Roll) Price Per Roll 500 ft.	1000 ft.	Carol Cable Part No.
2	24	7/32	Clear	0.016	0.055 x 0.110	250	C1356-X-ND	11.85	22.20	C1356
2	22	7/30	Clear	0.020	0.070 x 0.145	300	C1362-X-ND	17.55	33.45	C1362*
2	20	10/30	Clear	0.020	0.085 x 0.160	300	C1360-X-ND	21.45	41.25	C1360*
2	18	16/30	Clear	0.025	0.100 x 0.187	300	C1357-X-ND	27.45	53.85	C1357*
2	16	26/30	Clear	0.025	0.112 x 0.210	300	C1358-X-ND	37.95	74.55	C1358
2	14	41/30	Clear	0.025	0.120 x 0.230	300	C1361-X-ND	55.80	112.35	C1361
2	12	65/30	Clear	0.030	0.160 x 0.335	300	C1363-X-ND	91.35	178.50	C1363
2	12	7 x 37/36	Clear	0.060	0.230 x 0.470	300	C1364-X-ND	172.95	336.90	C1364**

DABURN PVC Coated Speaker Cable

- Conductors are parallel, stranded copper.
- Suited for Hi-Fi speaker cable.
- Clear insulation blends with any interior.
- **Temperature Rating:** 20°C~ + 60°C.
- **Operating Voltage:** 300V.

Cond.	Size	Strand	Insulation Color	Digi-Key Part No.	(X = No. of Ft. Per Roll) Price Per Roll 100 ft.	1,000 ft.	Daburn Part No.
2*	22	7/30	Clear	W200-X-ND	6.34	49.62	2753
2*	18	16/30	Clear	W201-X-ND	10.97	90.61	2759
2*	16	26/30	Clear	W202-X-ND	14.28	131.80	2760

* 1 Conductor Tinned Copper; 1 Conductor Bare Copper

Qualtek AC Line Cords

Fig. 1

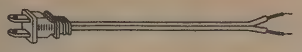


Fig. 2

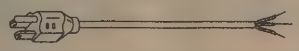


Fig. 3

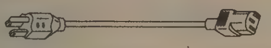


Fig. 4

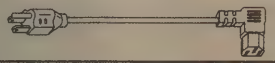


Fig. 5

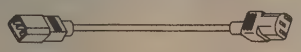


Fig. 6

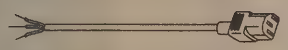


Fig. 7

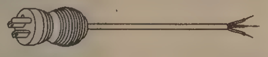


Fig. 8

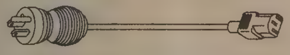


Fig. 9

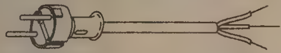


Fig. 10

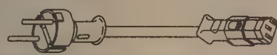


Fig. 11

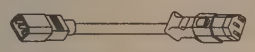


Fig. 12

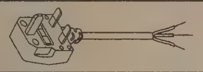
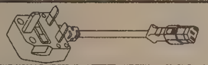


Fig. 13



- **Temperature Rating:** 60°C
- **Volt Rating:** 125 V/AC.
- **Small Appliance Line Cord:** NEMA 1-15 P Plug
- **Male Plug Power Cord:** NEMA 5-15 P Plug
- **Detachable Power Cord:** NEMA 5-15 P Plug, IEC 320 Connector

Description	Fig. No.	Length	Color	AWG	Rating Amps @ 125V	Cord Type	Digi-Key Part No.	Pricing 1	10	100	250	Qualtek Part No.
Small Appliance Line Cord UL Listed	1	6'0"	Brown	18/2	10	SPT-1	Q100-ND	1.31	11.82	94.95	200.45	221001-03
	1	6'0"	White	18/2	10	SPT-1	Q101-ND	1.31	11.82	94.95	200.45	221001-08
	1	6'0"	Black	18/2	10	SPT-1	Q114-ND	1.31	11.82	94.95	200.45	221001-01
	1	9'0"	Black	18/2	10	SPT-1	Q121-ND ***NEW!***	1.67	15.06	121.05	255.55	221002-01
Male Plug Power Cord UL Listed CSA Certified CEE Color Code	2	6'7"	Black	18/3	10	SVT	Q106-ND	3.26	29.43	236.48	499.23	311007-01
	2	9'10"	Black	18/3	10	SVT	Q107-ND	4.20	37.91	304.65	643.15	311010-01
	2	6'7"	Black	18/3	10	SJT	Q108-ND	3.52	31.75	255.15	538.65	311013-01
	2	9'10"	Black	18/3	10	SJT	Q109-ND	4.54	40.99	329.40	695.40	311016-01
	2	6'7"	Black	16/3	13	SJT	Q110-ND	4.20	37.91	304.65	643.15	311019-01
	2	9'10"	Black	16/3	13	SJT	Q111-ND	5.12	46.26	371.70	784.70	311022-01
	2	6'7"	Black	14/3	15	SJT	Q112-ND	5.25	47.43	381.15	804.65	311024-01
	2	9'10"	Black	14/3	15	SJT	Q113-ND	7.09	64.04	514.58	1086.33	311027-01
	2	8'0"	Gray	18/3	10	SVT	Q122-ND ***NEW!***	3.81	34.41	276.53	583.78	211012-06
	2	8'0"	Gray	18/3	10	SJT	Q123-ND ***NEW!***	4.05	36.54	293.63	619.88	211018-06
Detachable Power Cord UL Listed CSA Certified CEE Color Code	3	6'7"	Black	18/3	10	SJT	Q102-ND	4.71	42.56	342.00	722.00	312007-01
	3	9'10"	Black	18/3	10	SJT	Q103-ND	6.07	54.80	440.33	929.58	312010-01
	3	6'7"	Black	16/3	13	SJT	Q115-ND	5.39	48.66	391.05	825.55	312011-01
	3	9'10"	Black	16/3	13	SJT	Q116-ND	6.46	58.38	469.13	990.38	312014-01
	3	9'10"	Black	16/3	13	SJT	Q120-ND†	9.50	85.79	689.40	1455.40	312040-01
	3	7'6"	Black	16/3	13	SJT	Q124-ND ***NEW!***	5.77	52.14	418.95	884.45	212013-01
	3	7'6"	Black	18/3	10	SVT	Q125-ND ***NEW!***	4.70	42.45	341.10	720.10	312003-01
	3	7'6"	Black	18/3	10	SVT	Q126-ND ***NEW!***	4.82	43.57	350.10	739.10	312021-01
	4	6'7"	Black	18/3	10	SJT	Q104-ND	5.96	53.87	432.90	913.90	313006-01
	4	6'7"	Black	16/3	13	SJT	Q117-ND	6.40	57.79	464.40	980.40	313010-01
	4	9'10"	Black	18/3	10	SJT	Q105-ND	6.83	61.71	495.90	1046.90	313009-01
	4	9'10"	Black	16/3	13	SJT	Q118-ND	7.65	69.10	555.30	1172.30	313014-01
	4	9'10"	Black	16/3	13	SJT	Q119-ND†	9.86	89.04	715.50	1510.50	313026-01
	5	3'3"	Black	18/3	10	SVT	Q127-ND ***NEW!***	5.02	45.30	364.05	768.55	318002-01
	5	3'3"	Black	18/3	10	SJT	Q128-ND ***NEW!***	4.05	36.54	293.63	619.88	318005-01
	6	9'10"	Black	18/3	10	SJT	Q129-ND ***NEW!***	5.04	45.56	366.08	772.83	315008-01
Hospital Grade UL Listed CSA Certified N. Amer. Color Code	7	10'0"	Gray	18/3	10	SJT	Q130-ND ***NEW!***	10.04	90.72	729.00	1539.00	232003-06
	7	10'0"	Gray	18/3	10	SJT	Q131-ND ***NEW!***	10.04	90.72	729.00	1539.00	232011-06
	8	10'0"	Gray	18/3	10	SJT	Q132-ND ***NEW!***	10.80	97.55	783.90	1654.90	233003-06
	8	10'0"	Gray	18/3	10	SJT	Q133-ND ***NEW!***	10.80	97.55	783.90	1654.90	233009-06

† Shielded with Mylar Foil

Description	Fig. No.	Length Meters	Color	Cordage	Conductors (MM2)	Rating Amps @ 250V	Digi-Key Part No.	Pricing 1	10	100	250	Qualtek Part No.
NEW! International Power Cords NEW!												
Continental Europe	9	2.5	Black	H05VV-F	3 X 1.00	10	Q134-ND	3.66	33.10	265.95	561.45	363012-D01
	10	2.5	Black	H05VV-F	3 X 1.00	10	Q135-ND	5.46	49.31	396.23	836.48	364002-D01
	11	2.5	Black	H05VV-F/SJT	3 X 1.00	10	Q136-ND	3.91	35.31	283.73	598.98	319004-T01
United Kingdom	12	2.5	Black	H05VV-F	3 X 1.00	10	Q137-ND	10.98	99.18	796.95	1682.45	369003-E01
	13	2.5	Black	H05VV-F	3 X 1.00	10	Q138-ND	13.66	123.42	991.80	2093.80	370001-E01

Qualtek *NEW!* AC Receptacles

Fig. 1

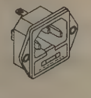


Fig. 2

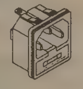


Fig. 3

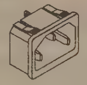


Fig. 4

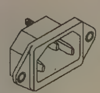


Fig. 5

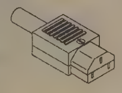


Fig. 6

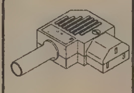


Fig. 7

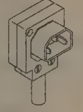


Fig. 8

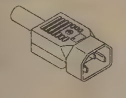


Fig. 9

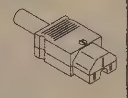
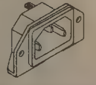
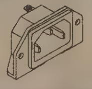


Fig. 10



7mm Terminal Pitch

Fig. 11



9mm Terminal Pitch

Fig. 12

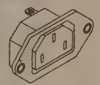


Fig. 13

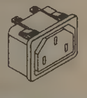


Fig. 14

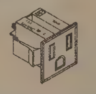


Fig. 15

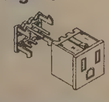


Fig. No.	Description	Mount Type	Contact Type	Digi-Key Part No.	Pricing 1	10	100	250	Qualtek Part No.
Power Inlets with Single 5x20mm Fuseholder									
1	PPC AC Receptacle, Straight, Male	Screw	Solder Tab	Q201-ND	2.55	23.04	185.18	390.93	719W-00/02
1	PPC AC Receptacle, Straight, Male	Screw	.187 Faston	Q202-ND	2.55	23.04	185.18	390.93	719W-00/03
1	PPC AC Receptacle, Straight, Male	Screw	.25 Faston	Q203-ND	2.55	23.04	185.18	390.93	719W-00/04
2	PPC AC Receptacle, Straight, Male	Snap-in	Solder Tab	Q204-ND	2.55	23.04	185.18	390.93	723W-X2/02
2	PPC AC Receptacle, Straight, Male	Snap-in	.187 Faston	Q205-ND	2.55	23.04	185.18	390.93	723W-X2/03
2	PPC AC Receptacle, Straight, Male	Snap-in	.25 Faston	Q206-ND	2.55	23.04	185.18	390.93	723W-X2/04
AC Power Inlets									
3	PPC AC Receptacle, Straight, Male	Snap-in	Solder Tab	Q207-ND	.91	8.23	66.15	139.65	701W-X2/02
3	PPC AC Receptacle, Straight, Male	Snap-in	.187 Faston	Q208-ND	.91	8.23	66.15	139.65	701W-X2/03
3	PPC AC Receptacle, Straight, Male	Snap-in	.25 Faston	Q209-ND	.99	8.93	71.78	151.53	701W-X2/04
4	PPC AC Receptacle, Straight, Male	Screw	Solder Tab	Q210-ND	.91	8.23	66.15	139.65	703W-00/02
4	PPC AC Receptacle, Straight, Male	Screw	.187 Faston	Q211-ND	.91	8.23	66.15	139.65	703W-00/03
4	PPC AC Receptacle, Straight, Male	Screw	.25 Faston	Q212-ND	.99	8.93	71.78	151.53	703W-00/04
AC Power Plug Assemblies									
5	In-Line Plug, Straight, Female	Cord	Screw Terminals	Q213-ND	4.08	36.82	295.88	624.63	704-00/00
6	In-Line Plug, Right Angle, Female	Cord	Screw Terminals	Q214-ND	5.41	48.86	392.63	828.88	705-00/00
7	In-Line Plug, Right Angle, Male	Cord	Screw Terminals	Q215-ND	6.96	62.83	504.90	1065.90	711-00/00
8	In-Line Plug, Straight, Male	Cord	Screw Terminals	Q216-ND	6.96	62.83	504.90	1065.90	712-00/00
9	In-Line Plug, Straight, Female	Cord	Screw Terminals	Q217-ND	4.74	42.84	344.25	726.75	709-00/00
Angled Inlet PCB Mount									
10	PPC AC Receptacle, Right Angle, Male	Screw	Round PC Terminals	Q218-ND	1.30	11.76	94.50	199.50	703W-00/52
10	PPC AC Receptacle, Right Angle, Male	Screw	Flat PC Terminals	Q219-ND	1.35	12.24	98.33	207.58	703W-00/53
11	PPC AC Receptacle, Right Angle, Male	Screw	Flat PC Terminals	Q220-ND	1.35	12.24	98.33	207.58	703W-00/54
AC Power Outlets IEC 320									
12	PPC AC Receptacle, Straight, Female	Screw	Solder Tab	Q221-ND	.91	8.23	66.15	139.65	710W-00/01
12	PPC AC Receptacle, Straight, Female	Screw	.187 Faston	Q222-ND	.91	8.23	66.15	139.65	710W-00/02
12	PPC AC Receptacle, Straight, Female	Screw	.250 Faston	Q223-ND	.99	8.93	71.78	151.53	710W-00/03
13	PPC AC Receptacle, Straight, Female	Snap-in	Solder	Q224-ND	.91	8.23	66.15	139.65	716W-X2/01
13	PPC AC Receptacle, Straight, Female	Snap-in	.187 Faston	Q225-ND	.91	8.23	66.15	139.65	716W-X2/02
13	PPC AC Receptacle, Straight, Female	Snap-in	.250 Faston	Q226-ND	.99	8.93	71.78	151.53	716W-X2/03
NEMA 5-15R Power Outlets									
14	PPC AC Receptacle, Straight, Female	Snap-in	.187 Faston	Q227-ND	.96	8.71	69.98	147.73	738W-X2/03
15	PPC AC Receptacle, Straight, Female	Snap-in	IDC Crimp Terminals	Q228-ND	.96	8.71	69.98	147.73	739W-X2/03

3M Heat Shrinkable Tubing (CP-221 / VFP-876 & SR-350 Series)

CP-221 Series-Commercial Grade Polyolefin
Shrink Temperature: 121°C, Color: Black, Shrink Ratio: 2:1, recommended as a general purpose heat-shrinkable tubing for new commercial applications where other types of tubing are now used.

VFP-876 Series-Very Flexible Polyolefin:
Shrink Temperature: 100°C, Color: Black, Shrink Ratio: 2:1, Most flexible of the heat-shrinkable, polyolefin tubings, Ideal for jacketing and insulation of flexible wire bundles and sensitive components.

SR-350 Series-Semi-Rigid Polyolefin:
Shrink Temperature: 135°C, Color: Black, Shrink Ratio: 2:1, Ideally suited for strain-relief applications, wire marking, protective covering and packaging of delicate components.

Tubing Size (In.) Dia.*	Expand. I.D. (Min.) (In.)	Recov. I.D. (Max.) (In.)	Nom. Recov. (Wall Thick) (In.)	Digi-Key Part No.	(NOTE: "X" in Part No. Represents Number of Feet) Price Per Roll 2 ft.	5 ft.	25 ft.	50 ft.	100 ft.	200 ft.	250 ft.	500 ft.	1000ft.
				CP-221 Series - Commercial Grade Polyolefin									
3/64	.046	.023	.016	CP364-X-ND	—	1.65	7.37	13.20	23.76	—	47.30	83.60	136.62
1/16	.063	.031	.017	CP116-X-ND	—	1.69	7.54	13.50	24.30	—	48.38	85.50	139.73
3/32	.093	.046	.020	CP332-X-ND	—	1.78	7.96	12.84	20.45	—	45.17	73.82	—
1/8	.125	.062	.020	CP018-X-ND	—	1.91	8.51	13.72	21.84	—	—	78.87	—
3/16	.187	.093	.020	CP316-X-ND	—	2.27	9.10	13.04	23.05	—	47.08	—	—
1/4	.250	.125	.025	CP014-X-ND	—	2.87	11.47	16.44	29.05	47.48	—	—	—
3/8	.375	.187	.025	CP038-X-ND	—	3.26	13.03	18.67	33.00	53.93	—	—	—
1/2	.500	.250	.025	CP012-X-ND	—	3.89	15.58	22.33	39.46	64.49	—	—	—
3/4	.750	.375	.030	CP034-X-ND	—	5.26	21.02	30.13	53.26	87.03	—	—	—
1	1.000	.500	.035	CP100-X-ND	—	7.90	31.61	45.31	65.44	—	—	—	—
1 1/2	1.500	.750	.040	CP112-X-ND	—	13.77	55.07	78.93	113.98	—	—	—	—
2	2.000	1.000	.045	CP200-X-ND	—	18.97	75.89	108.77	157.08	—	—	—	—
				VFP-876 Series - Very Flexible Polyolefin, Self-extinguishing									
3/64	.046	.023	.016	VFP364-X-ND	—	1.45	6.49	11.63	20.93	—	41.66	73.63	120.32
1/16	.063	.031	.017	VFP116-X-ND	—	1.48	6.61	11.84	21.30	—	42.41	74.96	122.49
3/32	.093	.046	.020	VFP332-X-ND	—	1.56	6.98	11.26	17.93	—	39.62	64.74	—
1/8	.125	.062	.020	VFP018-X-ND	—	1.69	7.54	12.15	19.35	—	42.75	69.86	—
3/16	.187	.093	.023	VFP316-X-ND	—	2.06	8.22	11.78	20.82	—	42.54	—	—
1/4	.250	.125	.028	VFP014-X-ND	—	2.57	10.26	14.71	25.99	42.48	—	—	—
3/8	.375	.187	.028	VFP038-X-ND	—	2.86	11.45	16.42	29.01	47.41	—	—	—
1/2	.500	.250	.028	VFP012-X-ND	—	3.23	12.92	18.52	32.74	53.50	—	—	—
3/4	.750	.375	.033	VFP034-X-ND	—	4.31	17.24	24.70	43.66	71.35	—	—	—
1	1.000	.500	.035	VFP100-X-ND	—	6.44	25.76	36.93	53.33	—	—	—	—
1 1/2	1.500	.750	.040	VFP112-X-ND	—	12.00	48.02	68.82	99.39	—	—	—	—
2	2.000	1.000	.045	VFP200-X-ND	—	16.59	66.35	95.11	137.35	—	—	—	—
				SR-350 Series - Semi-rigid Polyolefin									
3/64	.046	.023	.020	SR364-X-ND	.80	—	—	—	—	32.94	—	—	—
1/16	.063	.031	.020	SR116-X-ND	.82	—	—	—	—	34.09†	—	—	—
3/32	.093	.046	.020	SR332-X-ND	.87	—	—	—	—	36.11†	—	—	—
1/8	.125	.062	.020	SR018-X-ND	.93	—	—	—	—	38.56†	—	—	—
3/16	.187	.093	.025	SR316-X-ND	1.14	—	—	—	—	47.35†	—	—	—
1/4	.250	.125	.025	SR014-X-ND	1.42	—	—	—	29.33†	—	—	—	—
3/8	.375	.187	.030	SR038-X-ND	1.58	—	—	—	32.68†	—	—	—	—
1/2	.500	.250	.030	SR012-X-ND	1.80	—	—	—	37.20	—	—	—	—

* Indicates size BEFORE shrinking occurs. † Pre-cut in 4' lengths

3M *NEW!* Colored Heat Shrinkable Tubing (FP-301 Series)

AVAILABLE IN 7 COLORS:
(K = Black, C = Clear, B = Blue, G = Green, R = Red, W = White, Y = Yellow)

Shrink Temperature: 121°C, Shrink Ratio: 2:1, Tubing is split resistant, mechanically tough, easily marked and resist cold flow, for UL, CSA and Mil-I-23053/5 applications at 600V @ 125°C.

Tubing Size (In.) Dia.*	Expand. I.D. (Min.) (In.)	Recov. I.D. (Max.) (In.)	Nom. Recov. (Wall Thick) (In.)	Digi-Key Part No.	(NOTE: "X" in Part No. Represents Number of Feet) Price Per Roll 5 ft.	25 ft.	50 ft.	100 ft.	200 ft.	250 ft.	500 ft.	1000ft.
				FP-301 Series - Flexible Polyolefin, Self-extinguishing, Flame Retardant								
3/64	.046	.023	.016	FP364☐-X-ND*	1.78	7.94	14.22	25.60	—	50.96	90.06	147.18
1/16	.063	.031	.017	FP116☐-X-ND	1.81	8.10	14.51	26.11	—	51.98	91.87	150.13
3/32	.093	.046	.020	FP332☐-X-ND	1.92	8.58	13.82	22.02	—	48.64	79.49	—
1/8	.125	.062	.020	FP018☐-X-ND	2.07	9.24	14.89	23.71	—	52.39	85.62	—
3/16	.187	.093	.020	FP316☐-X-ND	2.52	10.07	14.44	25.52	—	52.13	—	—
1/4	.250	.125	.025	FP014☐-X-ND	3.14	12.57	18.02	31.84	52.04	—	—	—
3/8	.375	.187	.025	FP038☐-X-ND	3.51	14.04	20.12	35.57	58.13	—	—	—
1/2	.500	.250	.025	FP012☐-X-ND	3.96	15.84	22.70	40.13	65.58	—	—	—
3/4	.750	.375	.030	FP034☐-X-ND	5.28	21.11	30.26	53.49	87.41	—	—	—
1	1.000	.500	.035	FP100☐-X-ND	7.89	31.56	45.24	65.33	—	—	—	—
1 1/2	1.500	.750	.040	FP112☐-X-ND*	14.71	58.83	84.32	121.78	—	—	—	—
2	2.000	1.000	.045	FP200☐-X-ND*	20.32	81.29	116.51	168.26	—	—	—	—

Note: For complete number, substitute ☐ with appropriate color (K = Black, C = Clear, B = Blue, G = Green, R = Red, W = White, Y = Yellow) and substitute "X" with length choice.

* Not available in green.

† **FPC-KIT-ND *NEW!*** One 5 ft. tubing of each color in the following series; FP364, FP116, FP332, FP018, FP316, FP014, FP038 and FP012 (55 pieces total of 8 sizes). **$34.95**

3M Heatshrink Precut Lengths & Kits

CP-221 Series-Commercial Grade Polyolefin: Shrink Temperature: 121°C, Color: Black, Shrink Ratio: 2:1, recommended as a general purpose heat-shrinkable tubing for new commercial applications where other types of tubing are now used.

FP-301 Series-Flexible Polyolefin: Shrink Temperature: 121°C, Color: Black, Shrink Ratio: 2:1, Tubing is split resistant, mechanically tough, easily marked and resist cold flow, for UL, CSA and Mil-I-23053/5 applications at 600V @ 125°C.

VFP-876 Series-Very Flexible Polyolefin: Shrink Temperature: 100°C, Color: Black, Shrink Ratio: 2:1, Most flexible of the heat-shrinkable, polyolefin tubings, Ideal for jacketing and insulation of flexible wire bundles and sensitive components.

Tubing Size (In.) Dia. x Length	Expanded I.D. (Min.) (In.)	(mm)	Recovered I.D. (Max.) (In.)	(mm)	Nom. Recovered (Wall thick.) (In.)	(mm)	Digi-Key Part No.	Pricing (50 pcs./ bag) 1 Bag	5 Bags
CP-221 Series									
3/64 x 1/2	.046	1.19	.023	0.58	.016	0.41	CP364-R50-ND	.70	2.79
1/16 x 1/2	.063	1.60	.031	0.79	.017	0.43	CP116-R50-ND*	.71	2.84
3/32 x 1/2	.093	2.38	.046	1.19	.020	0.51	CP332-R50-ND*	.74	2.95
1/8 x 3/4	.125	3.18	.062	1.57	.020	0.51	CP018-R75-ND*	1.07	4.28
3/16 x 3/4	.187	4.76	.093	2.38	.020	0.51	CP316-R75-ND*	2.59	10.37
1/4 x 1	.250	6.35	.125	3.18	.025	0.64	CP014-1R0-ND*	1.96	7.83
1/4 x 1.5	.250	6.35	.125	3.18	.025	0.64	CP014-1R5-ND*	2.84	11.36
3/8 x 1.5	.375	9.53	.187	4.76	.025	0.64	CP038-1R5-ND	3.21	12.83
1/2 x 1.5	.500	12.70	.250	6.35	.025	0.64	CP012-1R5-ND	3.79	15.18
FP-301 Series, Self-extinguishing									
3/64 x 1/2	.046	1.19	.023	0.58	.016	0.41	FP364K-R50-ND	.78	3.12
1/16 x 1/2	.063	1.60	.031	0.79	.017	0.43	FP116K-R50-ND‡	.79	3.16
3/32 x 1/2	.093	2.38	.046	1.19	.020	0.51	FP332K-R50-ND‡	.83	3.30
1/8 x 3/4	.125	3.18	.062	1.57	.020	0.51	FP018K-R75-ND‡	1.22	4.87
3/16 x 3/4	.187	4.76	.093	2.38	.020	0.51	FP316K-R75-ND‡	1.44	5 77
1/4 x 1	.250	6.35	.125	3.18	.025	0.64	FP014K-1R0-ND‡	2.28	9.11
1/4 x 1.5	.250	6.35	.125	3.18	.025	0.64	FP014K-1R5-ND‡	3.32	13.28
3/8 x 1.5	.375	9.53	.187	4.76	.025	0.64	FP038K-1R5-ND	3.69	14.76
1/2 x 1.5	.500	12.70	.250	6.35	.025	0.64	FP012K-1R5-ND	4.14	16.55
VFP-876 Series, Self-extinguishing									
3/64 x 1/2	.046	1.19	.023	0.58	.016	0.41	VFP364-R50-ND	.93	3.72
1/16 x 1/2	.063	1.60	.031	0.79	.017	0.41	VFP116-R50-ND†	.94	3.77
3/32 x 1/2	.093	2.38	.046	1.19	.020	0.51	VFP332-R50-ND†	.99	3.94
1/8 x 3/4	.125	3.18	.062	1.57	.020	0.51	VFP018-R75-ND†	1.48	5.92
3/16 x 3/4	.187	4.76	.093	2.38	.023	0.58	VFP316-R75-ND†	1.75	7.02
1/4 x 1	.250	6.35	.125	3.18	.028	0.71	VFP014-1R0-ND†	2.80	11.22
1/4 x 1.5	.250	6.35	.125	3.18	.028	0.71	VFP014-1R5-ND†	4.11	16.45
3/8 x 1.5	.375	9.53	.187	4.76	.028	0.71	VFP038-1R5-ND	4.58	18.33
1/2 x 1.5	.500	12.70	.250	6.35	.028	0.71	VFP012-1R5-ND	5.15	20.59

*** CP-KIT-ND**	50 ea of pcs denoted (Exception: CP116-R50-ND has 100 pcs), 350 total pcs. Plastic box and label card incl.	**$9.95**
‡ FP-KIT-ND	50 ea of pcs denoted (Exception: FP116-R50-ND has 100 pcs), 350 total pcs. Plastic box and label card incl.	**$10.94**
† VFP-KIT-ND	50 ea of pcs denoted (Exception: VFP116-R50-ND has 100 pcs). 350 total pcs Plastic box and label card incl.........	**$11.95**

Daburn Shrinkable Tubing, Polyolefin: Black

The most widely used, general purpose heat shrinkable tubing. An irradiated flexible, flame-retardant polyolefin tubing with a wide scope of applications. These include: harnessing, wire bundling, strain reliefs, or any application where components or cables must be insulated or packaged. • UL E-38155. • CSA LR-31929. • MIL-I-23053/5A. • MSFC-276B. • AMS 3636B. **Operating Temperature:** To –55°C to + 135°C. **Shrinkage Ratio:** To 50% of supplied diameter at 121°C. **Electrical Properties:** Dielectric Strength: 1300 V/mil (512 kV/cm). Volume Resistivity: 10^{15} ohm-cm. **Physical Properties:** Tensile Strength: 2500 PSI, nominal (176 kg/cm²). Ultimate Elongation: 400% nominal.

Shrink Tubing Assortment
Contains the following:

5 ft./W181-ND	5 ft./W184-ND
5 ft./W182-ND	5 ft./W185-ND
5 ft./W183-ND	5 ft./W186-ND

STA-KIT-ND $10.95

Minimum Supplied I.D. In.	mm	Maximum Recovered I.D. In.	mm	Nom. Recovered Wall Thickness In.	mm	Digi-Key Part. No.	(NOTE: "X" in Digi-Key Part No. Represents Number of Feet) Price Per Roll 5'	25'	50'	100'	200'	500'	1000'
.063	1.60	.031	.78	.017	.43	W181-X-ND	2.25	10.05	18.00	32.40	51.60	114.00	199.20
.093	2.36	.046	1.17	020	.50	W182-X-ND	2.48	11.06	19.80	35.64	56.76	125.40	219.12
.125	3.18	.062	1.58	.020	.50	W183-X-ND	2.65	11.85	21.23	38.21	76.06	134.43	234.89
.187	4.75	.093	2.36	.020	.50	W184-X-ND	3.14	14.03	25.13	45.23	72.03	159.13	278.05
.250	6.35	.125	3.18	.025	.63	W185-X-ND	3.94	17.59	31.50	56.70	90.30	199.50	—
.375	9.53	.187	4.75	.025	.63	W186-X-ND	4.35	19.43	34.80	62.64	99.76	—	—
.500	12.7	.250	6.35	.025	.63	W187-X-ND	4.99	22.28	39.90	71.82	114.38	—	—
.750	19.1	.375	9.53	.030	.76	W188-X-ND	6.86	30.65	54.90	98.82	157.38	—	—
1.000	25.4	.500	12.70	035	.88	W189-X-ND	9.80	43 76	78.38	130.62	—	—	—
1.500	38.1	.750	19.10	.040	1.02	W190-X-ND	21.30	95.14	170.40	284.00	—	—	—
2.000	50.8	1.000	25.40	.045	1 14	W191-X-ND	33.71	150.58	269.70	449.50	—	—	—
3.000	76.2	1.500	38.10	.050	1.27	W192-X-ND	41.30	185.65	309.75	—	—	—	—
4.000	101.6	2.000	50.80	.055	1.40	W193-X-ND	51.00	[illegible]	120.75	—	—	—	—

STEINEL® Certified Heat Guns

HL 1502 S: Hot air at three temperature levels, for professionals and hobbyists. The temperature stages can be selected conveniently with one hand during use. **Technical Specifications:** • Voltage - 120V AC • Output 1400W • Temperature: • Step 1: 120°F • Step 2: 800°F • Step 3: 1050°F **HL1802E, HG3000SLE, HG2000E:** Continuously adjustable, electronically controlled hot air. The electronic temperature regulator enables you to set exactly the ideal temperature for the job you are doing. **Technical Specifications:** • Voltage - 120V AC • Output - 1500W • Temperature - 120° - 1100° F.

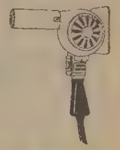
Fig.	Description	Digi-Key Part No.	Price
1	3 Speed Fixed Temp Heat Gun............	SDL1100-ND	86.95
–	Heat Shrink Attachment for SDL1100-ND ...	SDL1300-ND	9.95
1	Variable Temp Indust. Heat Gun..........	SDL1200-ND	149.95
1	Variable Readout Heat Gun.................	SDL1150-ND	174.95
2	Variable Ergonomic Heat Gun	SDL1250-ND	139.95
–	Heat Gun Stand Benchtop	SDL1400-ND	22.50
–	Reducer-Reflector Nozzle 3/8"......	SDL1303-ND	11.95
–	Reducer Nozzle Attachment 3/8"	SDL1301-ND	9.95
–	Reducer Nozzel Attachment 5/8"	SDL1302-ND	9.95

Fig. 1

Fig. 2

STEINEL HG 2000 E

MASTER® APPLIANCE Certified Heat Gun

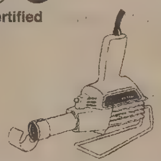


Features universal motor, high air velocity, volume and temperatures. Rugged die cast aluminum housing with externally replaceable carbon brushes, 3 wire oil resistant cord set, and reinforced ceramic heating element, temperature: 500-750°F, 120V, 14A.

Description	Digi-Key Part No.	Price
Heat Gun...	MA1001-ND	88.56
Heat Shrink Attachment - Shrink Tubing from 3/4" to 2" O.D	MA1002-ND	11.89
Shrink Wrap Attachment - 8" Wide..	MA1003-ND	31.46
Heat Reducer Attachment - 1/8"	MA1004-ND	7.67
Replacement Heat Element..........................	MA1005-ND	15.57

MASTERMITE® Heat Gun

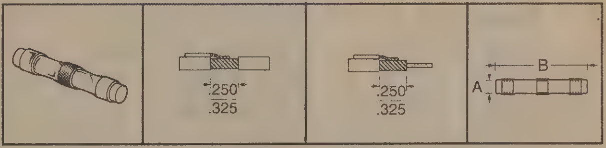
Certified



Quiet running. Comes standard with bench stand, heat shrink attachment, and interchangeable heating element. High impact plastic housing, lightweight, draws only 4.0 amps max., continuous duty brushless motor, temperature: 650°F, 120V, 60Hz, 4.0A.

Description	Digi-Key Part No.	Price
Heat Gun..............................	MA1006-ND	63.00
Replacement Heat Element.........	MA1007-ND	16.90

3M Soldering Sleeves



3M Soldering Sleeves are heat-shrinkable Kynar (PVDF) sleeves containing a fluxed solder preform with thermoplastic inserts at each end. The one-piece design allows for quick, easy, uniform soldering of ground wires to cable shielding. The solder preform is designed to provide an exact measure of solder and flux to terminate the cable shield and ground lead.

Upon application of heat, three processes take place: the solder preform melts and flows connecting the ground lead and cable shield, the outer sleeve shrinks to provide mechanical protection and strain relief and the thermoplastic inserts melt and flow, sealing the connection. This provides a space-saving, insulated, environmentally protected and strain-relieved solder termination.

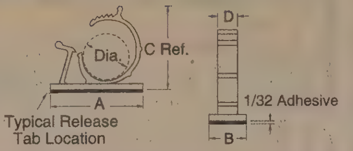
3M Soldering Sleeves come in sizes to accommodate the most commonly used shielded cables, with hot air installation.

3M Soldering Sleeves meet the requirements of MIL-STD-454 and for both hot air and infrared heating meet the requirements of National Aerospace Standards NAS 1745 and 1746 respectively.

Dim. A (In.)	Dim. B (In.)	Digi-Key Part No.	Pricing 1	25	100	500	1000	3M Part No.
.300	.750	SO105E-ND	1.48	27.75	74.00	308.21	555.00	SO105E

Richco

Adjustable Kwik Klip

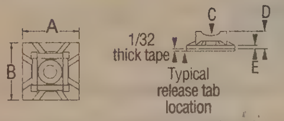


- 4 sizes adjust to any holding diameter from 5/16" to 1" (7.9-25.4 mm. • Locks securely, easily reopened for routing changes. Adhesive back. • Material: Nylon 6/6. • Color: Natural.

Dia. Range (Inches)	Dimensions (Inches) A	B	C	D	Digi-Key Part No.	Pricing 10	100	500	1,000	Richco Part No.
.31 - .40	1.0	.75	.87	.40	RP309-ND	7.20	60.00	240.00	360.00	AKKL-3140A-RT
.46 - .56	1.25	.75	1.09	.40	RP310-ND	9.00	75.02	300.06	450.09	AKKL-4756A-RT
.57 - .75	1.50	.75	1.25	.50	RP311-ND	12.41	103.43	413.70	620.55	AKKL-5775A-RT
.87 - 1.0	2.0	1.0	1.75	.50	RP312-ND	14.05	117.05	468.20	702.30	AKKL-8710A-RT

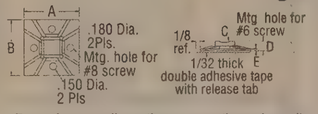
Tie Holders

Fig. 1



- Multi-directional. • Material: Nylon 6/6, UV Stabilized Nylon 6/6,

Fig. 2



- Ramp feature allows ties to pass through easily.
- 4-way entry. • Material: Nylon 6/6, Adhesive, UV Stabilized Nylon 6/6.

Fig.	Dimensions (Inches) A	B	C	D	E	Tensile Strength (Lbs.)	Digi-Key Part No.	Pricing 10	100	500	1,000	Richco Part No.
Nylon												
1	.75	.75	.25	.24	.06	18/30	RP301-ND	4.86	40.49	161.96	242.94	FTH-5A-RT
1	1.0	1.0	.46	.28	.07	50/60	RP302-ND	6.09	50 74	202.96	304.44	FTH-7A-RT
2	1.5	1.5	43	30	.08	120	RP303-ND	14.71	122.62	490.46	735.69	FTH-8A-RT
2	2.0	2 0	.43	.30	.08	120	RP304-ND	19.62	163 49	653.96	980.94	FTH-10A-RT
Ultra Violet – Exterior or Outdoor Use (Black)												
1	.75	.75	.25	.24	.06	18/30	RP305-ND	4.58	38.18	152.70	229.05	FTH-5A-RT-UVB
1	1.0	1 0	.46	.28	.07	50/60	RP306-ND	5.74	47.84	191.36	287.04	FTH-7A-RT-UVB
2	1.5	1.5	.43	.30	.08	120	RP307-ND	13.88	115.63	462.52	693.78	FTH-8A-RT-UVB
2	2.0	2.0	.43	.30	.08	120	RP308-ND	18.50	154.13	616.52	924.78	FTH-10A-RT-UVB

LED Spacers

- Spaces LED from surface of board. • Easily installed by hand. • Insulates and spaces leads. • Slots and holes for choice of mount.
- Material for LEDS1E and LEDS2E: Nylon 6/6.
- Color: Natural.

Fig. 1

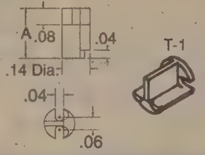


Fig. 2

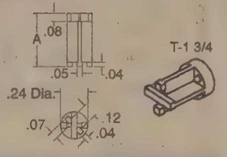
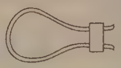


Fig.	Dim. "A" (in.)	Digi-Key Part No.	Pricing 10	100	500	1,000	5,000	Richco Part No.
1	.18	RP500-ND	3.15	26.23	104.92	157.38	104.92/M	LEDS1E-3-01
	.25	RP501-ND	3.33	27.72	110.86	166.29	110.86/M	LEDS1E-4-01
	.50	RP502-ND	3.68	30.64	122.54	183.81	122.54/M	LEDS1E-8-01
	.62	RP503-ND	3.77	31.38	125.52	188.28	125.52/M	LEDS1E-10-01
	.75	RP504-ND	3.83	31.94	127.74	191.61	127.74/M	LEDS1E-12-01
2	.18	RP505-ND	3.98	33.19	132.74	199.11	132.74/M	LEDS2E-3-01
	.25	RP506-ND	4.16	34.66	138.64	207.96	138.64/M	LEDS2E-4-01
	.50	RP507-ND	4.51	37.58	150.30	225.45	150.30/M	LEDS2E-8-01
	.62	RP508-ND	4.58	38.19	152.76	229.14	152.76/M	LEDS2E-10-01
	.75	RP509-ND	4.65	38.75	155.00	232.50	155.00/M	LEDS2E-12-01

Strap Loc and Buckles



- Continuous length cable ties • 120 Lb. Minimum loop tension. • UV stabilized for indoor/outdoor use. • Material Nylon 6/6. • Minimum loop diameter 1/16" • Strapping: 1000 ft. per spool. • Buckles 100 per package. • Color Black

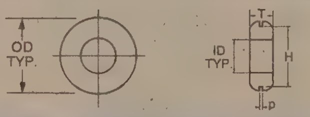
Note: X in Part No. = No. of Ft./Roll

Description	Digi-Key Part No.	Price Per Foot 10	50	100	1,000	Richco Part No.
Strapping	RP112-X-ND	6.66	26.66	46.62	306.38	STRLS-120

Description	Digi-Key Part No.	Pricing per Piece 10	50	100	1,000	5,000	10,000	Richco Part No.
Buckle	RP212-ND	5.62	22.48	39.34	258.54	202.34/M	179.86/M	STRLB-120

Hole Grommet

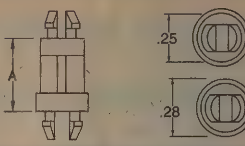
- Installs instantly.
- Material: Flexible vinyl.
- Color: Black.



Inside Dia. ID (Inches)	Hole Size H (Inches)	Panel Thickness P (Inches)	Outside Dia. OD (Inches)	Grommet Thickness T (Inches)	Digi-Key Part No.	Pricing 10	100	500	Richco Part No.
.12	.18	.06	.31	.25	RP450-ND	1.36	11.33	45.30	HG-2
.15	.25	.06	.37	.25	RP451-ND	1.40	11.67	46.66	HG-2.5
.18	.31	.03	.43	.18	RP452-ND	1.54	12.81	51.24	HG-3
.21	.31	.06	.43	.21	RP453-ND	1.71	14.28	57.12	HG-3.5
.25	.37	.09	.56	.28	RP454-ND	1.89	15.73	62.90	HG-4
.37	.50	.06	.68	.28	RP455-ND	3.14	26.20	104.80	HG-6
.56	.68	.06	.87	.18	RP456-ND	3.98	33.19	132.76	HG-9
.68	.75	.06	.93	.18	RP457-ND	4.40	36.67	146.68	HG-11

Richco

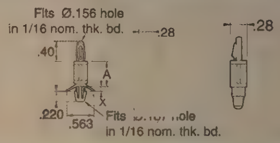
Support Posts



- Easily installed by hand. • Larger base on one side differentiates one end from the other. • .10" (2.5mm) maximum protrusion past panel. • Material: Nylon 6/6. • Color: Natural.

Dimension "A" (Inches)	Snap Locks Into	Digi-Key Part No.	Pricing 10	100	500	1,000	Richco Part No.
.25	.156 Dia. Hole Both Ends	RP402-ND	2.12	17.65	70.58	105.87	SP1-4-01
.37		RP403-ND	2.16	17.98	71.92	107.88	SP1-6-01
.62		RP405-ND	2.55	21.26	85.04	127.56	SP1-10-01
.87		RP407-ND	2.87	23.94	95.74	143.61	SP1-14-01
1.0		RP408-ND	3.27	27.28	109.10	163.65	SP1-16-01
.18	.187 Dia. Hole Both Ends	RP409-ND	2.06	17.14	68.54	102.81	SP2-3-01
.37		RP411-ND	2.16	17.98	71.92	107.88	SP2-6-01
.50		RP412-ND	2.38	19.87	79.48	119.22	SP2-8-01
.75		RP414-ND	2.71	22.60	90.38	135.57	SP2-12-01
.87		RP415-ND	2.87	23.94	95.74	143.61	SP2-14-01
1.0		RP416-ND	3.27	27.28	109.10	163.65	SP2-16-01
.18	.156/.187 Dia. Hole Combination	RP417-ND	2.06	17.14	68.54	102.81	SP3-3-01
.25		RP418-ND	2.12	17.65	70.58	105.87	SP3-4-01
.37		RP419-ND	2.16	17.98	71.92	107.88	SP3-6-01
.50		RP420-ND	2.38	19.87	79.48	119.22	SP3-8-01
.62		RP421-ND	2.41	20.06	80.22	120.33	SP3-10-01
.87		RP423-ND	2.87	23.94	95.74	143.61	SP3-14-01

Locking Circuit Board Supports


Fits Ø.156 hole in 1/16 nom. thk. bd.
.28
.40
A
X
.220
.563
Fits Ø.187 hole in 1/16 nom. thk. bd.
.28

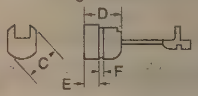
- Both ends lock by hand; no tools required.
- Strong, dependable grip. • Material: Nylon 6/6. • Color: Natural.

Dimension "A" (Inches)	Digi-Key Part No.	Pricing 10	100	500	1,000	5,000	Richco Part No.
.18	RP425-ND	1.98	16.46	65.84	98.76	65.84/M	LCBS-3
.25	RP426-ND	2.10	17.52	70.06	105.09	70.06/M	LCBS-4
.31	RP427-ND	2.15	17.94	71.74	107.61	71.74/M	LCBS-5
.37	RP428-ND	2.21	18.40	73.58	110.37	73.58/M	LCBS-6
.43	RP429-ND	2.30	19.13	76.52	114.78	76.52/M	LCBS-7
.50	RP430-ND	2.37	19.79	79.14	118.71	79.14/M	LCBS-8
.62	RP431-ND	2.54	21.16	84.64	126.96	84.64/M	LCBS-10
.75	RP432-ND	2.71	22.56	90.22	135.33	90.22/M	LCBS-12
.87	RP433-ND	2.88	23.96	95.84	143.76	95.84/M	LCBS-14
1.0	RP434-ND	3.04	25.36	101.44	152.16	101.44/M	LCBS-16
1.12	RP435-ND	3.21	26.75	107.00	160.50	107.00/M	LCBS-18
1.37	RP437-ND	3.54	29.53	118.10	177.15	118.10/M	LCBS-22

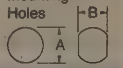
NEW!

Strain Relief Bushings (SRB-D/F/R Series)

Bushing Dimensions



Mounting Holes



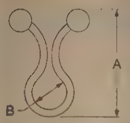
Style A Style B

- Bushing eliminates strain and wear on wires and cords • Withstands temperatures to 150°F (65°C) • Material: Nylon 6/6, RMS-40 • Color: Black • UL #E40234, CSA #LR52044

Approx. Wire Size	Mounting Hole		Dimensions				Digi-Key	Pricing				Richco
	Sty. A	Sty. B	C	D	E	F*	Part No.	25	100	1,000	5,000	Part No.
.120 x .220	.437	.395	.460	.410	.160	.062	RP460-ND	2.95	10.12	60.70	48.90/M	SRB-D-3
.110 x .210 .090 x .180	.375	.345	.425	.410	.155	.062	RP461-ND	8.83	30.28	181.69	146.37/M	SRB-F-2
.161 x .300 .150 x .280	.515 .500	.465	.570	.500	.171	.100	RP462-ND	3.76	12.88	77.29	62.27/M	SRB-F-4
.160 x .370	.562	.530	.610	.600	.240	.130	RP463-ND	11.92	40.87	245.20	197.52/M	SRB-F-5
.150 x .340												
.200 x .370												
.180 x .350												
.190 x .300	.500	.456	.545	.401	.142	.071	RP464-ND	3.06	10.49	62.96	50.73/M	SRB-F-7
.150 x .280												
.160 x .300												
.250	.500	.465	.560	.430	.165	.100	RP465-ND	3.26	11.16	66.96	53.94/M	SRB-R-5
.265	.515											
.290	.515											
.270	.500											
.325	.656	.570	.730	.680	.275	.125	RP466-ND	7.22	24.76	148.57	119.69/M	SRB-R-6
.300												
.355	.687											
.330												
SRB Pincher Tool							RPSRPL-ND	77.13 each				SRPL-2

* Maximum Panel Thickness

NEW! Richco Twist-Lok (TL Series)

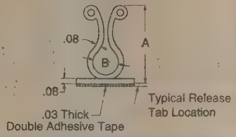


- Twist to secure wire bundles • Material: Nylon 6/6, RMS-01
- Color: Natural

"A" Overall Height (Inches)	"B" Wire Bundle Dia.	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
.90	.20-.30	RP600-ND	2.60	8.91	53.46	43.07/M	TL-250
1.03	.30-.40	RP601-ND	2.78	9.53	57.17	46.06/M	TL-350
1.20	.40-.50	RP602-ND	3.00	10.28	61.67	49.68/M	TL-450
1.33	.55-.65	RP603-ND	3.13	10.73	64.37	51.86/M	TL-600
1.55	.70-.80	RP604-ND	3.63	12.45	74.70	60.18/M	TL-750
1.70	Max. 1.00	RP605-ND	3.74	12.81	76.86	61.92/M	TL-950
2.19	Max. 1.19	RP606-ND	5.06	17.35	104.08	83.84/M	TL-1125
2.68	Max. 1.44	RP607-ND	6.02	20.64	123.84	99.76/M	TL-1375
2.93	Max. 1.56	RP608-ND	7.47	25.62	153.72	123.83/M	TL-1500
3.45	Max. 1.81	RP609-ND	7.92	27.16	162.97	131.29/M	TL-1750

Kurly-Lok On Base

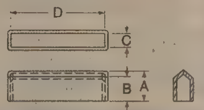
(KLB Series)



- Adhesive backing, RMS-15 • Material: Nylon 6/6, RMS-01
- Color: Natural

"A" Overall Height (Inches)	"B" Wire Bundle	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
1.07	.30-.40	RP610-ND	11.61	39.81	238.86	192.42/M	KLB-350A-RT
1.23	.40-.50	RP611-ND	12.84	44.02	264.10	212.75/M	KLB-450A-RT
1.58	.70-.80	RP612-ND	13.49	46.25	277.52	223.57/M	KLB-750A-RT

'Quick Fit' Fuse Covers



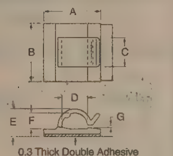
- For use on fuse terminal blocks or PCB-mounted fuse clips.
- UL recognized E81260, rating 105°C, 600V • Material: Flexible PVC, RMS-55 • Color: Transparent Blue

Dimensions (Inches) A	B	C	D	Fuse Type	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
.50	.39	.24	.79	Metric	RP613-ND	13.12	44.98	269.86	217.39/M	840620
.50	.39	.28	1.18	Metric	RP614-ND	21.28	72.95	437.72	352.62/M	840730
.63	.58	.32	1.26	Metric	RP615-ND	22.38	76.72	460.33	370.83/M	840832
.50	.39	.32	1.42	Std. .25 x .25	RP616-ND	28.51	97.76	586.58	472.53/M	840836

Wire Cord Klip (WCK Series)

- Adhesive backing for quick mounting.
- Material: Nylon 6/6, RMS-01
- Color: Natural

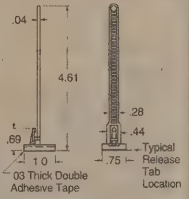
Hole Diameter	Dimensions (Inches) A	B	C	D	E	F	G
.18	.63	.62	.31	.18	.28	.16	.035
.45	.99	.99	.47	.45	.46	.28	.05
.72	1.00	1.00	.50	.72	.70	.53	.093



0.3 Thick Double Adhesive Tape with Release Tab

Description	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
.18 Inch Diameter, With Tape	RP617-ND	12 85	44.05	264 28	212.89/M	WCK-180-01A-RT
.45 Inch Diameter, With Tape	RP618-ND	22.54	77.29	463.75	373.58/M	WCK-460-01A-RT
.72 Inch Diameter, With Tape	RP619-ND	28.03	96.10	576.61	464.50/M	WCK-720-01A-RT
.18 Inch Diameter, Without Tape	RP620-ND	8.93	30.63	183.78	148.05/M	WCK-180-01
.45 Inch Diameter, Without Tape	RP621-ND	18.03	61.83	370.98	298.85/M	WCK-460-01
.72 Inch Diameter, Without Tape	RP622-ND	22.27	76.35	458.10	369.03/M	WCK-720-01

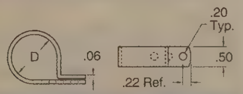
Tie On Base (TOB Series)



- Base has slot to guide strap under the locking mechanism.
- Release tab allows for load to be removed, replaced or changed when necessary. • Quick and easy to install, with .03 inch thick tape with release tab. • Material: Nylon 6/6, RMS-01 • Color: Black

Description	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
1.125 Inch Dia.	RP623-ND	19.09	65.45	392.69	316.34/M	TOB-18-01A-RT

Cable Clamps (NB Series)

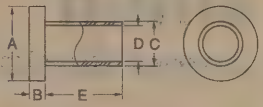


- Material: Nylon 6/6, RMS-01
- Colors: Natural and Black

Description	D Dim. (Inch)	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
Black, RMS-49	.06	RP322-ND	1.65	5.67	34.02	27.41/M	N-1-BK
Black, RMS-49	.125	RP323-ND	1.69	5.78	34.67	27.93/M	N-2-BK
Black, RMS-49	.187	RP324-ND	1.94	6.64	39.82	32.08/M	N-3-BK
Black, RMS-49	.25	RP325-ND	2.01	6.89	41.33	33.30/M	N-4-BK
Black, RMS-49	.31	RP326-ND	2.03	6.97	41.83	33.70/M	N-5-BK
Black, RMS-49	.375	RP327-ND	2.21	7.56	45.36	36.54/M	N-6-BK
Black, RMS-49	.438	RP328-ND	2.29	7.84	47.05	37.91/M	N-7-BK
Black, RMS-49	.50	RP329-ND	2.31	7.93	47.59	38.34/M	N-8-BK
Natural, RMS-01	.06	RP314-ND	1.84	6.30	37.80	30.45/M	N-1
Natural, RMS-01	.125	RP315-ND	1.87	6.42	38.52	31.03/M	N-2
Natural, RMS-01	.187	RP316-ND	2.15	7.37	44.24	35.65/M	N-3
Natural, RMS-01	.25	RP317-ND	2.23	7.65	45.90	36.98/M	N-4
Natural, RMS-01	.31	RP318-ND	2.26	7.75	46.48	37.44/M	N-5
Natural, RMS-01	.375	RP319-ND	2.45	8.40	50.40	40.60/M	N-6
Natural, RMS-01	.438	RP320-ND	2.54	8.71	52.27	42.11/M	N-7
Natural, RMS-01	.50	RP321-ND	2.57	8.81	52.88	42.61/M	N-8

Molded Nylon Insulators

(MNI Series)

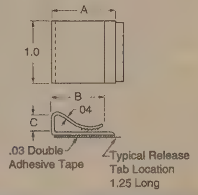


- Use as screw insulators and in many bushing applications • Lightweight • High dielectric strength • Resistant to corrosion and abrasion • Material: Nylon 6/6, RMS-48 • Color: Natural

Screw Size	Approx. Met. Equiv.	Dimensions (Inches) A	B	C	D	E	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
#2	M2.2	.181	.047	.120	.090	.031	RP330-ND	5.53	18.95	113.72	91.62/M	MNI #2-2
		.181	.047	.120	.090	.063	RP331-ND	5.53	18.95	113.72	91.62/M	MNI #2-4
		.181	.047	.120	.090	.093	RP332-ND	5.53	18.95	113.72	91.62/M	MNI #2-6
		.181	.047	.120	.090	.125	RP333-ND	5.53	18.95	113.72	91.62/M	MNI #2-8
		.181	.047	.120	.090	.187	RP334-ND	5.53	18.95	113.72	91.62/M	MNI #2-12
		.181	.047	.120	.090	.250	RP335-ND	5.53	18.95	113.72	91.62/M	MNI #2-16
		.181	.047	120	.090	.375	RP336-ND	5.53	18.95	113.72	91.62/M	MNI #2-24
#4	M3	.235	.047	.145	.115	.031	RP337-ND	5.53	18.95	113.72	91.62/M	MNI #4-2
		.252	.047	.140	.115	.046	RP338-ND	5.53	18.95	113.72	91.62/M	MNI #4-3
		.235	.047	.145	.115	.063	RP339-ND	5.53	18.95	113.72	91.62/M	MNI #4-4
		.252	.047	.140	.115	.084	RP340-ND	5.53	18.95	113.72	91.62/M	MNI #4-5
		.252	.047	.140	.115	.093	RP341-ND	5.53	18.95	113.72	91.62/M	MNI #4-6
		.235	.047	.145	.115	.125	RP342-ND	5.53	18.95	113.72	91.62/M	MNI #4-8
		.252	.047	.140	.115	.156	RP343-ND	5.53	18.95	113.72	91.62/M	MNI #4-10
		.235	.047	.145	.115	.187	RP344-ND	5.53	18.95	113.72	91.62/M	MNI #4-12
		.252	.047	.140	.115	.250	RP345-ND	5.53	18.95	113.72	91.62/M	MNI #4-16
		.235	.047	.145	.115	.375	RP346-ND	5.53	18.95	113.72	91.62/M	MNI #4-24
#5	M3	.370	.050	.236	.126	.050	RP347-ND	6.96	23.86	143.17	115.34/M	MNI #5.3
#6	M3.5	.290	.047	.170	.140	.031	RP348-ND	5.53	18.97	113.83	91.70/M	MNI #6-2
		.290	.047	.170	.140	.063	RP349-ND	5.53	18.97	113.83	91.70/M	MNI #6-4
		.290	.047	.170	.140	.093	RP350-ND	5.53	18.97	113.83	91.70/M	MNI #6-6
		.290	.047	.170	.140	.125	RP351-ND	5.53	18.97	113.83	91.70/M	MNI #6-8
		.290	.047	.170	.140	.187	RP352-ND	5.53	18.97	113.83	91.70/M	MNI #6-12
		.300	.047	.170	.138	.250	RP353-ND	5.53	18.97	113.83	91.70/M	MNI #6-16
		.290	.047	.170	.140	.375	RP354-ND	5.53	18.97	113.83	91.70/M	MNI #6-24
		.290	.047	.170	.140	.500	RP355-ND	5.53	18.97	113.83	91.70/M	MNI #6-32
#8	M4	.344	.063	.205	.173	.031	RP356-ND	5.81	19.91	119.48	96.26/M	MNI #8-2
		.344	.063	.205	.173	.063	RP357-ND	5.81	19.91	119.48	96.26/M	MNI #8-4
		.344	.063	.205	.173	.093	RP358-ND	5.81	19.91	119.48	96.26/M	MNI #8-6
		.344	.063	.205	.173	.125	RP359-ND	5.81	19.91	119.48	96.26/M	MNI #8-8
		.344	.063	.205	.173	.187	RP360-ND	5.81	19.91	119.48	96.26/M	MNI #8-12
		.344	.063	.205	.173	.250	RP361-ND	5.81	19.91	119.48	96.26/M	MNI #8-16
		.344	.063	.205	.173	.375	RP362-ND	5.81	19.91	119.48	96.26/M	MNI #8-24
		.344	.063	.205	.173	.500	RP363-ND	5.81	19.91	119.48	96.26/M	MNI #8-32
#10	M5	.399	.063	.260	.200	.031	RP364-ND	6 04	20.72	124.31	100.14/M	MNI #10-2
		.399	.063	.260	.200	.063	RP365-ND	6.04	20.72	124.31	100.14/M	MNI #10-4
		.399	.063	.260	.200	.093	RP366-ND	6.04	20.72	124.31	100.14/M	MNI #10-6
		.399	.063	.260	.200	.125	RP367-ND	6.04	20.72	124.31	100.14/M	MNI #10-8
		.399	.063	.260	.200	.187	RP368-ND	6.04	20.72	124.31	100.14/M	MNI #10-12
		.399	.063	.260	.200	.250	RP369-ND	6.04	20.72	124.31	100.14/M	MNI #10-16
		.399	.063	.260	.200	.375	RP370-ND	6.04	20.72	124.31	100.14/M	MNI #10-24
		.399	.063	.260	.200	.500	RP371-ND	6.04	20.72	124.31	100.14/M	MNI #10-32
—	M3	.217	.039	150	.122	.039	RP372-ND	6.05	20.75	124.52	100.32/M	MNI M3-1.0
		.280	.039	.150	.122	.098	RP373-ND	6.05	20.75	124.52	100.32/M	MNI M3-2.5
		.280	.039	.150	.122	.138	RP374-ND	6.05	20.75	124.52	100.32/M	MNI M3-3.5
—	M4	.366	.047	.236	.165	.051	RP375-ND	6.05	20.75	124.52	100.32/M	MNI M4-1.3
1/4	M6	.513	.065	.312	.260	.031	RP376-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-2
		.513	.065	.312	.260	.063	RP377-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-4
		.513	.065	.312	.260	.093	RP378-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-6
		.513	.065	.312	.260	.125	RP379-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-8
		.513	.065	.312	.260	.187	RP380-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-12
		.513	.065	.312	.260	.250	RP381-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-16
		.535	.065	.315	.260	.375	RP382-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-24
		.513	.065	.312	.260	.500	RP383-ND	6.82	23.39	140.36	113.08/M	MNI 1/4-32
5/16	M8	.620	.063	.360	.320	.031	RP384-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-2
		.620	.063	.360	.320	.063	RP385-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-4
		.620	.063	.360	.320	.093	RP386-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-6
		.620	.063	.360	.320	.125	RP387-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-8
		.620	.063	.360	.320	.187	RP388-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-12
		.620	.063	.360	.320	.250	RP389-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-16
		.620	.063	.360	.320	.375	RP390-ND	7.13	24.45	146.70	118.18/M	MNI 5/16-24

C-Type Flat Cable Clamps

(CFCC Series)

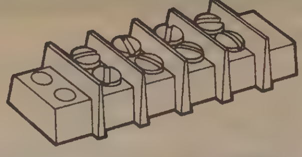


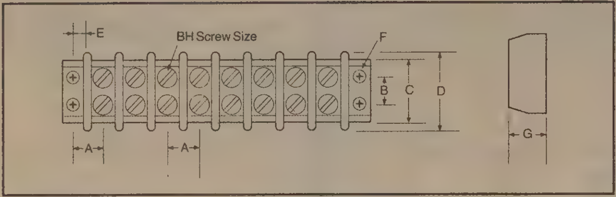
- Designed for routing flat ribbon cable • Serrated grip to prevent slippage • Adhesive backing for quick mount in any direction, RMS-15 • Material: Noryl-White, RMS-05; PVC-Gray RMS-04

Dimensions (Inches) A	B	C	Material	Digi-Key Part No.	Pricing 25	100	1,000	5,000	Richco Part No.
.562	.49	.18	Noryl (White)	RP391-ND	11.05	37.87	227.23	183.05/M	CFCC-3-05A-RT
.562	.40	.25	Noryl (White)	RP392-ND	14.02	48.05	288.32	232.27/M	CFCC-4-05A-RT
1.062	.88	.25	Noryl (White)	RP393-ND	17.49	59.97	359.82	289.86/M	CFCC-8-05A-RT
1.062	.88	.25	Rigid PVC (Gray)	RP394-ND	13.49	46.26	277.56	223.59/M	CFCC-8-04A-RT

CINCH

Barrier Blocks



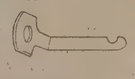


Terminal Spacing	Dimensions (inches)							BH Screw Size
	A	B	C	D	E	F	G	
.375"	.375	.313	.688	.875	.141	.160	.406	5-40x3/16
.438"	.438	.422	.875	1.125	.156	.175/ .180	.500	6-32x1/4
.563"	.563	.500	1.062	1.312	.203	.209	.625	8-32x5/16

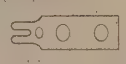
Features:
• Interposing barriers between terminals • Can be equipped with binder head screws only, or with binder head screws and W, 3/4W and Y solder terminals • UL recognized

Performance Data:
Insulation Material: Molded monoblock, general purpose phenolic
Eyelet Material: Brass
Eyelet Plating: Nickel
Screw Material: Steel or brass
Screw Plating: Nickel over copper flash
Solder Terminal Material: Brass
Solder Terminal Plating: Tin
Operating Temperature: -55°F to +300°F
Maximum Wire Size: .375" - #16; .438" - #15; .563" - #10
Voltage Rating: .375" and .438" - 1100VAC rms max.; .563" - 1600VAC rms max.
Current Rating: .375" - 15A max.; .438" - 20A max.; .563" - 30A max.
Max. Watts per Terminal: .375" - 3750; .438" - 5000; .563" - 7500

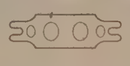
Y Type



3/4W Type



W Type



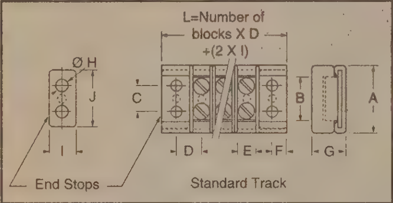
Terminal Spacing	No. of Contacts	Digi-Key Part No.	Pricing 1	25	50	100	250	500	Cinch Part No.
.375"	2	CBB102-ND	1.13	21.54	39.18	70.80	168.15	313.88	2-140
	3	CBB103-ND	1.49	28.29	51.46	93.00	220.88	412.30	3-140
	4	CBB104-ND	1.61	30.57	55.61	100.50	238.69	445.55	4-140
	5	CBB105-ND	1.48	28.20	51.29	92.70	220.16	410.97	5-140
	6	CBB106-ND	2.32	44.12	80.26	145.05	344.49	643.06	6-140
	7	CBB107-ND	2.50	47.54	86.49	156.30	371.21	692.93	7-140
	8	CBB108-ND	2.86	54.29	98.77	178.50	423.94	791.35	8-140
	9	CBB109-ND	3.28	62.32	113.38	204.90	486.64	908.39	9-140
	10	CBB110-ND	3.63	69.03	125.58	226.95	539.01	1006.15	10-140
	11	CBB111-ND	4.13	78.43	142.68	257.85	612.39	1143.14	11-140
	12	CBB112-ND	4.17	79.34	144.34	260.85	619.52	1156.44	12-140
.438"	2	CBB202-ND	1.02	19.35	35.19	63.60	151.05	281.96	2-141
	3	CBB203-ND	1.80	34.22	62.25	112.50	267.19	498.75	3-141
	4	CBB204-ND	1.80	34.22	62.25	112.50	267.19	498.75	4-141
	5	CBB205-ND	2.04	38.74	70.47	127.35	302.46	564.59	5-141
	6	CBB206-ND	2.33	44.30	80.59	145.65	345.92	645.72	6-141
	7	CBB207-ND	2.87	54.57	99.27	179.40	426.08	795.34	7-141
	8	CBB208-ND	3.01	57.31	104.25	188.40	447.45	835.24	8-141
	9	CBB209-ND	3.41	64.74	117.78	212.85	505.52	943.64	9-141
	10	CBB210-ND	3.56	67.62	123.01	222.30	527.96	985.53	10-141
	11	CBB211-ND	3.89	73.91	134.46	243.00	577.13	1077.30	11-141
	12	CBB212-ND	4.23	80.35	146.16	264.15	627.36	1171.07	12-141
.563"	2	CBB302-ND	1.67	31.71	57.69	104.25	247.59	462.18	2-142
	3	CBB303-ND	2.00	38.01	69.14	124.95	296.76	553.95	3-142
	4	CBB304-ND	2.30	43.75	79.60	143.85	341.64	637.74	4-142
	5	CBB305-ND	3.33	63.33	115.20	208.20	494.48	923.02	5-142
	6	CBB306-ND	4.77	90.70	165.00	298.20	708.23	1322.02	6-142
	7	CBB307-ND	5.21	99.10	180.28	325.80	773.78	1444.38	7-142
	8	CBB308-ND	5.44	103.43	188.16	340.05	807.62	1507.56	8-142
	9	CBB309-ND	8.33	158.32	288.01	520.50	1236.19	2307.55	9-142
	10	CBB310-ND	8.75	166.26	302.45	546.60	1298.18	2423.26	10-142
	11	CBB311-ND	9.15	173.92	316.40	571.80	1358.03	2534.98	11-142
	12	CBB312-ND	9.19	174.70	317.81	574.35	1364.08	2546.29	12-142

W, 3/4W and Y Solder Terminals

Series	Type	Digi-Key Part No.	Pricing 1	25	50	100	250	500	Cinch Part No.
.375"	Y	CBB001-ND	.40	7.67	13.94	25.20	59,85	111.72	Y-140
	3/4W	CBB002-ND	.36	6.89	12.53	22.65	53.79	100.42	3/4W-140
	W	CBB003-ND	.40	7.67	13.94	25.20	59.85	111.72	W-140
.438"	Y	CBB004-ND	.66	12.50	22.74	41.10	97.61	182.21	Y-141
	3/4W	CBB005-ND	.50	9.54	17.35	31.35	74.46	138.99	3/4W-141
	W	CBB006-ND	.56	10.59	19.26	34.80	82.65	154.28	W-141
.563"	Y	CBB007-ND	.76	14.51	26.39	47.70	113.29	211.47	Y-142
	3/4W	CBB008-ND	.69	13.05	23.74	42.90	101.89	190.19	3/4W-142
	W	CBB009-ND	.76	14.51	26.39	47.70	113.29	211.47	W-142

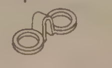
AMP FLEXI-BLOCK®

Terminal Block System

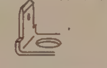


Accessories:

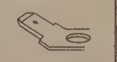
Jumper Tab



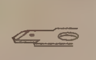
90° Tab

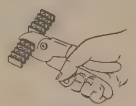


45° Tab

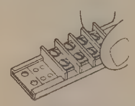


Flat Tab

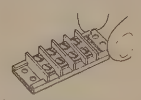




Snip It!



Slide It!



Snap It!

Product Specifications: • Blocks and End Stops: Nylon • Track: NORYL EN 265 • FASTON Tab and Jumper Tab: Tin plated brass • Screws: Nickel plated brass Ratings: • 6000 Breakdown voltage, rms line-to-line • 6000 Breakdown voltage, rms line-to-ground • Operating Temperature: 105°C Max.

Max. Size	Max. Amps	Volts	Wire Range	Dimensions A	B	C	D	E	F	G	H	I	J
6	15	300	22-14	1.125	.750	.422	.438	.343	.219	.563	.171	.437	.96
8	30	600	22-10	1.312	.875	.500	.563	.437	.281	.656	.203	.557	1.15

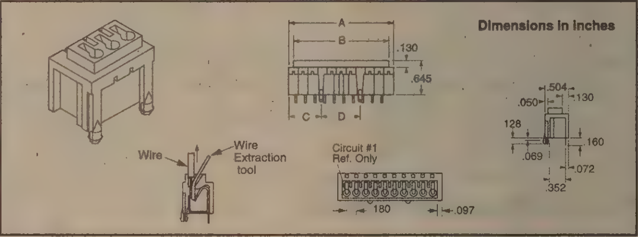
Size	Description	Digi-Key Part No.	Pricing 1	10	100	AMP Part No.
6	#6 Block Assembly, 100pcs/pkg	A0130-ND	36.92/pkg (100pcs/pkg)			1-604102-1
8	#8 Block Assembly, 100pcs/pkg	A0131-ND	43.70/pkg (100pcs/pkg)			1-604152-1
6	Track 36" long, 80 positions	A0132-ND	5.13	46.13	410.00	1-601805-1
8	Track 36" long, 60 positions	A0133-ND	4.63	41.63	370.00	1-601806-1
6	End Stop, 2 required per assembly	A0134-ND	—	.77	6.93	604111-1
8	End Stop, 2 required per assembly	A0135-ND	—	.97	8.69	604161-1
6, 8	Flat Tab	A0136-ND	—	4.27	38.46	601989-1
6, 8	45° Tab	A0137-ND	—	3.95	35.52	601989-2
6, 8	90° Tab	A0138-ND	—	3.89	35.01	601989-3
6	Jumper Tab	A0139-ND	—	1.78	16.01	601985-2
8	Jumper Tab	A0140-ND	—	.90	8.12	604591-1
6	#6 Terminal Block Kit	A0150-ND*	75.20	676.80	6016.00	601804-8
8	#8 Terminal Block Kit	A0151-ND†	90.90	818.10	7272.00	604336-1
6, 8	Cutting Tool (Track & Tape)	A9958-ND	21.75/each			604008-1

*Kit consists of 1 ea. 100-block assembly, 25 end stops, 2 tracks
†Kit consists of 1 ea. 100-block assembly, 50 end stops, 8 tracks

---

molex Waldom

Wire Trap - LITE



Features:

• Allows fast interconnect to P.C.B. • Mounting pegs for P.C.B. polarization. • Wire insertion/extraction from vertical direction. • Accommodates 16-20 AWG wire (see chart for wire types). • Can be robotically inserted into P.C.B.

Specifications:

Physical: • Terminal: Phosphor Bronze • Plating: Tin •Housing: 94V-0 Polyester

Mechanical: • Temperature Rise: 30°C max. (per U.L. Specifications) • Storage Temperature: -40°C — +105°C max. • Wire pullout force: 10 lbs. min (18 AWG wire) • Wire Insertion/Extraction cycles: 5 max.

Electrical: • Voltage Rating: 600 V (RMS) • Current Rating: 6.0 amperes per circuit (18 AWG wire). • Contact Resistance: 10 milliohm max. • Insulation Resistance: 1,000 Megohm min. • Dielectric Strength: 1,500 V AC.

Agency Approvals: UL file # - E29179. CSA File # - LR19980.

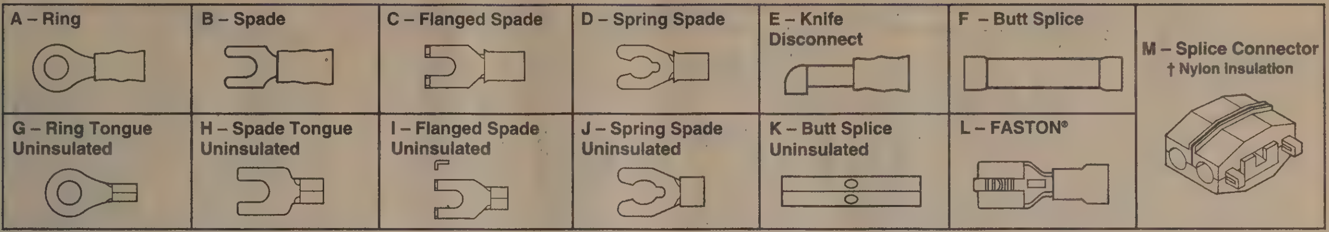
Wire Types: • Conductor Diameter Range: .038" - .060". Insulation Outside Dia. Range: .079" - .118".

Suggested Wire Types: 16 AWG. 18 AWG Solid or standard with Top coat. 20 AWG stranded with Top coat.

Pos.	Dimension (inches) A	B	C	D	Digi-Key Part No.	Pricing 1	10	100	500	Molex Part No.
3	.714	.520	.067	.580	WM1272-ND	1.55	13.73	88.60	365.48	22-45-4036
4	.894	.700	.067	.720	WM1273-ND	2.00	17.67	114.00	470.25	22-45-4046
5	1.074	.800	.247	.720	WM1274-ND	2.24	19.84	128.00	528.00	22-45-4056
6	1.254	1.060	.247	.720	WM1275-ND	2.48	21.98	141.80	584.93	22-45-4066
8	1.614	1.420	.427	.720	WM1276-ND	3.27	28.99	187.00	771.38	22-45-4086
10	1.974	1.780	.607	.720	WM1277-ND	3.85	34.13	220.20	908.33	22-45-4106
Wire Trap LITE Extraction Tool**					WM1278-ND	43.92ea.				11-03-0040

** The extraction tool allows the wires to be removed either one at a time or all at once.
The power should be removed before servicing the product.

AMP Terminals, Tools, Lugs and Connectors


A – Ring
B – Spade
C – Flanged Spade
D – Spring Spade
E – Knife Disconnect
F – Butt Splice
M – Splice Connector
† Nylon Insulation
G – Ring Tongue Uninsulated
H – Spade Tongue Uninsulated
I – Flanged Spade Uninsulated
J – Spring Spade Uninsulated
K – Butt Splice Uninsulated
L – FASTON®

PIDG (Pre-Insulated Diamond Grip) Terminals meet or exceed the requirements of MIL-T-7928, Type II, Class 1 and 2. **Temperature Rating:** 105°C Max. **Material:** • Insulation: Nylon • Terminal Body and Metallic Sleeve: Copper per QQ-C-576 • Plating: Tin per MIL-T-10727. **AMP Wire Range:** 22-16 Solid or Stranded, 16-14 Solid or Stranded, 12-10 Solid or Stranded. 300V Max.

Plasti-Grip™ Terminals and Splices: **Temperature Rating:** 90°C Max. **Material:** • Insulation: Vinyl • Terminal Body: Copper per QQ-C-576 • Plating: Tin per MIL-T-10727. **AMP Wire Range:** 22-16 Terminals, Butt & Parallel Splices 22-16 Solid or Stranded, 16-14 Terminals, Butt & Parallel Splices 16-14 Solid or Stranded, 12-10 Terminals, Butt & Parallel Splices 12-10 Solid or Stranded. 600V Max (1000V Fixture or Sign). Recognized under the component program of Underwriters Laboratories Incorporated File No. E13288.

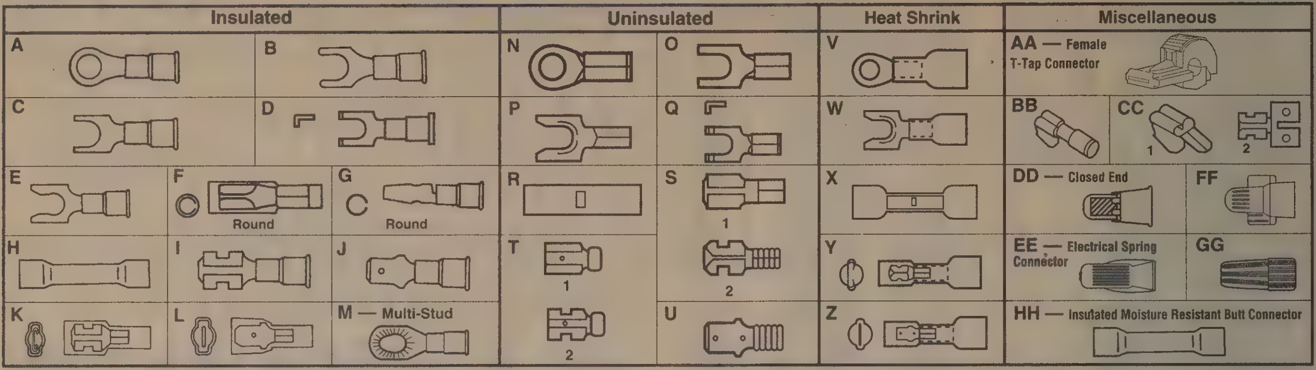
Solistrand™ Terminals and Splices: **Temperature Rating:** 170°C Max. **Material:** • Terminal Body: copper per QQ-C-576 • Plating: Tin per MIL-T-10727 **AMP Wire Range:** 22-16 Solid or Stranded, 16-14 Solid or Stranded, 12-10 Solid or Stranded, 8 thru 2/0 Solid or Stranded.

AWG	Diagram	Stud Size	Insul. Dia.	Digi-Key Part No.	Pricing				AMP Part No.
					10	100	500	1,000	
PIDG® Terminals and Splices									
26-22	A	2	.082	A0879-ND	2.22	19.51	82.96	123.00	323912
	A	4	.082	A0880-ND	2.29	20.12	85.60	127.00	323914
	A	6	.082	A0881-ND	2.22	19.51	82.96	123.00	323915
	A	8	.082	A0882-ND	2.67	23.53	100.07	149.00	323916
	A	10	.082	A0883-ND	2.65	23.35	99.30	148.00	324075
	F	—	.082	A0913-ND	5.38	47.34	201.36	300.00	323994
22-18 Red	A	4	.140	A1087-ND	2.29	20.12	85.60	127.41	31880
	A	6	.140	A1060-ND	2.22	19.51	82.96	123.49	36152
	D	8	.140	A1089-ND	2.54	22.31	94.88	141.24	52930
	D	10	.145	A1099-ND	3.67	32.33	137.51	204.69	52931
	F	—	.125	A1069-ND	8.06	70.92	301.63	448.99	320559
22-16 Red	A	2	.125	A0884-ND	2.22	19.51	82.96	123.00	328657
	A	8	.140	A1061-ND	2.29	20.12	85.60	127.41	31890
	A	10	.140	A1062-ND	2.29	20.12	85.60	127.41	36154
	A	1/4	.140	A0885-ND	2.67	23.51	99.99	149.00	31894
	A	5/16	.140	A0886-ND	2.67	23.51	99.99	149.00	31895
	A	3/8	.140	A0887-ND	2.75	24.22	103.03	153.00	31897
	A	1/2	.140	A0888-ND	6.08	53.49	227.49	339.00	328975
	B	2	.140	A0895-ND	2.22	19.51	82.96	123.00	328394
	B	4	.140	A0896-ND	2.70	23.73	100.95	150.00	327717
	B	6	.140	A1063-ND	2.22	19.51	82.96	123.49	34541
	B	8	.140	A1064-ND	2.22	19.51	82.96	123.49	32053
	B	10	.145	A1065-ND	2.22	19.51	82.96	123.49	32054
	C	2	.140	A0899-ND	2.90	25.55	108.65	162.00	324608
	C	6	.140	A1066-ND	2.41	21.25	90.36	134.51	32562
	C	8	.140	A1088-ND	2.44	21.46	91.27	135.86	32498
	D	4	.125	A0902-ND	2.58	22.68	96.47	144.00	52927
	D	6	.140	A1067-ND	2.54	22.31	94.88	141.24	52929
	E	—	.140	A1068-ND	4.42	30.55	130.02	194.39	32446
16-14 Blue	A	4	.170	A1091-ND	2.22	19.51	82.96	123.49	32441
	A	6	.170	A1070-ND	2.22	19.51	82.96	123.49	320619
	A	8	.170	A1071-ND	2.22	19.51	82.96	123.49	320565
	A	10	.170	A1072-ND	2.22	19.51	82.96	123.49	36160
	A	1/4	.170	A0889-ND	2.59	22.79	96.91	144.00	321045
	A	5/16	.170	A0890-ND	2.59	22.79	96.91	144.00	328998
	A	3/8	.170	A0891-ND	2.67	23.48	99.85	149.00	328999
	A	1/2	.170	A0892-ND	5.79	50.92	216.57	322.00	328849
	B	6	.170	A1073-ND	2.22	19.51	82.96	123.49	35559
	B	8	.150	A0897-ND	2.22	19.51	82.96	123.00	32059
	B	8	.170	A1074-ND	2.22	19.51	82.96	123.49	321233
	B	10	.170	A1075-ND	2.22	19.51	82.96	123.49	32060
	C	6	.170	A1076-ND	2.44	21.46	91.27	135.86	320861
	C	8	.170	A1077-ND	2.44	21.46	91.27	135.86	320862
	C	10	.170	A1092-ND	2.44	21.46	91.27	135.86	320863
	D	8	.170	A1093-ND	2.54	22.31	94.88	141.24	52936
	D	6	.170	A1078-ND	2.54	22.31	94.88	141.24	52935
	D	10	.170	A1094-ND	2.54	22.31	94.88	141.24	52937
	E	—	.170	A1079-ND	4.42	30.55	130.02	194.39	32448
	F	—	.150	A1080-ND	8.06	70.92	301.63	448.99	320562
12-10 Yellow	A	6	.250	A0893-ND	2.91	25.57	108.74	162.00	35149
	A	8	.250	A1081-ND	3.00	23.81	101.07	151.60	35108
	A	10	.250	A1082-ND	3.00	23.81	101.07	151.60	35109
	A	1/4	.250	A1083-ND	3.49	27.70	117.59	176.38	35110
	A	5/16	.250	A1095-ND	3.49	27.70	117.59	176.38	35111
	A	3/8	.250	A1084-ND	3.49	27.70	117.59	176.38	35112
	A	1/2	.250	A0894-ND	3.63	31.97	135.99	202.00	35151
	B	8	.230	A0898-ND	2.91	25.57	108.74	162.00	32588
	B	10	.230	A1085-ND	2.91	23.08	97.95	146.93	32589
	C	6	.250	A0900-ND	6.39	56.25	239.25	356.00	325150
	C	10	.250	A0901-ND	3.20	28.12	119.62	178.00	324015
	D	6	.230	A1096-ND	3.30	26.18	111.13	166.70	52941
	D	8	.250	A1097-ND	3.30	26.18	111.13	166.70	52942
	D	10	.230	A1098-ND	3.30	26.18	111.13	166.70	52943
	F	—	.220	A1086-ND	13.61	109.64	458.76	688.14	320570
22-18	L	.250	.140	A0903-ND	2.74	24.09	102.44	152.00	640903-1
16-18	L	.250	.170	A0904-ND	2.74	24.09	102.44	152.00	640905-1
14-12	L	.250	.250	A0905-ND	3.94	34.64	147.35	219.00	42844-1
12-10	L	.250	.250	A0906-ND	3.91	34.42	146.38	218.00	640907-1
22-18	L	.205	.135	A0907-ND	2.74	24.09	102.44	152.00	640911-1
16-14	L	.205	.170	A0908-ND	2.74	24.09	102.44	152.00	640915-1
22-18	L	.187	.135	A0909-ND	2.74	24.09	102.44	152.00	640917-1
16-14	L	.187	.170	A0910-ND	2.74	24.09	102.44	152.00	640919-1
22-18	L	.110	.100	A0911-ND	2.95	25.99	110.55	165.00	60894-1
16-14	L	.110	.170	A0912-ND	2.74	24.09	102.44	152.00	640929-1
Plasti-Grip™ Terminals and Splices									
22-16 Red	A	2	.140	A0954-ND	1.71	15.02	63.88	95.00	34140
	A	4	.140	A0955-ND	1.71	15.02	63.88	95.00	34141
	A	6	.140	A0956-ND	1.71	15.02	63.88	95.00	34144
	A	8	.140	A0957-ND	1.71	15.02	63.88	95.00	34148
	A	10	.140	A0958-ND	1.71	15.02	63.88	95.00	34149
	A	1/4	.140	A0959-ND	1.99	17.55	74.66	111.00	34150
	A	5/16	.140	A0960-ND	1.99	17.55	74.66	111.00	34151
	A	3/8	.140	A0961-ND	2.06	18.09	76.94	115.00	34152
	B	6	.140	A0974-ND	1.71	15.02	63.88	95.00	320665
	B	8	.140	A0975-ND	1.71	15.02	63.88	95.00	34155
	B	10	.140	A0976-ND	1.71	15.02	63.88	95.00	34156
22-16 Red	C	6	.140	A0982-ND	1.88	16.52	70.27	105.00	322249
	C	8	.140	A0983-ND	1.88	16.52	70.27	105.00	324169
	C	10	.140	A0984-ND	3.75	33.04	140.54	209.00	328516
	D	4	.140	A0988-ND	2.03	17.82	75.81	113.00	52947
	D	6	.140	A0989-ND	2.03	17.82	75.81	113.00	52949
	D	8	.140	A0990-ND	2.45	21.54	91.60	136.00	52950
	D	10	.140	A0991-ND	2.96	26.07	110.87	165.00	52951
	F	—	.140	A0997-ND	2.05	18.02	76.65	114.00	34070
16-14 Blue	A	4	.170	A0962-ND	2.46	21.63	91.99	137.00	34157
	A	6	.170	A0963-ND	1.71	15.02	63.88	95.00	34159
	A	8	.170	A0964-ND	1.71	15.02	63.88	95.00	34160
	A	10	.170	A0965-ND	1.71	15.02	63.88	95.00	34161
	A	1/4	.170	A0966-ND	1.99	17.55	74.66	111.00	34162
	A	5/16	.170	A0967-ND	1.99	17.55	74.66	111.00	34163
	A	3/8	.170	A0968-ND	2.06	18.09	76.94	115.00	34164
	B	6	.140	A0977-ND	1.71	15.02	63.88	95.00	322994
	B	8	.170	A0978-ND	1.71	15.02	63.88	95.00	34166
	B	10	.170	A0979-ND	1.71	15.02	63.88	95.00	34167
	C	6	.170	A0985-ND	1.88	16.52	70.27	105.00	324165
	D	6	.170	A0992-ND	2.03	17.82	75.81	113.00	52955
	D	8	.170	A0993-ND	2.35	20.71	88.08	131.00	52956
	D	10	.170	A0994-ND	2.03	17.82	75.81	113.00	52957
	F	—	.170	A0998-ND	2.05	18.02	76.65	114.00	34071
12-10 Yellow	A	8	.250	A0969-ND	2.29	20.12	85.57	127.00	34853
	A	10	.250	A0970-ND	2.29	20.12	85.57	127.00	34854
	A	1/4	.250	A0971-ND	2.63	23.11	98.29	146.00	34855
	A	5/16	.250	A0972-ND	2.66	23.43	99.66	148.00	34856
	A	3/8	.230	A0973-ND	2.63	23.11	98.29	146.00	34173
	B	8	.250	A0980-ND	2.91	25.57	108.74	162.00	35152
	B	10	.230	A0981-ND	2.29	20.12	85.57	127.00	34176
	F	—	.230	A0999-ND	3.40	29.91	127.23	189.00	34072
Solistrand™ Terminals and Splices									
22-16	G	4	—	A0914-ND	1.15	10.14	43.11	64.00	34104
	G	6	—	A0915-ND	1.12	9.83	41.79	62.00	34105
	G	8	—	A0916-ND	1.12	9.83	41.79	62.00	34108
	G	10	—	A0917-ND	1.12	9.83	41.79	62.00	34109
	G	1/4	—	A0918-ND	1.31	11.49	48.86	73.00	34113
	G	5/16	—	A0919-ND	1.35	11.85	50.42	75.00	34114
	G	3/8	—	A0920-ND	1.39	12.21	51.94	77.00	34115
	H	2	—	A0932-ND	1.77	15.59	66.31	99.00	53555-1
	H	6	—	A0933-ND	1.12	9.83	41.79	62.00	323127
	H	8	—	A0934-ND	1.12	9.83	41.79	62.00	34117
	H	10	—	A0935-ND	1.12	9.83	41.79	62.00	34118
	I	2	—	A0939-ND	1.23	10.80	45.95	68.00	324605
	I	6	—	A0940-ND	1.23	10.80	45.95	68.00	320749
	I	8	—	A0941-ND	1.23	10.80	45.95	68.00	52730
	J	4	—	A0943-ND	1.45	12.76	54.29	81.00	53175-1
	J	6	—	A0944-ND	1.45	12.76	54.29	81.00	53120-1
	K	—	—	A0951-ND	1.61	14.21	60.43	90.00	31818
16-14	G	6	—	A0921-ND	1.12	9.83	41.79	62.00	34120
	G	8	—	A0922-ND	1.12	9.83	41.79	62.00	34122
	G	10	—	A0923-ND	1.12	9.83	41.79	62.00	34123
	G	1/4	—	A0924-ND	1.31	11.49	48.86	73.00	34124
	G	5/16	—	A0925-ND	1.35	11.85	50.42	75.00	34125
	G	3/8	—	A0152-ND	1.65	14.56	61.91	92.00	34126
	I	8	—	A0942-ND	1.23	10.80	45.95	68.00	320856
	J	6	—	A0945-ND	1.45	12.76	54.29	81.00	53123-1
	J	8	—	A0946-ND	1.45	12.76	54.29	81.00	53124-1
	J	10	—	A0947-ND	1.45	12.76	54.29	81.00	53125-1
	K	—	—	A0952-ND	1.61	14.21	60.43	90.00	31819
12-10	G	6	—	A0926-ND	1.65	14.54	61.83	92.00	35476
	G	8	—	A0927-ND	1.60	14.09	59.92	89.00	32994
	G	10	—	A0928-ND	1.65	14.54	61.83	92.00	33457
	G	1/4	—	A0929-ND	1.84	16.18	68.83	102.00	33458
	G	5/16	—	A0930-ND	1.90	16.70	71.03	106.00	33459
	G	3/8	—	A0931-ND	1.90	16.70	71.03	106.00	33220
	H	6	—	A0936-ND	2.23	19.59	83.30	124.00	322451
	H	8	—	A0937-ND	1.60	14.09	59.92	89.00	32995
	H	10	—	A0938-ND	2.41	21.25	90.36	135.00	35495
	J	6	—	A0948-ND	2.01	17.69	75.26	112.00	53126-1
	J	8	—	A0949-ND	2.01	17.69	75.26	112.00	53127-1
	J	10	—	A0950-ND	2.01	17.69	75.26	112.00	53128-1
	K	—	—	A0953-ND	2.33	20.54	87.36	130.00	32151

AWG	Diagram	Ins. Dia.	Dimensions			Color	Digi-Key Part No.	Pricing				AMP Part No.
			L	W	H			1	10	100	250	
22-18	M	.160	.687	.484	.444	Red	A1050-ND	.37	2.88	20.92	45.76	53440-2
14-18	M	.160	.687	.484	.444	Blue	A1051-ND	.37	2.88	20.92	45.76	53440-1

A9996-ND	PRO-CRIMPER II Hand Tool w/out Dies	$63.75
A9991-ND	Die Set For Splice Terminals	$35.25
A563-ND	Crimp Tool For Insulated Terminals, 22-10 AWG	$13.11
A9937-ND	Crimp Tool For Splice Terminals With Confined Trapezoidal Crimp	$14.25
A9922-ND	Crimp Tool For Faston Terminals, 22-14 AWG	$39.00
A9921-ND	Crimp Tool, General Service II, Splice Terminals, 20-10 AWG	$40.50

3M Terminals, Tools, Lugs and Connectors



AWG	Dia-gram	Stud Size	Insul. Dia.	Digi-Key Part No.	Pricing				3M Part No.
					10	50	100	500	
Insulated									
26-24	A	#2	.145	920010-30-ND	9.15	40.94	67.43	264.89	MNG24-2RK
	A	#4	.145	920010-31-ND	9.15	40.94	67.43	264.89	MNG24-4RK
	A	#6	.145	920010-32-ND	9.15	40.94	67.43	264.89	MNG24-6RK
	A	#8	.145	920010-33-ND	9.15	40.94	67.43	264.89	MNG24-8RK
	A	#10	.145	920010-34-ND	9.15	40.94	67.43	264.89	MNG24-10RK
26-20	K	—	.145	920044-17-ND	4.63	20.71	34.11	134.02	MNU20-110DFIK
22-18 Red	A	#4	.145	920010-35-ND	2.48	11.11	18.30	71.90	MVU18-4R/SK
	A	#6	.145	920010-01-ND	2.48	11.11	18.30	71.90	MVU18-6R/SK
	A	#8	.145	920010-02-ND	2.48	11.11	18.30	71.90	MVU18-8R/LK
	A	#10	.145	920010-03-ND	2.48	11.11	18.30	71.90	MVU18-10R/LK
	A	1/4	.145	920010-04-ND	2.90	12.99	21.39	84.04	MVU18-14R/SK
	A	5/16	.145	920010-36-ND	3.69	16.52	27.22	106.92	MVU18-516R/SK
	A	3/8	.145	920010-37-ND	3.69	16.52	27.22	106.92	MVU18-38RK
	C	#4	.145	920020-16-ND	2.48	11.11	18.30	71.90	MVU18-4FB/SK
	C	#6	.145	920022-01-ND	2.48	11.11	18.30	71.90	MVU18-6FB/SK
	C	#8	.145	920022-02-ND	2.48	11.11	18.30	71.90	MVU18-8FBK
	C	#10	.145	920020-17-ND	2.48	11.11	18.30	71.90	MVU18-10FBK
	D	#6	.145	920022-14-ND	2.90	12.99	21.39	84.03	MVU18-6FFBK
	D	#8	.145	920022-15-ND	2.90	12.99	21.39	84.03	MVU18-8FFBK
	D	#10	.145	920022-16-ND	2.90	12.99	21.39	84.03	MVU18-10FFBK
	E	#4	.145	920024-01-ND	2.68	12.01	19.78	77.70	MVU18-4FLK
	E	#6	.145	920024-02-ND	2.68	12.01	19.78	77.70	MVU18-6FLK
	E	#8	.145	920024-03-ND	2.68	12.01	19.78	77.70	MVU18-8FLK
	E	#10	.145	920024-10-ND	2.68	12.01	19.78	77.70	MVU18-10FLK
	F	.156	.145	920048-01-ND	4.19	18.75	30.88	121.32	MNU18-156DFIK
	G	.156	.145	920050-01-ND	2.65	11.86	19.53	76.71	MVU18-156DMK
	H	—	.145	920030-01-ND	2.64	11.81	19.45	76.41	MVU18-BCK
	I	.187	.145	920040-01-ND	2.62	11.73	19.32	75.90	MVU18-187DFK
	I	.250	.145	920040-02-ND	2.62	11.73	19.32	75.90	MVU18-250DFK
	J	.187	.145	920042-01-ND	2.57	11.52	18.97	74.51	MVU18-187DMK
	J	.250	.145	920042-02-ND	2.43	10.86	17.89	70.29	MVU18-250DMK
	K	.187	.145	920044-01-ND	3.78	16.91	27.86	109.44	MNU18-187DFIK
	K	.250	.145	920044-02-ND	3.78	16.91	27.86	109.44	MNU18-250DFIK
	L	.187	.145	920046-01-ND	4.23	18.93	31.17	122.46	MNU18-187DMIK
	L	.250	.145	920046-02-ND	4.23	18.93	31.17	122.46	MNU18-250DMIK
	M	6/8/10	.145	920010-57-ND	3.32	14.85	24.46	96.10	MV18-610R
16-14 Blue	A	#4	.170	920010-38-ND	2.48	11.11	18.30	71.90	MVU14-4R/SK
	A	#8	.170	920010-39-ND	2.48	11.11	18.30	71.90	MVU14-8RK
	A	#6	.170	920010-05-ND	2.48	11.11	18.30	71.90	MVU14-6R/SK
	A	#8	.170	920010-06-ND	2.48	11.11	18.30	71.90	MVU14-8R/Sk
	A	#10	.170	920010-07-ND	2.48	11.11	18.30	71.90	MVU14-10RK
	A	1/4	.170	920010-08-ND	2.90	12.99	21.39	84.04	MVU14-14R/SK
	A	5/16	.170	920010-40-ND	3.69	16.52	27.22	106.92	MVU14-516R/SK
	A	3/8	.170	920010-41-ND	3.69	16.52	27.22	106.92	MVU14-38RK
	B	#6	.170	920020-01-ND	2.48	11.11	18.30	71.90	MVU14-6FK
	B	#8	.170	920020-02-ND	2.48	11.11	18.30	71.90	MVU14-8FK
	C	#4	.170	920020-18-ND	2.48	11.11	18.30	71.90	MVU14-4FB/SK
	C	#6	.170	920022-03-ND	2.48	11.11	18.30	71.90	MVU14-6FB/SK
	C	#8	.170	920022-04-ND	2.48	11.11	18.30	71.90	MVU14-8FBK
	C	#10	.170	920020-19-ND	2.48	11.11	18.30	71.90	MVU14-10FBK
	D	#6	.170	920022-17-ND	2.90	12.99	21.39	84.03	MVU14-6FFBK
	D	#8	.170	920022-18-ND	2.90	12.99	21.39	84.03	MVU14-8FFBK
	D	#10	.170	920022-19-ND	2.90	12.99	21.39	84.03	MVU14-10FFBK
	E	#4	.170	920024-11-ND	2.68	12.01	19.78	77.70	MVU14-4FLK
	E	1/4	.170	920024-12-ND	3.26	14.59	24.03	94.42	MVU14-14FLK
	E	#6	.170	920024-04-ND	2.68	12.01	19.78	77.70	MVU14-6FLK
	E	#8	.170	920024-05-ND	2.68	12.01	19.78	77.70	MVU14-8FLK
	E	#10	.170	920024-06-ND	2.68	12.01	19.78	77.70	MVU14-10FLK
	F	—	.170	920048-02-ND	4.19	18.75	30.88	121.32	MNU14-156DFIK
	G	—	.170	920050-02-ND	2.65	11.86	19.53	76.71	MVU14-156DMK
	H	—	.170	920030-02-ND	2.64	11.81	19.45	76.41	MVU14-BCK
	I	.187	.170	920040-03-ND	2.62	11.73	19.32	75.90	MVU14-187DFK
	I	.250	.170	920040-04-ND	2.62	11.73	19.32	75.90	MVU14-250DFK
	J	.187	.170	920042-03-ND	2.57	11.51	18.96	74.48	MVU14-187DMK
	J	.250	.170	920042-04-ND	2.57	11.52	18.97	74.51	MVU14-250DMK
	K	.187	.170	920044-03-ND	3.78	16.91	27.86	109.44	MNU14-187DFIK
	K	.250	.170	920044-04-ND	3.78	16.91	27.86	109.44	MNU14-250DFIK
	L	.187	.170	920046-03-ND	4.23	18.93	31.17	122.46	MNU14-187DMIK
	L	.250	.170	920046-04-ND	4.23	18.93	31.17	122.46	MNU14-250DMIK
	M	6/8/10	.170	920010-58-ND	3.32	14.85	24.46	96.10	MV14-610R
12-10 Yellow	A	#4	.250	920010-42-ND	3.03	13.54	22.30	87.62	MVU10-4R/SK
	A	#6	.250	920010-43-ND	3.03	13.54	22.30	87.62	MVU10-6RK
	A	#8	.250	920010-09-ND	3.03	13.54	22.30	87.62	MVU10-8RK
	A	#10	.250	920010-10-ND	3.03	13.54	22.30	87.62	MVU10-10RK
	A	1/4	.250	920010-11-ND	4.04	18.09	29.80	117.07	MVU10-14R/SK
	A	5/16	.250	920010-44-ND	4.04	18.09	29.80	117.07	MVU10-516R/SK
	A	3/8	.250	920010-12-ND	4.04	18.09	29.80	117.07	MVU10-38R/SK
	B	#6	.250	920020-03-ND	3.03	13.54	22.30	87.62	MVU10-6FK
	B	#8	.250	920020-04-ND	3.03	13.54	22.30	87.62	MVU10-8FK
	B	#10	.250	920020-05-ND	3.03	13.54	22.30	87.62	MVU10-10FK
	D	#6	.250	920022-20-ND	3.53	15.81	26.04	102.29	MVU10-6FFBK
	D	#8	.250	920022-21-ND	3.53	15.81	26.04	102.29	MVU10-8FFBK
	D	#10	.250	920022-22-ND	3.53	15.81	26.04	102.29	MVU10-10FFBK
12-10 Yellow	E	#6	.250	920024-07-ND	3.86	17.26	28.42	111.66	MVU10-6FLK
	E	#8	.250	920024-08-ND	3.86	17.26	28.42	111.66	MVU10-8FLK
	E	#10	.250	920024-09-ND	3.86	17.26	28.42	111.66	MVU10-10FLK
	E	1/4	.250	920024-13-ND	4.46	19.94	32.84	129.00	MVU10-14FLK
	H	—	.250	920030-03-ND	3.26	14.58	24.01	94.34	MVU10BCK
	I	.250	.250	920040-06-ND	2.71	12.13	19.97	78.47	MVI10-250DFK
	J	.250	.250	920042-05-ND	3.20	14.32	23.58	92.63	MVU10-250DMK
	K	.250	.250	920044-21-ND	4.46	19.96	32.87	129.14	MNI10-250DFIK
	L	.250	.250	920046-05-ND	5.74	25.69	42.32	166.24	MNU10-250DMIK
	M	6/8/10	.250	920010-59-ND	4.39	19.64	32.35	127.11	MV10-610R
16-14	HH	—	—	920030-05-ND	12.00	53.67	88.40	347.27	MNG14BCMK
12-10	HH	—	—	920030-06-ND	15.64	69.98	115.27	452.84	MNG10BCMK
Uninsulated									
22-18	N	#4	—	920010-13-ND	1.27	5.68	9.36	36.78	MU18-4R/SK
	N	#6	—	920010-14-ND	1.27	5.68	9.36	36.78	MU18-6R/SK
	N	#8	—	920010-15-ND	1.27	5.68	9.36	36.78	MU18-8R/LK
	N	#10	—	920010-16-ND	1.20	5.38	8.86	34.79	MU18-10R/LK
	N	1/4	—	920010-17-ND	2.00	8.95	14.75	57.93	MU18-14R/SK
	N	3/8	—	920010-18-ND	2.20	9.86	16.23	63.77	MU18-38RK
	O	#4	—	920020-06-ND	1.27	5.68	9.36	36.78	MU18-4FB/SK
	O	#6	—	920020-07-ND	1.27	5.68	9.36	36.78	MU18-6FB/SK
	O	#8	—	920020-08-ND	1.27	5.68	9.36	36.78	MU18-8FBK
	O	#10	—	920020-09-ND	1.27	5.68	9.36	36.78	MU18-10FBK
	P	#4	—	920024-14-ND	1.32	5.93	9.76	38.35	MU18-4FLK
	P	#6	—	920024-15-ND	1.32	5.93	9.76	38.35	MU18-6FLK
	P	#8	—	920024-16-ND	1.32	5.93	9.76	38.35	MU18-8FLK
	P	#10	—	920024-17-ND	1.32	5.93	9.76	38.35	MU18-10FLK
	Q	#6	—	920022-05-ND	1.32	5.90	9.71	38.16	MU18-6FFBK
	Q	#8	—	920022-06-ND	1.32	5.90	9.71	38.16	MU18-8FFBK
	Q	#10	—	920022-07-ND	1.32	5.90	9.71	38.16	MU18-10FFBK
	R	—	—	920030-07-ND	2.04	9.14	15.06	59.17	M18BCK
16-14	N	#4	—	920010-19-ND	1.27	5.68	9.36	36.78	MU14-4R/SK
	N	#6	—	920010-20-ND	1.27	5.68	9.36	36.78	MU14-6R/SK
	N	#8	—	920010-21-ND	1.27	5.68	9.36	36.78	MU14-8R/LK
	N	#10	—	920010-22-ND	1.27	5.68	9.36	36.78	MU14-10RK
	N	1/4	—	920010-23-ND	2.00	8.95	14.75	57.93	MU14-14R/SK
	O	#4	—	920020-10-ND	1.27	5.68	9.36	36.78	MU14-4FB/SK
	O	#8	—	920020-11-ND	1.27	5.68	9.36	36.78	MU14-8FBK
	O	#10	—	920020-12-ND	1.27	5.68	9.36	36.78	MU14-10FBK
	P	#4	—	920024-18-ND	1.32	5.93	9.76	38.35	MU14-4FLK
	P	#6	—	920024-19-ND	1.32	5.93	9.76	38.35	MU14-6FLK
	P	#8	—	920024-20-ND	1.32	5.93	9.76	38.35	MU14-8FLK
	P	#10	—	920024-21-ND	1.32	5.93	9.76	38.35	MU14-10FLK
	P	1/4	—	920024-22-ND	2.17	9.70	15.98	62.78	MU14-14FLK
	Q	#6	—	920022-08-ND	1.35	6.05	9.96	39.15	MU14-6FFBK
	Q	#8	—	920022-09-ND	1.35	6.05	9.96	39.15	MU14-8FFBK
	Q	#10	—	920022-10-ND	1.35	6.05	9.96	39.15	MU14-10FFBK
	R	—	—	920030-08-ND	2.04	9.14	15.06	59.17	M14BCK
12-10	N	#4	—	920010-24-ND	1.93	8.65	14.25	55.98	MU10-4R/SK
	N	#6	—	920010-25-ND	1.93	8.65	14.25	55.98	MU10-6RK
	N	#8	—	920010-26-ND	1.93	8.65	14.25	55.98	MU10-8RK
	N	#10	—	920010-27-ND	1.93	8.65	14.25	55.98	MU10-10RK
	N	1/4	—	920010-28-ND	2.31	10.33	17.01	66.81	MU10-14R/SK
	N	5/16	—	920010-29-ND	2.31	10.33	17.01	66.81	MU10-516R/SK
	O	#6	—	920020-13-ND	1.93	8.65	14.25	55.98	MU10-6FBK
	O	#8	—	920020-14-ND	1.93	8.65	14.25	55.98	MU10-8FBK
	O	#10	—	920020-15-ND	1.93	8.65	14.25	55.98	MU10-10FBK
	P	#6	—	920024-23-ND	1.88	8.41	13.85	54.42	MU10-6FLK
	P	#8	—	920024-24-ND	1.88	8.41	13.85	54.42	MU10-8FLK
	P	#10	—	920024-25-ND	1.88	8.41	13.85	54.42	MU10-10FLK
	P	1/4	—	920024-26-ND	3.25	14.55	23.96	94.15	MU10-14FLK
	Q	#6	—	920022-11-ND	1.92	8.60	14.16	55.65	MU10-6FFBK
	Q	#8	—	920022-12-ND	1.92	8.60	14.16	55.65	MU10-8FFBK
	Q	#10	—	920022-13-ND	1.92	8.60	14.16	55.65	MU10-10FFBK
	R	—	—	920030-09-ND	3.07	13.72	22.60	88.78	M10BCK
26-20	S1	.110	—	920044-06-ND	1.38	6.17	10.16	39.92	MU20-110/32DFK
22-18	S2	.187	—	920044-07-ND	1.38	6.17	10.16	39.92	MU18-187DFK
	S1	.250	—	920044-08-ND	1.38	6.17	10.16	39.92	MU18-250DFK
16-14	S1	.110	—	920044-09-ND	1.38	6.17	10.16	39.92	MU14-110DFK
	S2	187	—	920044-10-ND	1.38	6.17	10.16	39.92	MU14-187DFK
	S1	.250	—	920044-11-ND	1.38	6.17	10.16	39.92	MU14-250DFK
22-18	T1	.187	—	920044-12-ND	1.74	7.79	12.84	50.44	MU18-187DF/FLAGK
	T2	.250	—	920044-13-ND	1.74	7.79	12.84	50.44	MU18-250DF/FLAGK
16-14	T1	.187	—	920044-14-ND	1.74	7.79	12.84	50.44	MU14-187DF/FLAGK
	T2	.250	—	920044-15-ND	1.74	7.79	12.84	50.44	MU14-250DF/FLAGK
12-10	T1	.250	—	920044-16-ND	3.35	14.98	24.68	96.95	MU10-250DF/FLAGK
22-18	U	.187	—	920042-06-ND	1.33	5.96	9.81	38.56	MU18-187DMK
	U	.250	—	920042-07-ND	1.33	5.96	9.81	38.56	MU18-250DMK
16-14	U	.187	—	920042-08-ND	1.33	5.96	9.81	38.56	MU14-187DMK
	U	.250	—	920042-09-ND	1.33	5.96	9.81	38.56	MU14-250DMK
12-10	U	.250	—	920042-10-ND	1.76	7.87	12.96	50.92	MU10-250DMK

AWG	Diagram	Stud Size	Insul. Dia.	Digi-Key Part No.	Pricing 10	50	100	500	Mfg. Part No.
Heat Shrink Insulated									
22-18 Red	V	#6	.145	920010-45-ND	12.48	55.85	91.99	361.39	MH18-6R/LK
	V	#8	.145	920010-46-ND	12.48	55.85	91.99	361.39	MH18-8R/LK
	V	#10	.145	920010-47-ND	12.48	55.85	91.99	361.39	MH18-10R/LK
	W	#6	.145	920024-27-ND	12.48	55.85	91.99	361.39	MH18-6FLK
	W	#8	.145	920024-28-ND	12.48	55.85	91.99	361.39	MH18-8FLK
	W	#10	.145	920024-29-ND	12.48	55.85	91.99	361.39	MH18-10FLK
	X	—	.145	920030-10-ND	17.48	78.19	128.79	505.95	MH18BCK
	Y	—	.145	920044-18-ND	19.52	87.31	143.80	564.95	MNHU18-250DFIK
	Z	—	.145	920042-11-ND	19.52	87.31	143.80	564.95	MNHU18-250DMIK
16-14 Blue	V	#6	.170	920010-48-ND	12.48	55.85	91.99	361.39	MH14-6R/LK
	V	#8	.170	920010-49-ND	12.48	55.85	91.99	361.39	MH14-8R/LK
	V	#10	.170	920010-50-ND	12.48	55.85	91.99	361.39	MH14-10R/LK
	V	1/4	.170	920010-51-ND	13.57	60.71	99.99	392.81	MH14-14R/SK
	V	5/16	.170	920010-52-ND	13.57	60.71	99.99	392.81	MH14-516R/SK
	V	3/8	.170	920010-53-ND	13.57	60.71	99.99	392.81	MH14-38RK
	W	#6	.170	920024-30-ND	12.48	55.85	91.99	361.39	MH14-6FLK
	W	#8	.170	920024-31-ND	12.48	55.85	91.99	361.39	MH14-8FLK
	W	#10	.170	920024-32-ND	12.48	55.85	91.99	361.39	MH14-10FLK
	W	1/4	.170	920024-33-ND	13.57	60.71	99.99	392.81	MH14-14FLK
	X	—	.170	920030-11-ND	17.48	78.19	128.79	505.95	MH14BCK
	Y	—	.170	920044-19-ND	19.52	87.31	143.80	564.95	MNHU14-250DFIK
	Z	—	.170	920042-12-ND	19.80	88.59	145.92	573.25	MNHU14-250DMIK
12-10 Yellow	V	#10	.250	920010-54-ND	15.20	67.99	111.99	439.95	MH10-10RK
	V	1/4	.250	920010-55-ND	16.83	75.28	123.98	487.08	MH10-14RK
	V	3/8	.250	920010-56-ND	16.83	75.28	123.98	487.08	MH10-38RK
	W	#8	.250	920024-34-ND	15.74	70.42	115.98	455.65	MH10-8FLK
	W	#10	.250	920024-35-ND	15.74	70.42	115.98	455.65	MH10-10FLK
	W	1/4	.250	920024-36-ND	17.37	77.70	127.98	502.80	MH10-14FLK
	X	—	.250	920030-12-ND	19.00	84.99	139.98	549.93	MH10BCK
	Y	—	.250	920044-20-ND	21.35	95.50	157.29	617.91	MNHU10-250DFIK
	Z	—	.250	920042-13-ND	21.35	95.50	157.29	617.91	MNHU10-250DMIK

AWG	Diagram	Stud Size	Insul. Dia.	Digi-Key Part No.	Pricing 10	50	100	500	Mfg. Part No.
22-18	AA	—	.150	920074-01-ND	3.99	17.87	29.43	115.62	951K
16-14	AA	—	.150	920074-02-ND	3.99	17.87	29.43	115.62	952K
12-10	AA	—	.150	920074-03-ND	4.79	21.44	35.32	138.75	953K
Multi-Stack Adapters									
22-18	BB	.250	—	920084-01-ND	4.37	19.55	32.19	126.47	MVU18-250DMFK
16-14	BB	.250	—	920084-02-ND	4.37	19.55	32.19	126.47	MVU14-250DMFK
—	CC1	.250	—	920082-01-ND	3.42	15.32	25.23	99.12	MA250DMFMK
	CC2	.250	—	920082-02-ND	2.31	10.32	17.00	66.78	MA250DMMFK
Schotchlok Connectors									
22-14	DD	Closed End		920030-13-ND	1.88	8.42	13.86	54.45	MN14CEC/STK
18-10	DD			920030-14-ND	2.51	11.23	18.49	72.66	MN10CEC/STK
8-14	EE	Electrical Connector		920090-01-ND	6.05	27.08	44.60	175.23	GK (Gray)
10-18	EE			920090-02-ND	2.71	12.12	19.96	78.43	RK (Red)
12-22	EE			920090-03-ND	2.06	9.23	15.20	59.73	YK (Yellow)
8-12	FF	Spring Connector		920090-04-ND	6.42	28.72	47.30	185.83	B/G(BULK)
12-22	FF			920090-05-ND	1.79	8.02	13.22	51.92	O/B(BULK)
8-18	FF			920090-06-ND	2.39	10.70	17.63	69.25	R/Y(BULK)
12-22	EE	Nylon Spring Connector		920074-04-ND	2.06	9.23	15.20	59.73	312(BULK)
10-18	EE			920074-05-ND	2.70	12.08	19.90	78.20	512(BULK)
Highland™ Connectors - High Temperature 302°F (150°C)									
22-16	GG	Spring Connector		920091-01-ND	1.75	7.83	12.90	50.67	H-30B(BULK)
18-14	GG			920091-02-ND	1.99	8.90	14.65	57.56	H-31B(BULK)
18-12	GG			920091-03-ND	2.54	11.38	18.74	73.60	H-33B(BULK)
18-10	GG			920091-04-ND	3.67	16.44	27.08	106.37	H-35B(BULK)

920099-R-ND	Scotchlok Crimp Tool TH440 .... **$16.19**
923000-I-ND	3M Insulated Terminal Kit — 650 assorted terminals (14 sizes), 200 cable ties (100 each, 2 sizes), one wire marker dispenser, one crimping tool, one reusable metal box, one reordering information card.......... **$108.10**

Weidmüller
Paladin Tools
Tools

Description	Digi-Key Part No.	Pricing
Crimp Tool — Frame Only	PAL1302-ND	40.53
Die Set Splice Connectors for PAL1302-ND	PAL2035-ND	30.57

ON-SHORE TECHNOLOGY, INC.

VME DIN 41612 Connectors (For Discrete Wire)

Fig.1

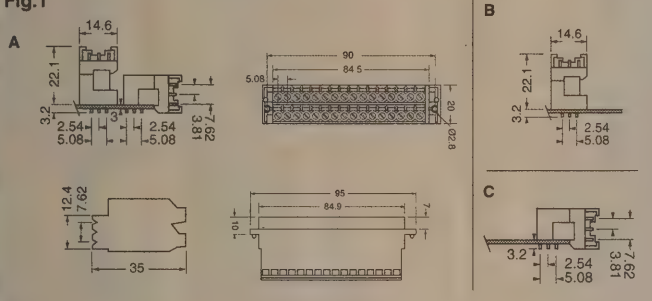


Fig. 2

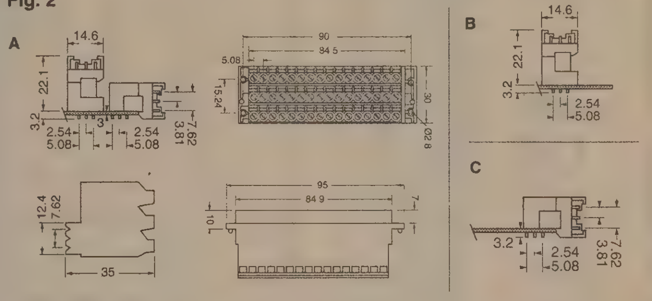
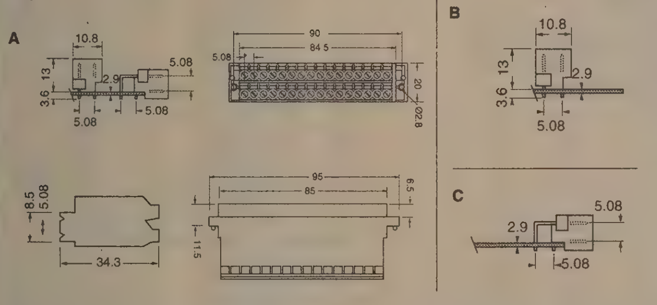


Fig. 3



DIMENSIONAL DATA: • **Center-to-Center Spacing:** .200" / 5.08mm • **Captive Screws:** Ø.118" / M3 • **Blade of Screwdriver:** .138" x .20" / 3.5mm x 0.5mm • **Recommended Tightening Torque:** 5.22 lb. / in./ 0.6mN • **Insulation Stripping Length:** .315" ± .20" /6mm ± 0.5mm

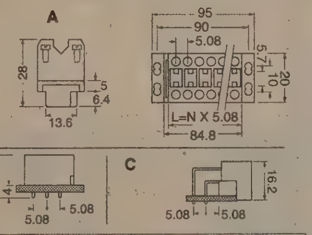
TECHNICAL DATA: • **Contact Resistance:** ≤ 10 mΩ • **Socket Contact Spring (Plating):** Bronze (nickel/gold) • **Housing:** UL94V O grey polycarbonate • **Storing Temperature:** -40°F + 258°F / -40°C + 100°C • **Insulation Resistance:** ≤ 10^{12} Ω • **Mating Cycles:** 200 • **Operating Temperature:** -20°C + 58°C

Electrical Characteristics	UL	CSA	NFC-UTE	DIN-VDE
Wire Range (solid or stranded)	22-14 AWG	22-14 AWG	2.5mm^2	2.5mm
Maximum Current Rating (+68°F / +20°C)	6 AMP	10 AMP	6 AMP	6 AMP
Operating Voltage Rating V ≈	300	300	250 V	250 V
Dielectric Withstand V ≈	1 600	1 600	1550 V	1550 V
Flammability	94V O	—	—	—

DIMENSIONAL DATA: • **Center-to-Center Spacing:** .200" / 5.08mm • **Captive Screws:** Ø.118" / M3 • **Blade of Screwdriver:** .138" x .20" / 3.5mm x 0.5mm • **Recommended Tightening Torque:** 5.22 lb. / in./ 0.6mN • **Insulation Stripping Length:** .315" ± .20" / 8mm ± 0.5mm

TECHNICAL DATA: • **Contact Resistance:** ≤ 10 mΩ • **Socket Contact Spring (Plating):** Bronze (nickel/gold) • **Housing:** UL94V O grey polycarbonate • **Operating Temperature:** -40°F + 258°F / -40°C + 125°C • **Insulation Resistance:** ≥ 10^{12} Ω • **Mating Cycles:** 200

Fig. 4



Electrical Characteristics	UL	CSA	NFC-UTE	DIN-VDE
Wire Range (solid or stranded)	22-12 AWG	20-12 AWG	4mm^2	4mm^2
Maximum Current Rating (+68°F / +20°C)	6 AMP	20 AMP	6 AMP	6 AMP
Operating Voltage Rating V ≈	300	300	380 C cat	380 C gr
Dielectric Withstand V ≈	1 600	1 600	5000	5000
Flammability	94V O	—	—	—

Fig.	No. of Pos.	Description	Digi-Key Part No.	Pricing 1	OST Part No.
1A	32	Terminal Block Plug	ED1543-ND	80.75	ED03-F.32P-ZD
1A	32	Terminal Block Plug	ED1544-ND	80.75	ED03-F.32P-ZB
1B	32	Header, Straight, rows z, d	ED1550-ND	12.55	ED99-F.32SH-ZD
1B	32	Header, Straight, rows z, b	ED1551-ND	12.55	ED99-F.32SH-ZB
1C	32	Header, Right Angle, rows z, d	ED1552-ND	12.55	ED99-F.32RH-ZD
1C	32	Header, Right Angle, rows z, b	ED1553-ND	12.55	ED99-F.32RH-ZB
2A	48	Terminal Block Plug	ED1545-ND	105.25	ED03-F.48P
2B	48	Header, Straight, rows bdz	ED1554-ND	12.55	ED99-F.48SH-BDZ
2C	48	Header, Right Angle, rows bdz	ED1555-ND	12.55	ED99-F.48RH-BDZ
3A	32	Terminal Block Plug	ED1541-ND	71.65	ED01-D.32P
3B	32	Straight, rows a, c	ED1546-ND	12.55	ED95-D.32SH-AC
3C	32	Right Angle, rows a, c	ED1547-ND	12.55	ED95-D.32RH-AC
4A	32	Terminal Block Plug	ED1542-ND	71.65	ED02-E.32P
4B	32	Straight, rows a, e	ED1548-ND	12.55	ED97-E.32SH-AE
4C	32	Right Angle, a, e	ED1549-ND	12.55	ED97-E.32RH-AE

ON-SHORE TECHNOLOGY, INC.

Terminal Blocks

UL# E101811, 86ME2081 CSA# 068503X0000

Fig. 1

Cable Inlet: Front

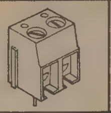


Fig. 2

Cable Inlet: Top

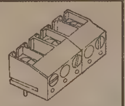


Fig. 3

Cable Inlet: 45°

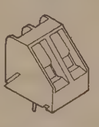


Fig. 4

Double Terminal Block

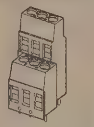


Fig. 5

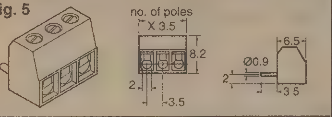


Fig. 6

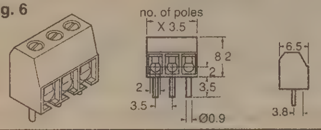


Fig. 7

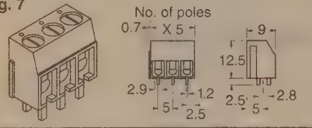


Fig. 8

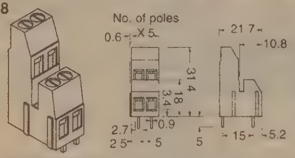


Fig. 9

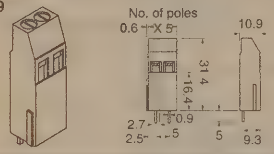


Fig. 10

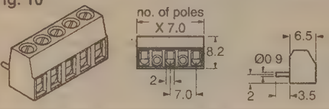


Fig. 11

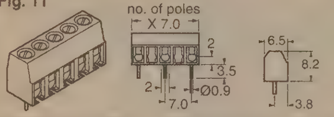
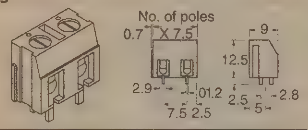


Fig. 12



These On-Shore Technology Terminal Blocks are Stackable for any number of contacts. 4.5mm Lead Length.

SPECIFICATIONS: • **Rated Current:** 16A • **Insulator:** PA 6 GV/PBTP • **Color:** Blue • **Temperature Range:** -30°C to +120°C, max. 200°C • **Pluggable Terminal Blocks,** Rated Current: 10A

SPECIFICATIONS: ED1501 – ED1526: • **Rated Voltage:** 320V - 125V • **Rated Current:** 6A • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL94 V-O • **Color:** Grey

ED1527 – ED1540: • **Rated Voltage:** 400V • **Rated Current:** 6A • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL94 V-O • **Color:** Charcoal Grey

Fig.	Lead Spacing (mm)	Rated Volt. (V-) VDE 0110	Terminal Plating	Block Length (mm)	Digi-Key Part No.	Pricing		
						1	10	100
2 Position Stackable Terminal Block								
1	5.0	250	Tin	10	ED1601-ND	.34	3.08	27.40
	5.0	125	Tin	10	ED1623-ND	.37	3.33	29.60
	5.0	250	Nickel	10	ED1631-ND	.75	6.75	60.00
	5.08	250	Tin	10.16	ED1609-ND	.37	3.33	29.60
	5.08	300	Tin	10.16	ED1643-ND	.63	5.69	50.60
	7.5	380	Tin	15	ED1605-ND	.53	4.73	42.00
	10.0	500	Tin	15	ED1615-ND	.53	4.73	42.00
	10.0	250	Tin	15	ED1627-ND	.53	4.73	42.00
	10.0	500	Nickel	15	ED1633-ND	.80	7.20	64.00
2	5.0	250	Tin	10	ED1603-ND	.53	4.73	42.00
	5.0	125	Tin	10	ED1625-ND	.53	4.73	42.00
	5.08	250	Tin	10.16	ED1611-ND	.53	4.73	42.00
	7.5	380	Tin	15	ED1607-ND	.60	5.40	48.00
	10.0	500	Tin	15	ED1617-ND	.60	5.40	48.00
	10.0	250	Tin	15	ED1629-ND	.60	5.40	48.00
3	5.0	60	Nickel	10	ED1619-ND	.59	5.27	46.80
	10.0	250	Nickel	15	ED1621-ND	.75	6.75	60.00
Double Terminal Blocks (Dual Level)								
4	5.0	300	Tin	10	ED1653-ND	1.41	12.71	113.00
3 Position Stackable Terminal Block								
1	5.0	250	Tin	15	ED1602-ND	.51	4.61	41.00
	5.0	125	Tin	15	ED1624-ND	.56	5.02	44.60
	5 0	250	Nickel	15	ED1632-ND	1.13	10.13	90.00
	5 08	250	Tin	15.24	ED1610-ND	.55	4.97	44.20
	5.08	300	Tin	15.24	ED1644-ND	.94	8.44	75.00
	7 5	380	Tin	22.5	ED1606-ND	.79	7.09	63.00
	10 0	500	Tin	25	ED1616-ND	.79	7.09	63.00
	10.0	250	Tin	25	ED1628-ND	.79	7.09	63.00
	10 0	500	Nickel	25	ED1634-ND	1.20	10.80	96.00
2	5.0	250	Tin	15	ED1604-ND	.79	7.09	63.00
	5.0	125	Tin	15	ED1626-ND	.88	7.90	70.20
	5.08	250	Tin	15.25	ED1612-ND	.79	7.09	63.00
	7.5	380	Tin	22.5	ED1608-ND	.90	8.10	72.00
	10 0	500	Tin	25	ED1618-ND	.90	8.10	72.00
	10.0	250	Tin	25	ED1630-ND	.90	8.10	72.00
3	5.0	60	Nickel	15	ED1620-ND	.88	7.88	70.00
	10.0	250	Nickel	25	ED1622-ND	1.13	10.13	90.00
Double Terminal Blocks (Dual Level)								
4	5.0	300	Tin	15	ED1654-ND	2.13	19.17	170.40
2 Position Pluggable Terminal Blocks ★ (Mates with Pin Headers) — See Below								
1	5 0	125	Tin	10	ED1613-ND	.62	5.56	49.40
3 Position Pluggable Terminal Blocks ★ (Mates with Pin Headers) — See Below								
1	5 0	125	Tin	15	ED1614-ND	.93	8.33	74.00

Fig.	No. of Pos.	Block Length (mm)	Digi-Key Part No.	Pricing		
				1	10	100
3.5mm Lead Spacing - Terminal Blocks						
5	2	7.0	ED1501-ND	.40	3.60	32.00
	3	10.5	ED1502-ND	.60	5.40	48.00
	4	14.0	ED1503-ND	.80	7.20	64.00
	5	17.5	ED1504-ND	1.00	9.00	80.00
	6	21.0	ED1505-ND	1.20	10.80	96.00
	7	24.5	ED1506-ND	1.40	12.60	112.00
	8	28.0	ED1507-ND	1.60	14.40	128.00
	9	31.5	ED1508-ND	1.80	16.20	144.00
	10	35.0	ED1509-ND	2.00	18.00	160.00
	11	38.5	ED1510-ND	2.20	19.80	176 00
	12	42.0	ED1511-ND	2.40	21.60	192.00
	14	49.0	ED1512-ND	2.80	25.20	224.00
	16	56.0	ED1513-ND	3.20	28.80	256.00
3.5mm Lead Spacing - Terminal Blocks						
6	2	7.0	ED1514-ND	.40	3.60	32.00
	3	10.5	ED1515-ND	.60	5.40	48.00
	4	14.0	ED1516-ND	.80	7.20	64 00
	5	17.5	ED1517-ND	1.00	9.00	80.00
	6	21.0	ED1518-ND	1.20	10.80	96.00
	7	24.5	ED1519-ND	1.40	12.60	112.00
	8	28.0	ED1520-ND	1.60	14.40	128.00

SPECIFICATIONS: ED1556 – ED1566: • **Rated Voltage:** VDE 0110-V. Group 2: 630V; VDE 0110-V. Group 3: 250V • **Rated Current:** 16A • **Terminal Screw:** M 3 • **Rated Torque:** 0,5 Nm max. • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL94 V-O

SPECIFICATIONS: ED1567 – ED1577: • **Rated Voltage:** VDE 0110-V. Group 3: 500V • **Rated Current:** 16A • **Terminal Screw:** M 3 • **Rated Torque:** 0,5 Nm max. • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL94 V-O • **Color:** Blue

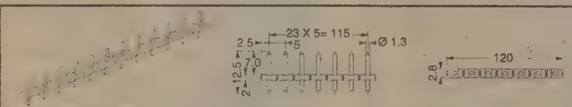
SPECIFICATIONS: ED1578 – ED1599: • **Rated Voltage:** VDE 0110-V. Group 2: 630V; VDE 0110-V. Group 3: 250V • **Rated Current:** 16A • **Terminal Screw:** M 3 • **Rated Torque:** 0,5 Nm max. • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL94 V-O

Fig.	No. of Pos.	Block Length (mm)	Digi-Key Part No.	Pricing		
				1	10	100
6	9	31.5	ED1521-ND	1.80	16.20	144.00
	10	35 0	ED1522-ND	2.00	18.00	160.00
	11	38.5	ED1523-ND	2.20	19.80	176.00
	12	42.0	ED1524-ND	2.40	21.60	192.00
	14	49.0	ED1525-ND	2.80	25.20	224.00
	16	56.0	ED1526-ND	3.20	28.80	256.00
5.0mm Lead Spacing - Terminal Blocks						
7	2	5.0	ED1556-ND	78	6.98	62.00
	3	10.0	ED1557-ND	1.16	10.46	93.00
	4	15 0	ED1558-ND	1.55	13.95	124.00
	5	20.0	ED1559-ND	1.94	17.44	155.00
	6	25.0	ED1560-ND	2.33	20.93	186.00
	7	30.0	ED1561-ND	2.71	24.41	217.00
	8	35.0	ED1562-ND	3.10	27.90	248.00
	9	40.0	ED1563-ND	3.49	31.39	279.00
	10	45.0	ED1564-ND	3.88	34 88	310.00
	11	50.0	ED1565-ND	4.26	38.36	341.00
	12	55.0	ED1566-ND	4.65	41.85	372.00
5.0mm Lead Spacing - Terminal Blocks						
8	2	5.0	ED1578-ND	2.20	19.80	176.00
	3	10.0	ED1579-ND	3.30	29.70	264.00
	4	15 0	ED1580-ND	4.40	39.60	352.00
	5	20.0	ED1581-ND	5.50	49.50	440.00
	6	25.0	ED1582-ND	6.60	59.40	528.00
	7	30.0	ED1583-ND	7.70	69.30	616.00
	8	35.0	ED1584-ND	8.80	79.20	704.00
	9	40.0	ED1585-ND	9.90	89.10	792.00
	10	45.0	ED1586-ND	11.00	99.00	880.00
	11	50.0	ED1587-ND	11.21	100.89	896.80
	12	55.0	ED1588-ND	13.20	118.80	1056.00
5.0mm Lead Spacing - Terminal Blocks						
9	2	5.0	ED1589-ND	1.35	12.15	108.00
	4	15.0	ED1591-ND	2.70	24.30	216.00
	6	25.0	ED1593-ND	4.05	36.45	324.00
	8	35.0	ED1595-ND	5.40	48.60	432.00
	10	45 0	ED1597-ND	6.75	60.75	540.00
	12	55.0	ED1599-ND	8 10	72.90	648.00
7.0mm Lead Spacing - Terminal Blocks						
10	2	14.0	ED1527-ND	.44	3.96	35.20
	3	21.0	ED1528-ND	.66	5.94	52.80
	4	28.0	ED1529-ND	.88	7.92	70.40
	5	35.0	ED1530-ND	1.10	9.90	88.00
	6	42.0	ED1531-ND	1.32	11.88	105.60
	7	49.0	ED1532-ND	1 54	13.86	123 20
	8	56.0	ED1533-ND	1.76	15.84	140.80
7.0mm Lead Spacing - Terminal Blocks						
11	2	14.0	ED1534-ND	.44	3.96	35.20
	3	21.0	ED1535-ND	.66	5.94	52.80
	4	28.0	ED1536-ND	.88	7.92	70.40
	5	35.0	ED1537-ND	1.10	9.90	88.00
	6	42.0	ED1538-ND	1.32	11.88	105.60
	7	49.0	ED1539-ND	1.54	13.86	123.20
	8	56.0	ED1540-ND	1.76	15.84	140.80
7.5mm Lead Spacing - Terminal Blocks						
12	2	7 50	ED1567-ND	.88	7 88	70.00
	3	15.00	ED1568-ND	1.31	11.81	105.00
	4	22 50	ED1569-ND	1.75	15.75	140.00
	5	30.00	ED1570-ND	2.19	19.69	175.00
	6	37.50	ED1571-ND	2.63	23.63	210.00
	7	45 00	ED1572-ND	3.06	27.56	245.00
	8	52.50	ED1573-ND	3.50	31.50	280.00
	9	60 00	ED1574-ND	3.94	35.44	315.00
	10	67 50	ED1575-ND	4.38	39.38	350.00
	11	75.00	ED1576-ND	4.81	43.31	385.00
	12	82.50	ED1577-ND	5.25	47.25	420.00

ON-SHORE TECHNOLOGY, INC.

Pin Headers

★ Mates with ED1613-ND and ED1614-ND (See above)



• **Recommended Hole Diameter in Printed Circuit Board:** 1.3mm • **Spacing:** 5mm • **Rated Current:** 10 amps • **Rated Cross Section:** 1.5mm² • **Terminal Plating:** tin • **Resistance to Tracking:** KB380 • **Wire Guard Material:** BeCu.

No. of Pos.	Digi-Key Part No.	Pricing			
		1	10	100	500
2	ED1660-ND	.28	2.50	22.25	97.34
3	ED1661-ND	.31	2.77	24.58	107.56
4	ED1662-ND	.34	3.06	27.16	118.84
5	ED1663-ND	.38	3.38	30.02	131.32
6	ED1664-ND	.41	3.73	33.17	145.10
7	ED1665-ND	.46	4.12	36.65	160.34
8	ED1666-ND	.51	4.56	40.50	177.17
9	ED1667-ND	.56	5.03	44.75	195.76
10	ED1668-ND	.62	5.56	49.44	216.32
11	ED1669-ND	.68	6.15	54.63	239.02
12	ED1670-ND	.75	6.79	60.37	264.11
13	ED1671-ND	.83	7.50	66.71	291.84
14	ED1672-ND	.92	8.29	73.71	322.47
15	ED1673-ND	1.02	9.16	81.45	356.33
16	ED1674-ND	1.12	10.12	90.00	393.73
17	ED1675-ND	1.24	11.19	99.44	435.06
18	ED1676-ND	1.37	12.36	109.88	480.73
19	ED1677-ND	1.52	13.66	121.42	531.20
20	ED1678-ND	1.68	15.09	134.16	586.95
21	ED1679-ND	1.85	16.68	148.24	648.57
22	ED1680-ND	2.05	18.43	163.81	716.65
23	ED1681-ND	2.26	20.36	181.00	791.88
24	ED1682-ND	2.50	22.50	200.00	875.00

OST ON-SHORE TECHNOLOGY, INC.

Two Piece Terminal Blocks

SPECIFICATIONS: • **Rated Voltage:** 300V; • **Rated Current:** 15A; • **Terminal Plating:** Tin. • **Modularity:** Fixed and Pluggable PCB Terminals are available in both metric and inch pin spacings. The key feature of our modular terminal housings is their tongue and groove joint design that permits individual 2 or 3 pole terminal modules to be joined together to produce multi-pole terminal assemblies. • **Housings:** PCB Mini-Terminal Block housings are precision molded from self-extinguishing 6.6 polyamide (nylon) molding material in several colors. All housings have funnel shaped wire entry guides to prevent wire fraying and minimize misconnections.

Specifications for 5.08mm Vertical Plugs: • **Rated Voltage:** 630V • **Rated Current:** 12A • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL 94 V-2 • **Color:** Green

Fig. 1

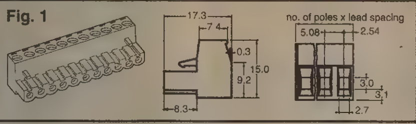


Fig. 2

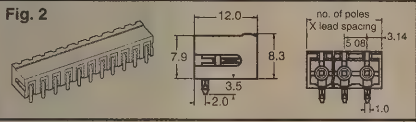


Fig. 3

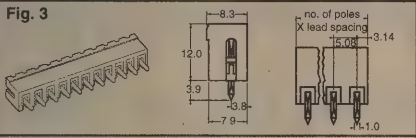


Fig. 4

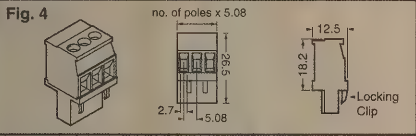


Fig. 5

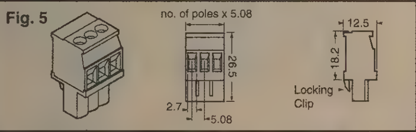


Fig. 6

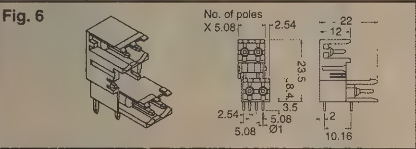


Fig. 7

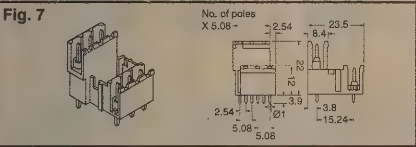


Fig. 8

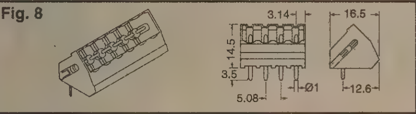


Fig.	No. of Poles	Block Length (mm)	Digi-Key Part No.	Pricing		
				1	10	100
5mm Lead Spacing – Plugs						
1	2	10	ED1701-ND*	1.15	10.35	92.00
	3	15	ED1702-ND*	1.73	15.53	138.00
	4	20	ED1703-ND*	2.30	20.70	184.00
	5	25	ED1704-ND*	2.88	25.88	230.00
	6	30	ED1705-ND*	3.45	31.05	276.00
	7	35	ED1706-ND*	4.03	36.23	322.00
	8	40	ED1707-ND*	4.60	41.40	368.00
	9	45	ED1708-ND*	5.18	46.58	414.00
	10	50	ED1709-ND*	5.75	51.75	460.00
	11	55	ED1710-ND*	6.33	56.93	506.00
	12	60	ED1711-ND*	6.90	62.10	552.00
	14	70	ED1712-ND*	8.05	72.45	644.00
	16	80	ED1713-ND*	9.20	82.80	736.00
	18	90	ED1714-ND*	10.35	93.15	828.00
	20	100	ED1715-ND*	11.50	103.50	920.00
	24	120	ED1716-ND*	13.80	124.20	1104.00
5mm Lead Spacing – Horizontal Headers						
2	2	10	ED1801-ND†	.40	3.60	32.00
	3	15	ED1802-ND†	.60	5.40	48.00
	4	20	ED1803-ND†	.80	7.20	64.00
	5	25	ED1804-ND†	1.00	9.00	80.00
	6	30	ED1805-ND†	1.20	10.80	96.00
	7	35	ED1806-ND†	1.40	12.60	112.00
	8	40	ED1807-ND†	1.60	14.40	128.00
	9	45	ED1808-ND†	1.80	16.20	144.00
	10	50	ED1809-ND†	2.00	18.00	160.00
	11	55	ED1810-ND†	2.20	19.80	176.00
	12	60	ED1811-ND†	2.40	21.60	192.00
	14	70	ED1812-ND†	2.80	25.20	224.00
	16	80	ED1813-ND†	3.20	28.80	256.00
	18	90	ED1814-ND†	3.60	32.40	288.00
	20	100	ED1815-ND†	4.00	36.00	320.00
	24	120	ED1816-ND†	4.80	43.20	384.00
5mm Lead Spacing – Vertical Headers						
3	2	10	ED1833-ND†	.40	3.60	32.00
	3	15	ED1834-ND†	.60	5.40	48.00
	4	20	ED1835-ND†	.80	7.20	64.00
	5	25	ED1836-ND†	1.00	9.00	80.00
	6	30	ED1837-ND†	1.20	10.80	96.00
	7	35	ED1838-ND†	1.40	12.60	112.00
	8	40	ED1839-ND†	1.60	14.40	128.00
	9	45	ED1840-ND†	1.80	16.20	144.00
	10	50	ED1841-ND†	2.00	18.00	160.00
	11	55	ED1842-ND†	2.20	19.80	176.00
	12	60	ED1843-ND†	2.40	21.60	192.00
	14	70	ED1844-ND†	2.80	25.20	224.00
	16	80	ED1845-ND†	3.20	28.80	256.00
	18	90	ED1846-ND†	3.60	32.40	288.00
	20	100	ED1847-ND†	4.00	36.00	320.00
	24	120	ED1848-ND†	4.80	43.20	384.00
5.08mm Lead Spacing – Plugs						
1	2	10.16	ED1717-ND*	1.15	10.35	92.00
	3	15.24	ED1718-ND*	1.73	15.53	138.00
	4	20.32	ED1719-ND*	2.30	20.70	184.00
	5	25.40	ED1720-ND*	2.88	25.88	230.00
	6	30.48	ED1721-ND*	3.45	31.05	276.00
	7	35.56	ED1722-ND*	4.03	36.23	322.00
	8	40.64	ED1723-ND*	4.60	41.40	368.00
	9	45.72	ED1724-ND*	5.18	46.58	414.00
	10	50.80	ED1725-ND*	5.75	51.75	460.00
	11	55.88	ED1726-ND*	6.33	56.93	506.00
	12	60.96	ED1727-ND*	6.90	62.10	552.00
	14	71.12	ED1728-ND*	8.05	72.45	644.00
	16	81.28	ED1729-ND*	9.20	82.80	736.00
	18	91.44	ED1730-ND*	10.35	93.15	828.00
	20	101.60	ED1731-ND*	11.50	103.50	920.00
	24	121.92	ED1732-ND*	13.80	124.20	1104.00
5.08mm Lead Spacing — Vertical Plug						
4	2	10.16	ED1746-ND†	1.48	13.28	118.00
	3	15.24	ED1747-ND†	2.21	19.91	177.00
	4	20.32	ED1748-ND†	2.95	26.55	236.00
	5	25.40	ED1749-ND†	3.68	33.08	294.00
	6	30.48	ED1750-ND†	4.43	39.83	354.00
	7	35.56	ED1751-ND†	5.15	46.35	412.00
	8	40.64	ED1752-ND†	5.90	53.10	472.00
	9	45.72	ED1753-ND†	6.63	59.63	530.00
	10	50.80	ED1754-ND†	7.38	66.38	590.00
	11	55.88	ED1755-ND†	8.10	72.90	648.00
	12	60.96	ED1756-ND†	8.85	79.65	708.00
	14	71,12	ED1757-ND†	10.33	92.93	826.00
	16	81.28	ED1758-ND†	11.80	106.20	944.00

Fig.	No. of Poles	Block Length (mm)	Digi-Key Part No.	Pricing		
				1	10	100
5.08mm Lead Spacing — Vertical Plug						
5	2	10.16	ED1759-ND†	1.48	13.28	118.00
	3	15.24	ED1760-ND†	2.21	19.91	177.00
	4	20.32	ED1761-ND†	2.95	26.55	236.00
	5	25.40	ED1762-ND†	3.68	33.08	294.00
	6	30.48	ED1763-ND†	4.43	39.83	354.00
	7	35.56	ED1764-ND†	5.15	46.35	412.00
	8	40.64	ED1765-ND†	5.90	53.10	472.00
	9	45.72	ED1766-ND†	6.63	59.63	530.00
	10	50.80	ED1767-ND†	7.38	66.38	590.00
	11	55.88	ED1768-ND†	8.10	72.90	648.00
	12	60.96	ED1769-ND†	8.85	79.65	708.00
	14	71.12	ED1770-ND†	10.33	92.93	826.00
	16	81.28	ED1771-ND†	11.80	106.20	944.00
[illegible].08mm Lead Spacing – Horizontal Headers						
2	2	10.16	ED1817-ND†	.40	3.60	32.00
	3	15.24	ED1818-ND†	.60	5.40	48.00
	4	20.32	ED1819-ND†	.80	7.20	64.00
	5	25.40	ED1820-ND†	1.00	9.00	80.00
	[illegible]	30.48	ED1821-ND†	1.20	10.80	96.00
	7	35.56	ED1822-ND†	1.40	12.60	112.00
	[illegible]	40.64	ED1823-ND†	1.60	14.40	128.00
	9	45.72	ED1824-ND†	1.80	16.20	144.00
	10	50.80	ED1825-ND†	2.00	18.00	160.00
	11	55.88	ED1826-ND†	2.20	19.80	176.00
	12	60.96	ED1827-ND†	2.40	21.60	192.00
	14	71.12	ED1828-ND†	2.80	25.20	224.00
	16	81.28	ED1829-ND†	3.20	28.80	256.00
	18	91.44	ED1830-ND†	3.60	32.40	288.00
	20	101.60	ED1831-ND†	4.00	36.00	320.00
	24	121.92	ED1832-ND†	4.80	43.20	384.00
6	4	5.08	ED1903-ND	1.70	15.30	136.00
	6	10.16	ED1904-ND	2.55	22.95	204.00
5.08mm Lead Spacing – Vertical Headers						
3	2	10.16	ED1849-ND†	.40	3.60	32.00
	3	15.24	ED1850-ND†	.60	5.40	48.00
	4	20.32	ED1851-ND†	.80	7.20	64.00
	5	25.40	ED1852-ND†	1.00	9.00	80.00
	6	30.48	ED1853-ND†	1.20	10.80	96.00
	7	35.56	ED1854-ND†	1.40	12.60	112.00
	8	40.64	ED1855-ND†	1.60	14.40	128.00
	9	45.72	ED1856-ND†	1.80	16.20	144.00
	10	50.80	ED1857-ND†	2.00	18.00	160.00
	11	55.88	ED1858-ND†	2.20	19.80	176.00
	12	60.96	ED1859-ND†	2.40	21.60	192.00
	14	71.12	ED1860-ND†	2.90	26.10	232.00
	16	81.28	ED1861-ND†	3.20	28.80	256.00
	18	91.44	ED1862-ND†	3.60	32.40	288.00
	20	101.60	ED1863-ND†	4.00	36.00	320.00
	24	121.92	ED1864-ND†	4.80	43.20	384.00
7	4	5.08	ED1905-ND	1.70	15.30	136.00
	6	10.16	ED1906-ND	2.55	22.95	204.00
5.08mm Lead Spacing – 45° Header						
8	2	5.08	ED1907-ND	.50	4.50	40.00
	3	10.16	ED1908-ND	.75	6.75	60.00
	4	15.24	ED1909-ND	1.00	9.00	80.00
	5	20.32	ED1910-ND	1.25	11.25	100.00
	6	25.40	ED1911-ND	1.50	13.50	120.00
	7	30.48	ED1912-ND	1.75	15.75	140.00
	8	35.56	ED1913-ND	2.00	18.00	160.00
	9	40.64	ED1914-ND	2.25	20.25	180.00
	10	45.72	ED1915-ND	2.50	22.50	200.00
	11	50.80	ED1916-ND	2.75	24.75	220.00
	12	55.88	ED1917-ND	3.00	27.00	240.00
	13	60.96	ED1918-ND	3.25	29.25	260.00
	14	66.04	ED1919-ND	3.50	31.50	280.00
	15	71.12	ED1920-ND	3.75	33.75	300.00
	16	76.20	ED1921-ND	4.00	36.00	320.00
	17	81.28	ED1922-ND	4.25	38.25	340.00
	18	86.36	ED1923-ND	4.50	40.50	360.00
	19	91.44	ED1924-ND	4.75	42.75	380.00
	20	96.52	ED1925-ND	5.00	45.00	400.00
	21	101.60	ED1926-ND	5.25	47.25	420.00
	22	106.68	ED1927-ND	5.50	49.50	440.00
	23	111.76	ED1928-ND	5.75	51.75	460.00
	24	116.84	ED1929-ND	6.00	54.00	480.00
Keying Star			ED1901-ND	.70	6.30	56.00
Keying Star			ED1902-ND	.70	6.30	56.00

* Use Keying Star ED1901-ND † Use Keying Star ED1902-ND

Terminal Blocks

SPECIFICATIONS: • **Rated Voltage:** 400V • **Rated Current:** 12A • **Temperature Range:** -30°C/+100°C • **Flame Class:** UL 94 V-O • **Color:** Green

Fig. 1

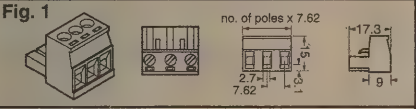


Fig. 2

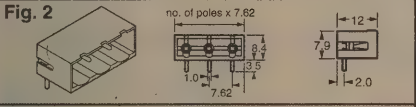


Fig. 3

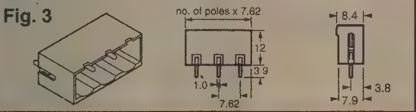


Fig.	No. of Poles	Block Length (mm)	Digi-Key Part No.	Pricing		
				1	10	100
1	2	15.24	ED1733-ND*	1.47	13.19	117.20
	3	22.86	ED1734-ND*	2.20	19.78	175.80
	4	30.48	ED1735-ND*	2.93	26.33	234.00
	5	38.10	ED1736-ND*	3.65	32.85	292.00
	6	45.72	ED1737-ND*	4.40	39.60	352.00
	7	53.34	ED1738-ND*	5.13	46.13	410.00
	8	60.96	ED1739-ND*	5.85	52.65	468.00
	9	68.58	ED1740-ND*	6.60	59.40	528.00
	10	76.20	ED1741-ND*	7.33	65.93	586.00
	11	83.82	ED1742-ND*	8.05	72.45	644.00
	12	91.44	ED1743-ND*	8.80	79.20	704.00
	14	106.68	ED1744-ND*	10.25	92.25	820.00
	16	121.92	ED1745-ND*	11.73	105.53	938.00
2	2	15.24	ED1865-ND†	.48	4.28	38.00
	3	22.86	ED1866-ND†	.71	6.41	57.00
	4	30.48	ED1867-ND†	.95	8.55	76.00
	5	38.10	ED1868-ND†	1.19	10.69	95.00
	6	45.72	ED1869-ND†	1.43	12.83	114.00
	7	53.34	ED1870-ND†	1.66	14.96	133.00
	8	60.96	ED1871-ND†	1.90	17.10	152.00
	9	68.58	ED1872-ND†	2.14	19.24	171.00

Fig.	No. of Poles	Block Length (mm)	Digi-Key Part No.	Pricing		
				1	10	100
2	10	76.20	ED1873-ND†	2.38	21.38	190.00
	11	83.82	ED1874-ND†	2.60	23.40	208.00
	12	91.44	ED1875-ND†	2.85	25.65	228.00
	14	106.68	ED1876-ND†	3.33	29.93	266.00
	16	121.92	ED1877-ND†	3.80	34.20	304.00
3	2	15.24	ED1878-ND†	.48	4.28	38.00
	3	22.86	ED1879-ND†	.71	6.41	57.00
	4	30.48	ED1880-ND†	.95	8.55	76.00
	5	38.10	ED1881-ND†	1.19	10.69	95.00
	6	45.72	ED1882-ND†	1.43	12.83	114.00
	7	53.34	ED1883-ND†	1.66	14.96	133.00
	8	60.96	ED1884-ND†	1.90	17.10	152.00
	9	68.58	ED1885-ND†	2.14	19.24	171.00
	10	76.20	ED1886-ND†	2.38	21.38	190.00
	11	83.82	ED1887-ND†	2.61	23.51	209.00
	12	91.44	ED1888-ND†	2.85	25.65	228.00
	14	106.68	ED1890-ND†	3.33	29.93	266.00
	16	121.92	ED1891-ND†	3.80	34.20	304.00
Keying Star			ED1901-ND	.70	6.30	56.00
Keying Star			ED1902-ND	.70	6.30	56.00

* Use Keying Star ED1901-ND † Use Keying Star ED1902-ND

VERO
VERO ELECTRONICS

VME Proto Equipment

Prototyping Boards

General Board Specifications: • Board type: Epoxy glass • Max. working temperature: 155°C • Nom. board thickness(inc. copper): 1,6mm • Copper thickness: 35µm

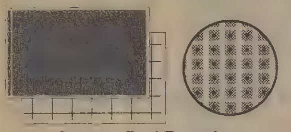
Square Pad Board: • DIN 41494 (KM6-II) compatible • DIN 41612 connector pattern up to 96/96 ways • Grid references to both sides of board to aid component layout and to assist wiring • Microbus backplane compatible • Voc & ØV rails can be daisy chained from post to post around board

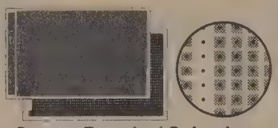
Square Pad Board w/ Colander Ground Plain: • Colander ground plane for maximum screening • Connector Pattern up to 96/96 ways • Grid references to both sides of board to assist in PCB layout • Microbus compatible

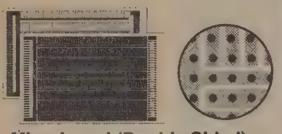
Microboard: • DIN 41494 (KM6-II) compatible • Medium packing density • DIN 41612 connector pattern, up to 64/96 ways, front and rear • Grid print to aid component layout • Microbus backplane compatible • 0V ground plane screen on double-sided board only

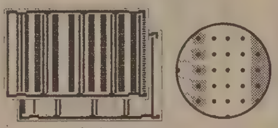
Plain Board: • Compatible with KM6 cardframes • For use with solder pins or wirewrap DIP sockets • DIN 41612 connector compatible • Grid printed for component reference

DIP Board: 0V and Vcc rail patterns duplicated on component side of board. • DIN 41612 or 41617 connector patterns • Grid print to aid component layout • Microbus backplane compatible • 100 x 160 Board material is SRBP


Square Pad Board


Square Board w/ Colander Ground Plain Pad


Microboard (Double Sided)


DIP Board

VME Universal Mating Code	Description	Board Dimensions	No. of Pads Width	Length	Digi-Key Part No.	Pricing Each	VERO Part No.
3U	Square Pad Board	100 x 160	34	54	233-1040-ND	19.00	03-0026J
6U	Square Pad Board	233.4 x 160	85	52	233-1041-ND	35.60	03-0111L
3U	Square Pad Board w/ Colander Ground Plane	100 x 160	34	54	233-1042-ND	22.30	03-2989L

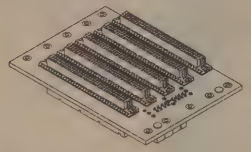
VME Universal Mating Code	Description	Board Dimensions	7.62 Pitch IC DIP rows/pads	15.24 Pitch IC DIP rows/pads	Digi-Key Part No.	Pricing 1	VERO Part No.
3U	Microboard, Double Sided	100 x 160	4/46	4/46	233-1043-ND	23.70	10-2845B
6U	Microboard, Double Sided	233.4 x 160	11/46	7/46	233-1044-ND	53.50	10-2846H
3U	Microboard, Single Sided	100 x 160	4/46	4/46	233-1045-ND	19.70	10-27563H
6U	Microboard, Single Sided	233.4 x 160	11/69	7/60	233-1046-ND	50.50	10-27564D
3U	DIP Board	100 x 160	4/32	3/32	233-1048-ND	14.80	10-1041J
6U	DIP Board	233.4 x 160	7/47	6/47	233-1049-ND	48.50	10-3183G

VME Universal Mating Code	Description	Board Dimensions	Row of Holes Width	Length	Digi-Key Part No.	Pricing Each	VERO Part No.
3U	Plain Board, Imperial Pitch	100 x 160	39	60	233-1047-ND	11.50	09-19082K

VMExcel Backplanes

VMExcel offers excellent performance characteristics in the key areas of controlled impedance, power distribution and termination design.

Features: • 6 layer stripline construction - J1 • 4 layer stripline construction - J2 • 57Ω characteristic impedance control • Patented earth guard track design • Excellent crosstalk performance • Low ground shift • Termination design features short stubs, decoupling capacitors and anti-crosstalk layout • Power connector: Mate 'N' Lok • A decoupling capacitor position is provided for each slot position permitting fine tuning of the backplane to match system parameters • Mate 'N' Lok connectors supplied (including mating connector) • On-board termination • With the exception of the following additional feature, the Monolithic enjoys the same construction and performance features as the J1 and J2 backplanes: • Power Bug on J1 backplane • Exception 5 slot has Faston Power Terminals on J1 backplane



Material Specifications:

Board: Epoxyglass fibre - FR4, Material thickness - 2.7mm nominal, Bare boards are UL94V-0 rated. File number E. 116551 **Connectors - Standard DIN 41612:** IEC 603-2 (DIN 41612) 96 way, Body material: glass filled polyester, UL94V-0 rated. **Temperature Range Working:** -20°C to +85°C **MTBF to MIL-HBK-217E:** >225000 hours

VME Universal Mating Code	No. of Slots	Digi-Key Part No.	Pricing Each	VERO Part No.
VME J1 Backplanes				
3U	[illegible]	233-1001-ND	209.00	243-411005D
3U	10	233-1002-ND	334.00	243-411010L
3U	21	233-1003-ND	573.00	243-411021F
VME J2 Backplanes				
3U	5	233-1004-ND	176.00	243-421005J
3U	10	233-1005-ND	299.00	243-421010E
3U	21	233-1006-ND	573.00	243-421021L
VME J1/J2 Monolithic Backplanes				
6U	5	233-1007-ND	353.00	243-431305B
6U	10	233-1008-ND	563.00	243-431110F
6U	12	233-1009-ND	637.00	243-431112B
6U	16	233-1010-ND	822.00	243-431116E
6U	21	233-1011-ND	967.00	243-431121A

* Backplane spacer strips required for all backplanes.

VMEbus Extender Boards

• Full ground plane plus individual signal track screening • Signal pin-out identification silk screened onto outer layers • Jumper links provided to allow signal line interrogation • Facility for logic analyser or terminator module connection • Card eject/support mechanism provided • Suitable for use in 160mm and 220mm depth systems and have been designed for card frame systems up to 280mm depth.

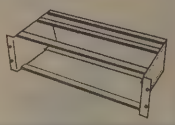
VME Universal Mating Code	Description	Back Plane Compatibility	Digi-Key Part No.	Pricing 1	VERO Part No.
3U	VMEJ1 Extender Card	J1	233-1012-ND	303.00	243-26487G
3U	VMEJ2 Extender Card	J2	233-1013-ND	303.00	243-26499H
6U	J1/J2 Conversoin Kit	J1/J2 Monolythic	233-1014-ND	16.20	188-27542E

KM6-II Universal Subrack Kit

• Strong and versatile • Two screw fixing of tie bars • Conforms to IEC 297-3 • Total versatility permits wide range of configurations • Accurate location for first time assembly • Rugged construction • Pre-tapped holes and machine screws throughout

Material Specification: • All extrusions: Aluminum alloy • End plates: 2 & 2.5mm aluminum • Tapped strips: MS zinc pass.

Contents of Kit: 2 End Plates, 2 End Plate Angles, 2 Front Extrusions, All Fixings, Assembly Instructions, Rear Tie Bars; 2-(3), 3-(6), Tapped Strips: Backplane Variants — 4-(3), 6-(6), DIN 41612 variants - 2



VME Universal Mating Code	Horizontal Pitch (HP)	Dimension (mm) Height	Width	Depth	Digi-Key Part No.	Pricing 1	VERO Part No.
3U	84HP	3U	84HP	240	233-1015-ND	68.50	950-202589L
3U	84HP	3U	84HP	300	233-1016-ND	71.00	950-223550K
3U	84HP	3U	84HP	360	233-1017-ND	76.00	950-202594G
6U	84HP	6U	84HP	240	233-1018-ND	102.00	950-202590D
6U	84HP	6U	84HP	300	233-1019-ND	110.00	950-223551H
6U	84HP	6U	84HP	360	233-1020-ND	121.00	950-202595E
6U	84HP	6U	84HP	420	233-1021-ND	152.00	950-202597A

Note: 1 HP = 5.08 mm spacing

Accessories

VME Universal Mating Code	Description	Digi-Key Part No.	Pricing 1	VERO Part No.
3U/6U	Card Guide for 160mm long x 1.6mm thick Eurocard	233-1022-ND††	4.30	950-232662J
3U/6U	Card Guide for 220mm long x 1.6mm thick Eurocard	233-1023-ND††	5.85	950-232663G
3U/6U	Backplane spacer strip, insulating, single level, 84HP	233-1024-ND†	1.70	950-10014H
3U/6U	Backplane spacer strip, insulating, two level, 84HP	233-1025-ND*	2.50	950-10015E

* Two level is used on center rear tie bars. One required for each J1/J2 monlythic backplane. † Two required for each J1, J2 and J1/J2 monolythic backplanes †† Card guides sold in package of 10

Diplomat 19" Cases

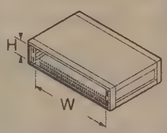
The Diplomat 19" cases are designed to provide stylish, robust, yet economical solutions for housing electronic systems. The standard cases are ideal for 19" equipment used in either office or industrial applications.

Features: • Conforms to IEC 297-1 and DIN 41494 • Quick release top and bottom covers • Painted in modern colour combination of light and mid grey • Side handle extrusions for portability • Bottoms include ventilation slots

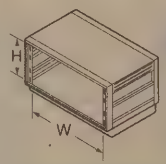
Contents of Kit: • 1 Top cover • 1 Bottom cover • 2 Handle extrusions • 2 Bezels • 2 Side extrusions (6U) • 2 Side infills (6U) • 4 feet (tilt up)

Material Specification: • Bezels, side extrusions, front trims, vertical feet bars — Aluminum alloy • Top and bottom rear panels side infills covers — 0.9mm Zintec covers, coated steel • Tilt Feet — ABS Plastic • Finish — Textured electrostatic epoxy • Colours — Top, bottom and side infill covers are light grey, all other parts are mid grey

Ventilation Plinth Versions: • Plinth bottom cover and top cover — 1.2mm Zintec vented coated steel • Plinth tray filter — Synthetic filter • Colours — Plinth tray, mid grey



3U Horizontal Case



6U Horizontal Case

VME Universal Mating Code	Overall Height	Overall Width	Dimensions in mm Ext Depth	Max Int Depth	Max Int Width	Inside Width (W)	Inside Height (H)	Digi-Key Part No.	Pricing 1	VERO Part No.
Standard Cases*										
3U	161.85	530	322	277	471	450	134.85	233-1026-ND	149.00	760-236562D
3U	161.85	530	422	377	471	450	134.85	233-1027-ND	163.00	760-236563B
3U	161.85	530	522	477	471	450	134.85	233-1028-ND	171.00	760-236564L
Ventilation Plinth Cases*										
6U	295.20	530	422	377	471	450	268.20	233-1029-ND	264.00	760-236586A
6U	295.20	530	522	477	471	450	268.20	233-1030-ND	298.00	760-236587K
6U	295.20	530	622	577	471	450	401.55	233-1031-ND	338.00	760-236590K

* Metric screws, cup washers and caged nuts required for all Diplomat cases.

VME Universal Mating Code	Description	Digi-Key Part No.	Pricing 1	VERO Part No.
Accessories				
3U	Transparent door for 19" Diplomat Case (Horiz. Hinge)	233-1032-ND	70.00	760-236827E
6U	Transparent door for 19" Diplomat Case (Vert. Hinge)	233-1033-ND	91.50	760-236829A
3U	Steel Rear Panel for 19" Diplomat Case Ventilation slots and rear cable tidy mounting holes	233-1034-ND	12.20	760-236623K
6U	Steel Rear Panel for 19" Diplomat Case Ventilation slots and rear cable tidy mounting holes	233-1035-ND	16.80	760-236625F
3U/6U	Earth Grounding Kit for KM6-II Diplomat Cases	233-1036-ND	11.90	60-54598H
3U	Heavy duty carry handle (Tiltable) for Diplomat Cases	233-1037-ND	45.80	60-202673L
3U/6U	M6 x 18mm screw and cup washer. Sold in packages of 10.	233-1038-ND	4.85	50-3965A
3U/6U	M6 14/16 SWG caged nut. Sold in packages of 10..	233-1039-ND	3.95	50-3966G

VECTOR
ELECTRONIC COMPANY

PLUGBOARDS

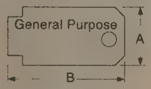
General Purpose Plugboards. • 44 Contact, 22 on each side, on 0.156" centers of 72 Contact, 36 on each side, on 0.100" centers • For soldering or wire wrapping • Holes on 0.1" grid .042" dia. (.043" on V1018 and V1029) • Ejector Holes • Plating: Gold/Nickel • Board Material: Epoxy Glass Composite.

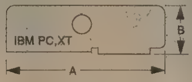
IBM PC, XT and AT Expansion Units. • Marked edge contact identification • Gold plated edge contacts on 0.1" centers • Power and ground buses terminate to connectors • Pads on board and bracket accepts DB9-, 15-, 25- or 37-Pin I/O connector • Accepts Vector's press-terminals for wiring and soldering • Holes are .042" dia. or 0.1" grid • 1/16" thick epoxy glass material, gold/nickel contacts • Universal mounting bracket and card guide incl. • Layout planning sheets and instructions incl. • Plugs into any IBM AT slot with dual connectors (AT unit only) • Pads for mounting dual, row 0.1" spaced header (AT unit only).

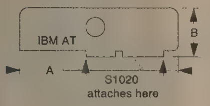
Commodore 64 Expansion Unit. • Interposed power and ground buses on wiring side • Hole marking legend provided on wiring side • Gold/Nickel plating, epoxy glass composite material, 1/16" thick.

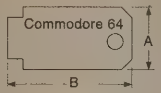
Circboards™ • .042" dia. holes on 0.1" grid • 1/16" (.062) thick, epoxy glass composite boards • Flame retardant • Etched copper patterns are solder plated.

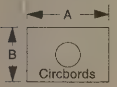
EISA • Accepts DIPs, PGAs, PLCC, most component geometries • Multilayer design ensures signal handling integrity • Mounting area for D-sub and ribbon header connectors • On-board I/O break out field at connector for circuit analysis • Solder coated

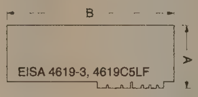


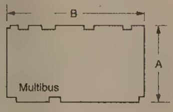


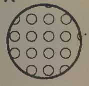


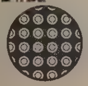


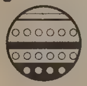


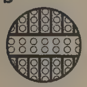


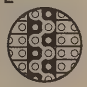


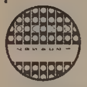
A


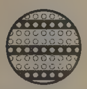
B1/B2


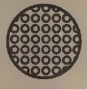
C


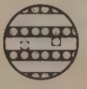
D


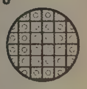
E


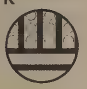
F


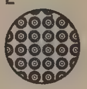
G


H


I


J


K


L


PC BOARD PATTERNS

A.	Contacts Only
B1.	Pad Per Hole W/ Buses
B2.	Pad Per Hole
C.	Buses Only
D.	3-Hole Solder Pad W/Buses
E.	3-Hole Solder Pad, Zig-Zag Buses & Ground Plane
F.	Voltage/GND Planes
G.	Interleaved Buses
H.	Clearance-Hole Ground Plane
I.	Voltage/Ground Planes
J.	Pad-Per-Hole
K.	3-Hole Solder Pad W/Buses
L.	Ground Plane 2 Sides, Pad-Per-Hole, PTH

PCB Pattern	Edge Contacts No.	Edge Contacts Spacing	Dim. A	Dim. B	16-Pin DIP Cap.	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 25	Accessories Connectors Solder Tail	Accessories Connectors Wire Wrap	Accessories Card Extender	Accessories Card Racks	Vector Part No.
General Purpose Plugboards														
A	44	.156	4.50	4.50	40	V1017-ND	14.65	139.10	329.50	V1062	V1063	V1024	V1050-52	3662-5
A			4.50	6.50	50	V1016-ND	18.65	177.10	419.50	V1062	V1063	V1024	V1050-52	3662
—			4.50	9.60	90	V1129-ND	20.06	190.60	451.25	V1062	V1063	V1024	V1050	3662-2
B1/B1			4.50	6.50	45	V1018-ND	38.20	362.90	859.50	V1062	V1063	V1024	V1050-52	3662-9
H			4.50	6.50	24	V1023-ND	24.06	228.60	541.25	V1062	V1063	V1024	V1050-52	3682-2
D			4.50	6.50	12	V1020-ND	21.34	202.80	480.25	V1062	V1063	V1024	V1050-52	3677-2
—			4.50	9.60	40	V1128-ND	34.38	326.60	773.50	V1062	V1063	V1024	V1050	4112
E			4.50	6.50	25	V1031-ND	28.77	273.30	647.25	V1062	V1063	V1024	V1050-52	4112-4
E			4.50	4.50	8	V1032-ND	26.67	253.30	600.00	V1062	V1063	—	—	4112-5
D			4.50	9.60	21	V1019-ND	24.06	228.60	541.25	V1062	V1063	V1080	V1053	3677
G			4.50	9.60	48	V1022-ND	30.69	291.50	690.50	V1062	V1063	V1080	V1053	3682
—			4.50	6.50	24	V1130-ND	33.38	317.10	751.00	V1062	V1063	V1024	V1050	3682-4
—			4.50	9.60	90	V1131-ND	31.79	302.00	715.25	V1062	V1063	V1024	V1050	3662A6
A	72	.100	4.50	6.50	50	V1027-ND	18.07	171.60	406.50	S1364	V1061	V1079	V1050-52	3719-1
B1			4.50	6.50	40	V1029-ND	41.67	395.90	937.75	S1364	V1061	V1079	V1050-52	3719-6
F			4.50	6.50	42	V1033-ND	34.69	329.50	780.50	S1364	V1061	V1079	V1050-52	4493
—			4.50	9.60	63	V1133-ND	42.71	405.70	961.00	—	V1061	V1143	V1053	4493-1
—			4.50	6.50	34	V1132-ND	26.57	252.40	597.75	S1364	V1061	V1024	V1050	4066-4
A			4.50	9.60	90	V1028-ND	24.06	228.60	541.25	S1364	V1061	V1079	V1053	3719-4
STD Bus														
D	56	.125	4.50	6.50	20	V1111-ND	31.79	302.00	715.25	S2284	—	V1115	V1050-52	4610V
A			4.50	6.50	59	V1112-ND	24.84	236.00	559.00	S2284	—	V1115	V1050-52	4610-1
G			4.50	6.50	35	V1113-ND	31.79	302.00	715.25	S2284	—	V1115	V1050-52	4610-2
B1/B2			4.50	6.50	52	V1114-ND	47.07	447.20	1059.00	S2284	—	V1115	V1050-52	4610-3
IBM* at ISA Expansion Units														
C	62	.100	13.23	4.20	84	V1036-ND	47.07	447.20	1059.00	S1314	—	V1025	—	4613-1
I			13.23	4.20	55	V1037-ND	63.60	604.20	1431.00	S1314	—	V1025	—	4613-2
B1			13.23	4.20	91	V1038-ND	63.60	604.20	1431.00	S1314	—	V1025	—	4613-3
D	62/36	.100	13.25	4.80	—	V1039-ND	63.60	604.20	1431.00	—	—	V1026	—	4617
C			13.25	4.80	108	V1040-ND	49.42	469.50	1112.00	—	—	V1026	—	4617-1
B1			13.25	4.80	—	V1041-ND	63.60	604.20	1431.00	—	—	V1026	—	4617-3
I	98	.100	13.25	4.80	140	V1137-ND	63.60	604.20	1431.00	—	—	—	—	4617-4
—	98	.100	13.25	4.80	140	V1138-ND	72.79	691.50	1637.75	—	—	—	—	4617-5
—	49/98	.100	5.56	.430	—	S1020-ND†	4.59	38.76	—	PCB Expansion Port Edge Card				
COMMODORE 64 Expansion Unit														
D	44	.100	2.73	4.50	4	V1030-ND	19.51	180.95	417.13	S1224	—	—	—	3795-1
CIRCBOARDS (Plugboard Patterns Without The Expense Of Edgeboard Connectors)														
D	—	—	4.50	6.50	20	V1044-ND	20.78	197.40	467.50	—	—	—	—	8001
G	—	—	4.50	6.50	35	V1045-ND	23.03	218.80	518.00	—	—	—	—	8002
J	—	—	4.50	6.50	60	V1046-ND	19.77	187.80	444.75	—	—	—	—	8003
H	—	—	4.50	6.50	50	V1047-ND	21.80	207.10	490.50	—	—	—	—	8004
B2	—	—	5.00	13.25	154	V1048-ND	38.20	362.90	859.50	—	—	—	—	8006
B2/I	—	—	4.50	6.50	60	V1049-ND	22.14	210.30	498.25	—	—	—	—	8007
D	—	—	4.50	8.08	21	V1021-ND	15.33	145.70	345.00	—	—	—	—	3677-6
J/J	—	—	4.50	8.08	80	V1034-ND	24.15	229.40	543.50	—	—	—	—	45P80-1
B2/B2	—	—	10.60	10.60	275	V1001-ND	59.56	565.80	1340.00	—	—	—	—	106P106-1
K	—	—	18.00	10.69	—	V1116-ND	129.31	1228.40	2909.49	—	—	—	—	106P180-4
B2/B2	—	—	12.86	4.00	124	V1117-ND	67.07	637.20	1509.00	—	—	—	—	8010
B2/B2	—	—	11.00	9.20	283	V1118-ND	57.30	544.30	1289.25	—	—	—	—	8012
EISA Prototyping Boards														
B1	188	.050	4.5	13.25	—	V1107-ND	160.65	1526.20	3614.76	—	—	V1108	—	4619-3
**	188	.050	4.5	13.25	—	V1109-ND	484.12	4599.20	10892.76	—	—	V1108	—	4619C5LF
—	188	.050	13.25	4.5	140	V1139-ND	122.35	1162.30	2752.75	—	—	—	—	4619-5
S-100, Multibus (Plugboard)														
K	43/86	.1/.156	12.00	6.75	54	V1094-ND	100.33	953.10	2257.50	—	—	V1095	—	4608
B2	50/100	.125	10.00	5.30	80	V1134-ND	53.44	507.70	1202.50	—	—	—	—	8801-6
A	50/100	.125	10.00	5.30	110	V1135-ND	43.97	417.70	989.25	—	—	—	—	8801-1
F	50/100	.125	10.00	5.30	—	V1136-ND	53.31	506.50	1199.50	—	—	—	—	8804

* IBM is a registered trademark of International Business Machines. Apple II & IIe are trademarks of Apple Computer, Inc. † Designates part is a Sullins product.
**Fully loaded with socket pins, ready for wire-wrap. .

VECTOR
ELECTRONIC COMPANY

PCI Developer's Kit

For fast development of adapter card to PCI bus.

Kit Contents (P/N V1165-ND): Four PC boards including: PCI board with the AMCC matchmaker chip, with memory and provisions for flash memory on board for actual software use; one ISA board for communicating with another computer (or the same computer); and two additional breadboards for development which mate to the Matchmaker board; Software for bus interface diagnostics and design configuration, and documentation books and quick reference guide.

P/N V1164-ND Features:
- Allows expanded space for circuit layout on a full-size PCI card.
- Allows use in Power PC Macintosh and PC formats.
- Contains AMCC Matchmaker chip, assembled and tested.
- Includes Software and documentation.

P/N V1163-ND Features:
- Multilayer board contains pad per hole patterns.
- Power and ground accessible throughout the board.
- For use in 5 Volt or 3.3 Volt applications.
- For use with Vector prototype accessories.

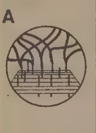
Description	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 25	Vector Part No.
PCI BUS, PCMCIA Prototype Kits					
PCI Plugboard +5V or 3.3V, Pad Per Hole, PTH	V1163-ND	135.34	1285.70	3045.25	4624-3
PCI Proto board w/AMCC Matchmaker Chipset (Includes software and documentation)	V1164-ND	296.00	2809.01	6653.76	4624-8
PCI Developers Kit w/AMCC Matchmaker Chipset (Includes software tools, chip and kit documentation)	V1165-ND	495.00	4702.50	11137.52	4624-10
PCI Extender Test Card 5V for 32 or 64 Bit	V1166-ND	225.00	2137.51	5062.50	3690-34-5V
PCI Extender Test Card 3.3V for 32 or 64 Bit	V1167-ND	225.00	2137.51	5062.50	3690-34-3V
PCMCIA Adapter Board Assembly	V1168-ND	103.45	982.80	2327.75	4625-1
PCMCIA Proto Board Kit 10"x7" Pad Per Hole	V1169-ND	125.00	1187.50	2812.50	4625-3
PCMCIA Extender Test Card Type I and II	V1170-ND	135.00	1282.50	3037.51	3690-35

VECTOR
ELECTRONIC COMPANY

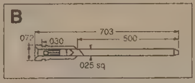
Circuit Board Accessories

Contacts slip on .025≤ squared wrap or pins. Contacts are tin plated, and offered in a reel of contacts wired together, "daisy-chain" style, to 28 gauge blue insulated wire. Each contact is spaced 5≤ apart. Sold in reels of 50.

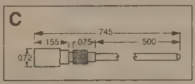
A



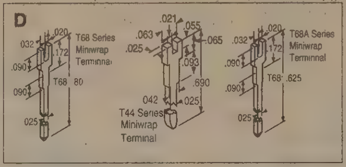
B

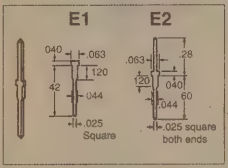


C

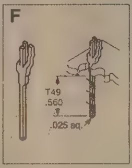


D

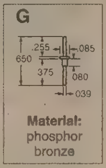




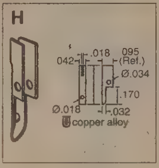
F



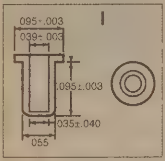
G



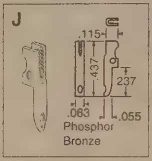
H



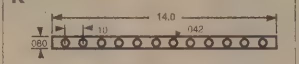
I



J

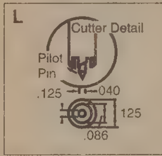


K



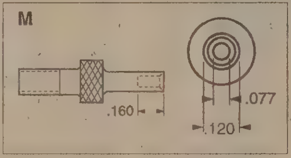
Install on circuit boards as an alternative to etched bus lines.

L

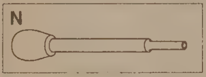


Makes insulating rings around pre-punched holes to insulate terminal points.

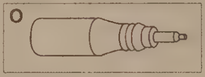
M



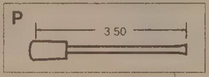
N



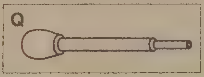
O



P



Q



R

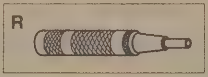
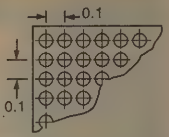


Fig.	Description	Pkg. Qty.	Digi-Key Part No.	Pricing 1	10	25	Vector Part No.
A	Slip-On contacts For Tab-To-Wire Connection	50	V1065-ND	112.07	1064.70	2521.50	T120-1/50
B	Lo-Profile IC Socket Pins For .055≤ Dia. Holes, Wrap Post	100	V1058-ND	22.63	215.00	509.25	R31/C
C	Lo-Profile IC Socket Pins For .042≤ Dia. Holes, Wrap Post	100	V1059-ND	22.63	215.00	509.25	R32/C
C	Lo-Profile IC Socket Pins For .042≤ Dia. Holes, Wrap Post	1000	V1060-ND	174.16	1654.50	3918.51	R32/M
D	T44 Series Bifurcated Miniwrap Term. With .025≤ Sq. Posts	100	V1071-ND	5.21	49.50	117.25	T44/C
D	T44 Series Bifurcated Miniwrap Term. With .025≤ Sq. Posts	1000	V1072-ND	34.32	326.10	772.25	T44/M
D	T68 Series Bifurcated Miniwrap Term. With .025≤ Sq. Posts	100	V1077-ND	6.12	58.10	137.75	T68/C
D	T68 Series Bifurcated Miniwrap Term. With .025≤ Sq. Posts	1000	V1078-ND	32.59	309.60	733.25	T68/M
D	T68A Series Miniwrap Terminal	1000	V1110-ND	45.33	430.60	1019.75	T68A/M
E1	Press-In Terminals With .025≤ Sq. Posts	1000	V1073-ND	48.52	460.90	1091.75	T46-4-9/M
E2	Press-In Terminals With .025≤ Sq. Posts	100	V1074-ND	7.97	75.70	179.25	T46-5-9/C
F	Trifuricated Klipwrap Terminals With .025≤ Sq. Posts	100	V1075-ND	8.45	80.30	190.00	T49/C
F	Trifuricated Klipwrap Terminals With .025≤ Sq. Posts	1000	V1076-ND	66.98	636.30	1507.00	T49/M
G	Inboard Pins For 1/16≤ Boards With .042≤ Dia. Holes, Gold	1000	V1054-ND	78.10	741.90	1757.27	K24A/M
G	Inboard Pins For 1/16≤ Boards With .042≤ Dia. Holes, Tin	1000	V1055-ND	44.88	426.30	1009.75	K24C/M
H	Micro-Klip Terminals For 1/16≤ Boards, .042≤ Dia. Holes, Tin	100	V1069-ND	5.07	48.20	114.00	T42-1/C
H	Micro-Klip Terminals For 1/16≤ Boards, .042≤ Dia. Holes, Tin	1000	V1070-ND	28.15	267.40	633.50	T42-1/M
—	J-Pin Terminals For .042 Dia. Holes (use with Micro-Klip)	100	V1171-ND	8.79	83.50	197.75	K32/C
—	J-Pin Terminals For .042 Dia. Holes (use with Micro-Klip)	1000	V1172-ND	56.30	534.90	1266.75	K32/M
I	Rolled Flange Eylet	500	V1066-ND	25.18	239.20	566.17	T123/500
J	Mini-Klip Term. For 1/16≤ Boards With .062≤ Dia. Holes, Tin	100	V1067-ND	6.25	59.30	140.50	T28/C
J	Mini-Klip Term. For 1/16≤ Boards With .062≤ Dia. Holes, Tin	1000	V1068-ND	34.76	330.20	782.00	T28/M
K	Bus Strips With Round Punched Holes	10	V1064-ND	7.51	71.30	168.87	T107/10
L	Pad Cutter Tool For Copper Clad Boards, Shank Handle	1	V1056-ND	17.20	163.40	387.00	P138A
L	Pad Cutter Tool For Copper Clad Boards	1	V1057-ND	16.29	154.80	366.50	P138C
N	Hand Insertion Tool for T44		V1098-ND	18.56	176.30	417.50	A13
N	Hand Insertion Tool for T68		V1099-ND	19.01	180.60	427.75	A13-1
O	Hand Insertion Tool for T49		V1100-ND	14.43	137.10	324.75	P156V
P	Hand Insertion Tool for T42-1		V1101-ND	9.47	89.90	213.00	P149V
Q	Hand Insertion Tool for K24A, T46		V1103-ND	14.44	137.20	325.75	P133A
R	Hand Insertion Tool for R31, R32		V1104-ND	86.21	819.00	1939.75	P158V
M	Die for R32 Socket Pins		V1106-ND	10.97	104.20	246.75	D9
—	Die for R31 Socket Pins		V1173-ND	11.08	105.30	249.25	D10

VECTOR
ELECTRONIC COMPANY

Prepunched Insulating Boards

- On .100" grid
- Epoxy glass, except as noted
- .062" thick except
‡V1122-ND .047" thick
‡V1123-ND .031" thick

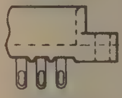


Dimensions (inches) Width	Length	Digi-Key Part No.	Pricing 1	10	25	Vector Part No.
Micro-Vectorboards — Holes .042" Diameter						
4.50	17.00	V1005-ND#	7.31	69.50	164.50	169P44XXXP
4.50	6.50	V1043-ND#	5.17	49.10	116.50	64P44XXXP
4.50	17.00	V1004-ND	9.79	93.00	220.25	169P44WE
8.00	17.00	V1007-ND	15.33	145.70	345.00	169P79WE
8.50	17.00	V1011-ND	18.65	177.10	419.50	169P84WE
8.50	17.00	V1012-ND*	24.06	228.60	541.25	169P84WEC1
4.50	6.50	V1042-ND	5.17	49.10	116.50	64P44WE
4.50	17.00	V1002-ND	9.32	88.60	209.75	169P44†
4.50	17.00	V1003-ND*	11.33	107.70	255.00	169P44C1†
8.00	17.00	V1006-ND	15.34	145.80	345.25	169P79†
8.50	17.00	V1008-ND	16.40	155.80	369.00	169P84†
8.50	17.00	V1009-ND*	22.67	215.30	510.00	169P84C1†
10.00	17.00	V1013-ND	22.07	209.60	496.50	169P99†
6.50	4.50	V1119-ND	5.17	49.10	116.50	64P44
4.50	8.50	V1120-ND	5.88	55.90	132.25	84P44WE
6.00	17.00	V1122-ND	13.96	132.60	314.00	169P59-047‡
6.00	17.00	V1123-ND	13.96	132.60	314.00	169P59-032‡
6.00	17.00	V1124-ND#	11.08	105.30	249.25	169P59XXXP
4.50	17.00	V1126-ND*	13.96	132.60	314.00	169P44WEC1
4.50	17.00	V1127-ND**	14.65	139.10	329.50	169P44C2
Vectorboard® — Holes .062" Diameter						
4.80	17.00	V1014-ND	11.25	106.80	253.00	170H48WE
8.51	17.00	V1015-ND	19.82	188.30	446.00	170H85WE
8.50	8.50	V1121-ND	12.33	117.10	277.25	85H85WE
4.80	8.50	V1125-ND	8.62	81.90	194.00	85H48WE
Vectorboard® — Holes .050" Diameter						
4.00	6.50	V1140-ND	41.38	393.10	931.00	126M76-032
4.00	17.00	V1141-ND	54.31	515.90	1222.00	336M76-032
4.00	17.00	V1142-ND	42.41	402.90	954.25	336M76-032C

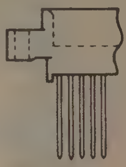
# Material: Phenolic. * Copper clad, 1 side. ** Copper clad, 2 side.
WE = Epoxy Glass. † Epoxy Glass Composite

Edgeboard Connectors For 1/16" Thick P.C. Boards

Solder Eyelet Type Insulator Material: Phenolic, UL-94V-0 or Glass filled diallyl; Phthalate UL-94V-1 or Ryton R10. **Wrap Tail Type Insulator Material:** Phenolic, UL-94V-0 or Glass filled diallyl; Phthalate UL-94V-1 or Polyester (VALOX) UL-94V-0. **Contact Material:** Phosphor bronze QQ-B-750 or Beryllium copper. **Contact Plating:** .000010≤ gold over .000050≤ nickel. **Test Voltage:** 650 VAC. **Rated Current:** 3 AMPS. **Contact Res. Drop: 30 Mv Max** @ rated current. **Insulation Resistance:** 5000 megohms, mon. @ 500 VDC.



Solder-Eye



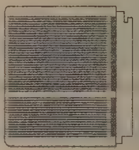
Wire-Wrap

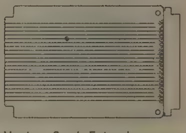
Ctrs.	No. Of Contacts	Termination Type	Mounting Ears	Digi-Key Part No.	Pricing 1	10	25	Vector Part No.
.100	72	Wrap Tail	Center	V1061-ND†*	12.62	119.90	284.00	R636-1
.156	44	Solder Eye	Flush	V1062-ND††	8.62	81.90	194.00	R644
.156	44	Wrap Tail	Center	V1063-ND†*	7.89	75.00	177.50	R644-3

† Supplied with between-contact polarizing key. * Wrap Tail: 3-level, .025" Sq.
†† Supplied with between-contact polarizing key and in-contact polarizing key.

Card Extenders

Current rating: 5A @ 108F temp. rise; Voltage rating: 200 RMS or 300 VDC. Circuit contacts are gold/nickel plated .000010≤ gold over .000050≤ nickel. Connector contacts: Gold inlay .000030≤ thick, on CA725 copper/nickel alloy base. Board: epoxy glass composite - 2 oz. copperclad or FR4 per MIL-P-13949.



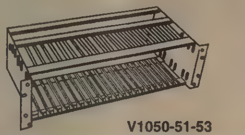


Vector Card Extenders are specifically designed to provide in-system testing of functioning circuit boards.

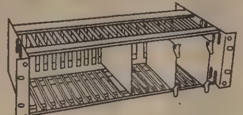
Total	Contacts Ea. Side	Ctrs.	Dimensions(in.) Width	Height	Bus System Application	Digi-Key Part No.	Pricing 1	10	Vector Part No.
44	22	.156	4.50	6.50	—	V1024-ND	31.50	299.30	3690
44	22	.156	4.50	11.00	RCA Consoc	V1080-ND	41.06	390.10	3690-6
36/62	18/31	.100	6.70	5.60	IBM AT	V1026-ND	61.23	581.60	3690-26
62	31	.100	3.18	5.70	IBM PC	V1025-ND	41.76	396.80	3690-22
72	36	.100	4.50	7.50	—	V1079-ND	61.37	583.00	3690-4
72	36	.100	4.50	11.50	—	V1143-ND	52.95	503.00	3690-2
60/86	30/43	.1/.156	12.00	7.65	Multibus I	V1095-ND	83.64	794.60	3690-18
188	94	.050	6.70	5.60	EISA	V1108-ND	224.72	2134.80	3690-32
56	28	.125	4.50	6.50	SDTI	V1115-ND	41.17	391.10	3690-16
100	50	—	—	7.50	S-100	V1144-ND	60.65	576.10	3690-12

Card Racks/Back Planes

Designed in accordance with EIA standard, these 19" subracks are compatible with Vector prototyping boards. All racks are ajustable in both height and depth and can be used with snap-in, plastic or metal card guides. Available in kit form (CCK) or fully assembled (CCA) all models feature brushed aluminum construction with a full line of prototyping boards, extenders and backplanes available.



V1050-51-53



V1052

Card Size Range Width	Height	Size (inches) Height	Depth	Width	Guide Mounting Method	Material	Digi-Key Part No.	Pricing 1	10	Vector Part No.
3.00-5.00	4.5	5.25	9.00	19.00	Snap-In	Nylon	V1145-ND	97.71	928.20	CCK12S/90
5.50-7.00	4.5	5.25	9.00	19.00	Snap-In	Nylon	V1052-ND	98.18	932.72	CCK13S/90
5.50-7.00	4.5	5.25	9.00	19.00	Snap-In	Nylon	V1051-ND	120.44	1144.20	CCA13S/90
5.50-7.00	4.5	5.25	9.00	19.00	Riveted	Zinc	V1050-ND	138.82	1318.80	CCA13M/90
5.50-7.00	4.5	5.25	9.00	10.25	Snap-In	Nylon	V1146-ND	78.75	748.10	CCA13S-H/90
5.50-7.00	4.5	5.25	9.00	19.00	Snap-In	Nylon	V1147-ND	322.46	3063.40	CCK13S-16/90
8.60-10.1	4.5	5.25	12.00	19.00	Snap-In	Nylon	V1053-ND	125.48	1192.00	CCA14S/90
8.60-10.1	8	8.75	12.00	19.00	Snap-In	Nylon	V1148-ND	157.50	1496.30	CCA17S/90
4.0-8.50	10.0	12.25	9.00	19.00	Snap-In	Nylon	V1149-ND	133.13	1264.80	CCK100S/90

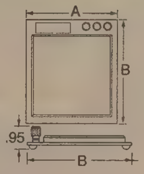
Description	(inches) Width	Length	Plugboard Series	Digi-Key Part No.	Pricing 1	10	Vector Part No.
8 Slot CCK13 Series Back Plane	4.35	7.00	4610	V1096-ND	190.34	1808.20	4610-8-1A
16 Slot CCK13 Series Back Plane	4.35	13.00	4610	V1097-ND	242.55	2304.20	4610-16-1A

Description	Length (inches)	Digi-Key Part No.	Pricing 1	10	Vector Part No.
Handle w/Hardware for Card Racks (5.25" & 8.75" height)	—	V1161-ND	11.17	106.10	HA12
Ejector Handle w/Hardware for Cards (4 pcs bag)	—	V1162-ND	5.12	48.60	HA9/4
Card Guide, Plastic Screw Mount (Pkg. of 12)*	2.89	V1151-ND	18.09	171.80	CG2-45P
Card Guide, Nylon Snap-In Mount (Pkg. of 12)*	3.17	V1150-ND	10.97	104.20	CG2-45S
Card Guide, Nylon Snap-In Mount (Pkg. of 12)*	5.42	V1152-ND	10.16	96.50	CG2-65S
Card Guide, Plastic Screw Mount (Pkg. of 12)*	5.42	V1153-ND	12.33	117.10	CG2-65P
Card Guide, Metal Screw Mount (Pkg. of 12)*	5.42	V1154-ND	15.63	148.50	CG2-65M
Card Guide, Nylon Snap-In Mount (Pkg. of 12)*	6.93	V1155-ND	14.22	135.10	CG2-80S
Card Guide, Plastic Screw Mount (Pkg. of 12)*	6.93	V1156-ND	24.09	228.80	CG2-80P
Card Guide, Metal Screw Mount (Pkg. of 12)*	6.93	V1157-ND	27.14	257.80	CG2-80M
Card Guide, Nylon Snap-In Mount (Pkg. of 12)*	8.43	V1158-ND	12.33	117.10	CG2-95S
Card Guide, Plastic Screw Mount (Pkg. of 12)*	8.14	V1160-ND	18.72	177.80	CG2-95P

* Note: 1 pkg = 12 pieces.

3M A•C•E Board™

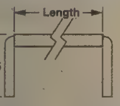
Solderless Breadboards



FEATURES: • 0.1" x 0.1" solderless tie point matrix accepts all DIP sizes and a wide variety of discrete components with lead diameters up to .032" • Capacities range from 610 to 5424 tie points • Accommodate from 6 to 54, 14 pin DIPs • Separate distribution bases for power, ground and signal lines • Molded alphanumeric grid for faster, easier tie point identification • Circuit elements are easily connected with #22 AWG solid wire • Strip bodies are constructed of durable Acetal Copolymer with Alloy 688 terminals • Durable baseplates keep boards stationary during use and help to minimize noise and voltage spikes in today's high speed circuits.

AxCxE Model	DIP Capacity (Size)	Base Dims.(In.) A	B	Total Tie Points	Total 5-Tie Point Term.	Binding Posts	Digi-Key Part No.	Pricing
354	54(14-Pin)	14.69	9.75	5424	768	4	922354-ND	85.82
345	45(14-Pin)	12.44	9.75	4520	640	4	922345-ND	77.23
336	36 (14-Pin)	10.25	9.25	3648	512	4	922336-ND	57.48
327	27 (14-Pin)	8.0	9.25	2712	384	4	922327-ND	38.59
318	18 (14-Pin)	7.75	6.25	1824	256	3	922318-ND	30.01
309	9 (14-Pin)	7.0	4.0	840	128	3	922309-ND	16.27
306	6 (14-Pin)	5.4	4.0	610	94	2	922306-ND	11.12

3M Breadboard Jumper Wire Kit

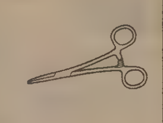


- 350 wires • 14 different lengths
- Wire is stripped • Leads bent 907
- Length is classified by color coding
- Wire is solid tinned 22 gauge
- PVC insulation.

923351-ND **$21.18**

Replacement Wire				
923351-ND Jumper Wire Kit 25 each of 14 different lengths.				
Length (In.)	Qty./Pkg.	Color	Digi-Key Part No.	Price/ Pkg.
0.1	200	(No Insulation)	923345-01-ND	$4.78 per Package
0.2	200	Red	923345-02-ND	
0.3	200	Orange	923345-03-ND	
0.4	200	Yellow	923345-04-ND	
0.5	200	Green	923345-05-ND	
0.6	150	Blue	923345-06-ND	
0.7	150	Violet	923345-07-ND	
0.8	150	Gray	923345-08-ND	
0.9	150	White	923345-09-ND	
1.0	100	Brown	923345-10-ND	
2.0	100	Red	923345-20-ND	
3.0	75	Orange	923345-30-ND	
4.0	75	Yellow	923345-40-ND	
5.0	75	Green	923345-50-ND	

5 1/2" Straight-Tip Hemoclamp/Hemostat



Professional grade hemo made of 410 A.I.S.I. stainless steel. Hand finished and polished. Hand serrated for extra gripping power. Has 3, not 2 locking positions.

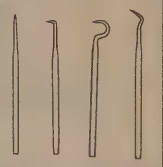
ATM01-ND **$4.95**

Curved-Tip Hemoclamp/Hemostat

Professional grade hemo made of 410 A.I.S.I. stainless steel. Hand finished and polished. Hand serrated for extra gripping power. Has 3, not 2 locking positions.

ATM02-ND **$4.95**

4-Piece Probe Set



Forged from 420 A.I.S.I. stainless steel. Set includes four probes and a plastic (vinyl) pouch.

ATM03-ND **$7.88**

3M Super Strips & Circuit Strips

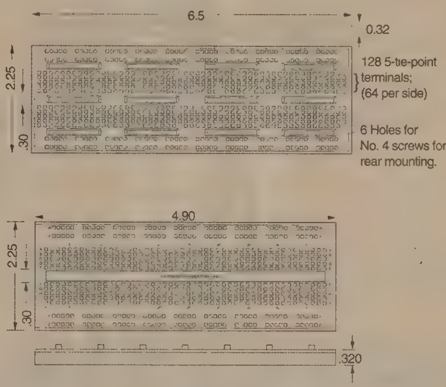
Universal Breadboarding Elements With Solderless Plug-In Tie Points

As with all solderless breadboarding units from 3M, components simply plug-in and are interconnected with ordinary solid hook-up wire; #22 AWG is recommended.

All sizes of DIPs and discrete components with lead diameters up to .032" can be accommodated.

These handy strips may be permanently mounted with the integral non-shorting instant-mounting backing, or for quick removal, they may be mounted with screws on panels up to 1/8" thick.

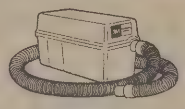
Hardware and mounting templates are provided with every strip.


6.5
0.32
2.25
.30
128 5-tie-point terminals; (64 per side)
6 Holes for No. 4 screws for rear mounting.
4.90
2.25
.30
.320

SPECIFICATIONS		
	SUPER-STRIP	CIRCUIT-STRIP
Size:	2.25" x 6.50" x .32"	2.25" x 4.90" x .32"
Plug-In Tie-Points:	840	610
Materials: Body	Acetal Copolymer	Acetal Copolymer

SUPER-STRIP			CIRCUIT-STRIP		
Terminals	Part No.	Price	Terminals	Part No.	Price
Alloy 770	923252-ND	19.25	Alloy	923253-ND	13.94
Gold (10m)	923748-ND	39.69	Gold (10m)	923749-ND	24.94

3M Electronics Vacuum & Accessories



Vacuum comes complete with Hose, 32" - 10 ft., Wand, Crevice Tool, Crevice Tool Brush, Dusting Brush, Needle Nozzle, 3 year warranty.

Options: Shoulder strap with shoulder pad.

Specifications: Electrical: 115 VAC, 50/60Hz, 5.0 amps. **Dimensions:** Length: 17.80" (45.2cm). Width: 7.75" (19.7cm). Height: 9.25" (23.5cm). Weight: 9 lbs. 14 oz. **Motor:** 1HP, continuous duty, thermally protected with automatic reset. Conducted RFI filtered (reduces EMI to be below FCC requirements).

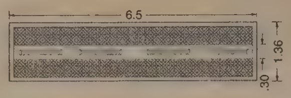
Filter: Type 1 Small Particle: For trapping extremely fine particles. Typical applications color laser printers, color copiers and highly sensitive equipment. **Type 2 Medium Particle:** Designed to trap unwanted toner from copiers and laser printers, cleaning typewriters and data processing equipment. **Type 3 Common Dust:** Designed to trap dust and larger particles such as lint and cotton fibers. Ideal for cleaning computers and paper shredders, card punches, collating machines, printers and general cleaning.

Description	Digi-Key Part No.	Pricing 1	10	3M Part No.
Electronic Vacuum Cleaner 115 Vac	SCP148-ND	213.75	1995.00	SV-MODEL497AJM
Carrying Strap with Shoulder Pad	SCP149-ND	7.48	69.83	SV-CS1
Type 1 Filter, Small Particle	SCP150-ND	30.82	287.68	SV-SPF1
Type 2 Filter, Medium Particle	SCP151-ND	14.66	136.86	SV-MPF2
Type 3 Filter, Common Dust	SCP152-ND	10.86	101.35	SV-CDF3

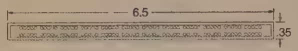
3M

Terminal & Distribution Strips

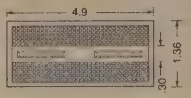
A



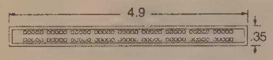
B



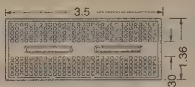
C



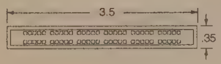
D



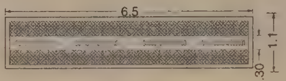
E



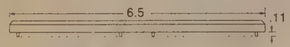
F



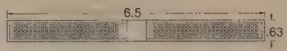
G



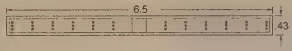
H



I



J



K

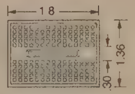
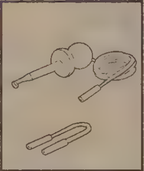


Fig. No.	Description	Digi-Key Part No.	Price 1
A	Terminal Strip, 128 five-tie-point terminals	923261-ND	13.57
B	Distribution Strip, 24 four-tie-point terminals	923277-ND	3.35
C	Terminal Strip, 96 five-tie-point terminals	923265-ND	10.79
D	Distribution Strip, 18 four-tie-point terminals	923281-ND	3.12
E	Terminal Strip, 68 five-tie-point terminals	923269-ND	7.90
F	Distribution Strip, 24 four-tie-point terminals	923285-ND	3.02
G	Terminal Strip, 128 four-tie-point terminals..............	923289-ND	12.44
H	Terminal Strip, 54 four-tie-point terminals with solder tails, vinyl backed, mounting screws provided	923292-ND	9.65
I	Terminal Strip, 54 four-tie-point terminals	923291-ND	6.75
J	Distribution Strip, 36 four-tie point terminals............	923293-ND	4.88
K	Terminal Strip, 34 five-tie-point terminals	923273-ND	4.48

3M Patch Cords & Accessories



Compatible with 3M breadboards, terminal strips, super-strips, distribution strips, test clips, miniature 8-pin connectors and .025" square wrap posts.

• Ideal for breadboarding and troubleshooting. • Incorporate #26 AWG stranded wire with PVC insulation. • Rugged, integral strain relief. • Choices of two pin sizes (.019" and .030") and two socket sizes (.019" - .028" and .028" - .035") and E-Z Hook terminations.

ASSORTMENT A (20 Pieces) — 9 pieces 2" long yellow, 6 pieces 4" long blue, 3 pieces 6" long red, 2 pieces 9" long black.

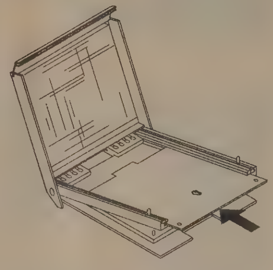
ASSORTMENT B (10 Pieces) — 5 pieces 15" long red, 5 pieces 15" long black.

Pin/Socket Size	Color/Length Assortment	Pieces /Pak	Recommended Applications	Digi-Key Part No.	Price Per Pak
			Pin Plug to Pin Plug		
.019	Assortment A	20	IC Sockets	924961-ND	36.64
.030	Assortment A	20	A P hardware	924962-ND	34.96
			Socket to Socket		
.019/.028	Assortment A	20	Extension for .019 Pin Plug	924963-ND	48.84
.028/.035	Assortment A	20	TC to TC, TC to .025 square post	924964-ND	48.84
			Pin Plug to Socket		
.019 (.019/.028)	Assortment A	20	IC socket to .019 Pin Plug	924965-ND	39.74
.030 (.028/.035)	Assortment A	20	A P hardware to TC, .025 sq. post	924966-ND	39.74
			Pin Plug to E-Z Hook		
.019	Assortment B	10	IC socket to TC, .025 sq. post. etc.	924967-ND	37.94
.030	Assortment B	10	A P hardware to TC, .025 post, etc.	924968-ND	37.94
			Socket to E-Z Hook		
.019/.028	Assortment B	10	.019 Pin Plug to TC, .025 sq. post, etc.	924969-ND	42.28
.028/.035	Assortment B	10	TC, .025 post to TC, .025 post, etc.	924970-ND	42.28

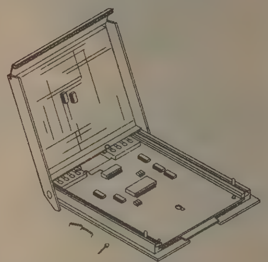
PLATFORM • SYSTEMS • INC ©

Ultimate Prototyping Tool

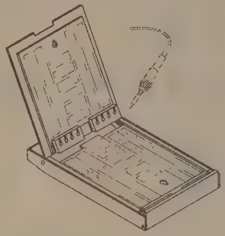
The Electronic Network Designer is a tool for the prototyping of electronic circuits. It is composed of a base matrix of high quality nickel silver connector clips, over which a printed circuit board is aligned. The designer prototypes the circuit through the board, using the clips to make the connections until the circuit is tested and ready for soldering. The circuit is soldered before being removed from the unit, and the painstaking process of transposing to a hard wired system is eliminated.



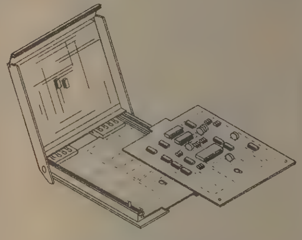
1. The circuit board is inserted and held in place.



2. Components are inserted into the matrix to create the circuit.



3. When completed, the product is turned over and all connections are soldered and trimmed.



4. The completed circuit board can then be removed from the product.

Product Features:

Compact Functional Design:

• Unit can be closed (with the circuit in process) for storage or transport. • Fits in a briefcase. • Conductive foam inside cover for safe storage of components. • All-metal chassis construction for durability.

Improved Layout of Working Area

10244-ND:

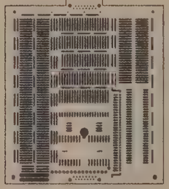
• Three separate working areas, two vertical, on horizontal. • Connection strips in rows of six (conventionally five). • 3,400 connection points. • 14 vertical buses. • 8 binding posts, accepts banana plug connectors. ***Dimensions:*** 7.75"x11.00"x1.25" - Circuit Board: 6.875"x8.00"x0.031".

10251-ND:

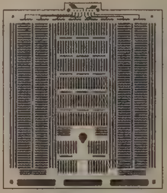
• Two vertical working areas. • Connection strips in rows of 6 (conventionally 5). • 2,154 connection points. • 11 vertical buses. • 4 binding posts, accepts banana plug connectors. ***Dimensions:*** 5.00"x10.00"x 1.30" - Circuit Board: 4.06"x6.840"x0.031"

Time Saving:

• The E.N.D. patented system can save hours in the production of prototypes and short run or custom circuits.



10247-ND



10245-ND & 10246-ND

10252-ND

Description	Digi-Key Part No.	Price Each	Mfg. Part No.
Electronic Network Designer with 3,400 connection points. (includes CB01AYF)	10244-ND	144.99	ED01NAA
Double sided, gold plated repacement circuit board for ED01NAA	10245-ND	35.00	CB01AYF
Single sided, solder plated replacement............... circuit board for ED01NAA	10246-ND	19.50	CB02BYE
Double sided, gold plated repacement circuit board........ for ED01NAA. (with 31 position card edge connector) ...	10247-ND	40.00	CB01AYG
44 Pin PLCC socket adaptor for ED01NAA	10248-ND	30.00	SM44A02
52 Pin PLCC socket adaptor for ED01NAA	10249-ND	32.00	SM52A02
68 Pin PLCC socket adaptor for ED01NAA	10250-ND	34.00	SM68A02
Electronic Network Designer with 2,154 connection points. (includes CB22BYH)................	10251-ND	114.99	ED22NDC
Single sided, solder plated replacement circuit board for ED22NDC	10252-ND	14.95	CB22BYH

Injectorall Electronics

Copper Clad Boards

Note: All boards are made from FR4 material

Dimensions	Digi-Key Part No.	Price Each	Mfg. Part No.
1/16" Thick Single sided, 1 oz			
3 X 4.5	PC5-ND	2.78	PC5
4 X 6	PC6-ND	4.36	PC6
6 X 6	PC6-S-ND	5.58	PC6-S
6 X 9	PC7-ND	8.36	PC7
12 X 12	PC7-T-ND	17.61	PC7-T
12 X 18	PC8-ND	26.39	PC8
18 X18	PC8-E-ND	34.07	PC8-E
1/16" Thick Single sided, 2 oz			
3 X 4.5	PC9-ND	2.82	PC9
4 X 6	PC10-ND	4.48	PC10
6 X 6	PC10-S-ND	5.98	PC10-S
6 X 9	PC11-ND	8.95	PC11
12 X 12	PC11-T-ND	19.91	PC11-T
12 X 18	PC12-ND	29.85	PC12
18 X 18	PC12-E-ND	37.92	PC12-E
1/16" Thick Double sided, 1 oz			
3 X 4.5	PC40-ND	3.83	PC40
4 X 6	PC41-ND	6.06	PC41
6 X 6	PC41-S-ND	8.16	PC41-S
6 X 9	PC42-ND	12.88	PC42
12 X 12	PC42-T-ND	21.91	PC42-T
12 X 18	PC43-ND	32.85	PC43
18 X 18	PC43-E-ND	41.12	PC43-E
1/16" Thick Double sided, 2 oz			
3 X 4.5	PC51-ND	4.20	PC51
4 X 6	PC52-ND	6.70	PC52
6 X 6	PC52-S-ND	9.06	PC52-S
6 X 9	PC53-ND	13.59	PC53
12 X 12	PC53-T-ND	25.61	PC53-T
12 X 18	PC54-ND	38.40	PC54
18 X 18	PC54-E-ND	49.18	PC54-E
1/32" Thick Single sided, 1 oz			
3 X 4.5	PC55-ND	2.10	PC55
4 X 6	PC56-ND	3.92	PC56
6 X 6	PC56-S-ND	4.66	PC56-S
6 X 9	PC57-ND	7.00	PC57
12 X 12	PC57-T-ND	14.03	PC57-T
12 X 18	PC58-ND	21.04	PC58
18 X 18	PC58-E-ND	26.41	PC58-E
1/32" Thick Double sided, 1 oz			
3 X 4.5	PC44-ND	2.92	PC44
4 X 6	PC45-ND	4.58	PC45
6 X 6	PC45-S-ND	6.23	PC45-S
6 X 9	PC46-ND	9.33	PC46
12 X 12	PC46-T-ND	15.58	PC46-T
12 X 18	PC47-ND	23.37	PC47
18 X 18	PC47-E-ND	29.22	PC47-E
1/32" Thick Double sided, 2 oz			
3 X 4.5	PC64-ND	4.20	PC64
4 X 6	PC65-ND	6.70	PC65
6 X 6	PC65-S-ND	9.06	PC65-S
6 X 9	PC66-ND	13.59	PC66
12 X 12	PC66-T-ND	25.61	PC66-T
12 X 18	PC67-ND	38.40	PC67
18 X 18	PC67-E-ND	49.18	PC67-E

Drill Bits

Dimension	Digi-Key Part No.	Pricing 1	10	Mfg. Part No.
High Speed Steel				
.062" Diameter	PC300-52-ND	1.52	11.03	PC300-52
.052" Diameter	PC300-55-ND	1.68	12.21	PC300-55
.040" Diameter	PC300-60-ND	1.68	12.21	PC300-60
.033" Diameter	PC300-66-ND	1.68	12.21	PC300-66
.029" Diameter	PC300-69-ND	2.17	15.79	PC300-69
.021" Diameter	PC300-75-ND	2.17	15.79	PC300-75
.0135" Diameter	PC300-80-ND	2.17	15.79	PC300-80
Carbide (*All carbide bits have 1/8" shank)				
.062" Diameter	PC300C-52-ND*	8.33	72.89	PC300C-52
.040" Diameter	PC300C-60-ND*	6.80	59.50	PC300C-60
.033" Diameter	PC300C-66-ND*	6.80	59.50	PC300C-66
.031" Diameter	PC300C-68-ND*	6.80	59.50	PC300C-68
.029" Diameter	PC300C-69-ND*	6.80	59.50	PC300C-69
.021" Diameter	PC300C-75-ND*	10.81	94.59	PC300C-75
.0135" Diameter	PC300C-80-ND*	10.81	94.59	PC300C-80

TONER TRANSFER SYSTEM

by DynaArt Designs

Make instant circuit boards using any laser printer or photocopier!

NO DARKROOM!
NO NEGATIVES!
NO CHEMICALS!
NO LOST TIME!

Simple 3-Step Process . . .

1) Print circuit layout directly to TTS paper.
2) Iron the image to copper-clad board.
3) Soak in water to remove paper

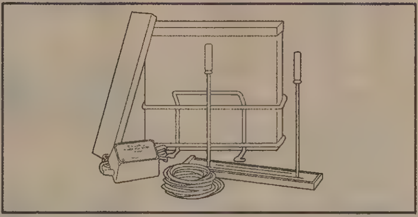
. . . now ready to etch!

- Detailed instructions included for making single & double sided pcb's
- Also shows how to make custom full color decals for any application
- Available in 5 and 10 sheet packs — sheet size: 8-1/2" x 11"

TTS-5-ND (5 sheet pack) **$14.95**
TTS-10-ND (10 sheet pack) **$27.95**

G.C. Electronics

Professional PC Board Power Etching System



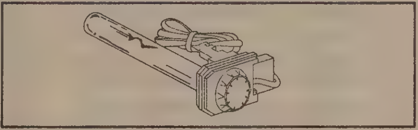
A semi-automatic etching device for use in labs, schools, prototype shops and for limited PC board production. Air pump agitates etching solution for fast, very even etches. Handles up to two 8" X 10" PC boards at a time, either single or double sided.

Kit contains:

- 1 Etching Tank and Reservoir Lid
  (12"H X 2 1/2"W X 10 1/2"L),
  (Molded Polyethylene — ABS PC Board Holder)
  Capacity — 1.25 Gallons of Etching Solution.
- 1 Etch-O-Matic Power Agitating Pump, 120V AC Operation
- 1 Permanent or Portable Tip-Free Base
- 1 PC Board Holder and Handle
- 4 Feet of Supply Hose

GC394-ND **$106.70**

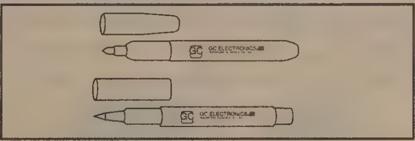
Etching Solution Heater



Fits in tank and heats solution up to 38°C (100°F). Used to further reduce etching time. Built-in adjustable thermostat controls temperature continuously to 100°F. 120V AC/100 W Max.

GC392-ND **$22.75**

Etch Resist Ink Pens



Black felt tip pen for making resist circuits directly on PC boards. Dries instantly for neat, easy application.

GC220-ND (Std. Size - draws lines approx. 1/32" wide) **$3.63**
GC222-ND (Fine Line - draws lines as thin as 1/64" wide) **$4.53**

DATAK Corporation

Direct Etch Transfer

Description	Digi-Key Part No.	Price 1	Datak Part No.
15 Pin D-Sub (12), 25 Pin D-Sub (12)	DE-51-ND	2.00	DE-51
37 Pin D-Sub (8), 50 Pin D-Sub (6)	DE-52-ND	2.00	DE-52
.125 edge card (62), .156 edge card (50)	DE-54-ND	2.00	DE-54
.100 Edge Card (156)	DE-55-ND	2.00	DE-55
TO-99 (20), TO-100 (18), TO-77 (20)	DE-58-ND	2.00	DE-58
Assort. pak, 8 sheets, 2 tapes (1/8", 1/16")	ER-2-ND	8.50	ER-2
Master Assort. Pak, 69 sheet (through-hole & smd ICs, pads, lines, card edge, d-subs)	DE-973-ND	29.70	DE-973
Ball Stylus and Burnisher	04158-ND	4.30	04158

PCBoards

System Requirements:

Microsoft™ Windows: Version 3.1 or greater, Windows 95
Graphics: EGA, VGA, SVGA
Printers: Any printer supported with Windows™ driver
Memory: 4M or greater
Mouse: Windows™ compatible required

*Microsoft and Windows are trademarks of Microsoft Corporation

NEW! SuperTools for Windows™

Features:

- **Schematic Capture:** SuperCad schematic program and autorouter included
- **Visually Cued Command Entry:** pull-down menus, dialog boxes, toolbar buttons
- **On-Line Help Manual:** pull-down HELP menu, corresponding help topic selection
- **Draw-to-Fit and Zoom Operations:** display entire layout, zoom any portion to normal size
- **Object Entry Commands:** entry of traces, pads, rectangles, ellipses, text
- **Graphics Edit Commands:** copy, move, rotate, stretch, erase, single and group edits
- **Advanced Editing Features:** rubberbanding, snap modes, auto-increment text
- **Routing:** point to point and incremental
- **Board Layers:** Single and double sided boards with solder mask and silk screen
- **Board Size/Resolution:** 8" x 16" boards, specify dimensions/traces down to 1 mil
- **Flexible Artwork Output:** dot-matrix, laser, postscript, plotter, Gerber file format output
- **Library Support:** Dip, PGA, surface mount, discretes, format library parts from drawings
- **Library:** 1500 schematic/component library parts with parts editor/build utility

PCBD1-ND **$399.00**

NEW! SuperTools Plus for Windows™

Includes all of the PCBoards SuperTools Features with the Following Additions:

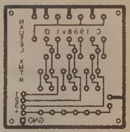
- **SuperCad Schematic Plus:** schematic layout/capture, netlist conversion, autowire and autoplacement utilities
- **Built-in Autorouter:** point to point, incremental, batch routing (1-16 layers)
- **Large Boards/High Resolution:** 32" x 32" boards, specify dimensions/traces to 1 mil
- **Multiple Circuit Layers:** up to 16 layers plus silk screen and solder mask layers
- **Library:** 5000 schematic/component library parts with parts editor/build utility

PCBD2-ND **$649.00**

PCBoards

Board Layout Software

An Effective and Low-Cost Software Tool for Creating Printed Circuit Artwork



PCBoards printed circuit layout software is ideal for creating high quality pcb artwork for your electronic projects. Its low cost and ease-of-use make it perfect for professional and hobbyist applications.

FEATURES: • Supports EGA, VGA, and Super VGA • Copper Flooding for Building Ground Planes • Gerber and Exellon Output • Mirror Imaging for Laser and Deskjet Printers • Autorouter Included in DOS Plus Version • DOS Plus Version Accepts Netlists • Positive and Negative Artwork Printouts • Single or Double Sided Boards up to 6" x 13" or 8" x 16" for Windows Version • 0.05 Grid/Snap (0.01 to 0.05 for Windows Version) • 1X Laser Output - Ideal for use with Toner Transfer System • Menu Driven • Help Screens • Silk Screen Layer • Parts Library • Point A-B Routing in Windows Version

DOS System Requirements: • IBM PC or Compatible • DOS 3.0 or later. • 640K minimum RAM

Windows System Requirements: • Windows ver. 3.0 or later • 1Meg Memory

PCBL-ND (3.5" disk) **$99.00**
PCPL-ND (with autorouter, 3.5" disk) **$198.00**
PCWN-ND (3.5" disk) **$198.00**

SURFBOARDS™ by CAPITAL ADVANCED TECHNOLOGIES INC.™

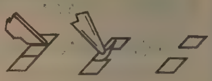
The Breadboarding Medium for Surface Mount

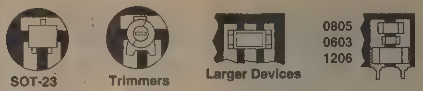
The Surfboard Concept: The concept behind SURFBOARDS is elegantly simple. Many models incorporate foil patterns that are designed to accommodate a wide variety of component mounting footprints. SURFBOARD models for S.O.I.C.s and P.L.C.C.s provide standard mounting footprints for the I.C. and depending on the model chosen, will include a prototyping area for additional components or provide a direct pin-out. Most SURFBOARD models feature S.I.P. (single in line) pins that make prototyping and interfacing with other circuits easy.

Specifications: • Material: G-10 FR-4 Fiberglass laminate, 1oz. Cu. .032". Thickness ±.005" • Finish: Level 60/40 Solder alloy. • S.I.P. Pins: On applicable models. Soldered on .100" centers. Surfboards can be hand soldered, and are compatible with most industrial soldering processes. (Suggested soldering and assembly guidelines included).

Simple Modifications Expand Versatility

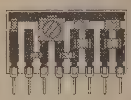
1. Score foil with sharp razor knife.
2. Lightly rub area to be removed with soldering iron tip causing foil section to delaminate for easy removal.
3. New location ready for part.



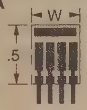


The universal circuit patterns allow for the mounting of 0603, 0805, 1206, and mini-melf packages as well as a wide variety of 3 terminal devices.

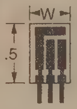
6000 Series for Discrete Devices for building Resistor Networks / Capacitor Networks / R-C Networks / Diode Arrays / Transistor Arrays / S.M.D. Sub-Assemblies



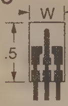
A



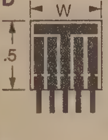
B



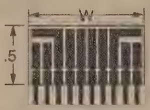
C



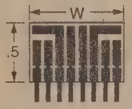
D



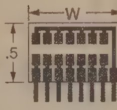
E



F



G

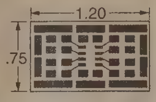


SURFBOARDS with a greater pin count repeat the same basic pattern as shown.

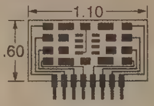
Fig. No.	No.of Pins	Dim. "W"	Digi-Key Part No.	Price 1	10
SURFBOARDS™ for Discrete Components					
A	4	.4	6004CA-ND	1.49	14.15
A	6	.6	6006CA-ND	1.79	17.00
A	7	.7	6007CA-ND	1.99	18.91
A	8	.8	6008CA-ND	2.19	20.80
A	10	1.0	6010CA-ND	2.69	25.56
A	12	1.2	6012CA-ND	3.19	30.31
B	3	.3	6103CA-ND	1.29	12.26
B	6	.6	6106CA-ND	1.79	17.01
B	9	.9	6109CA-ND	2.29	21.75
B	12	1.2	6112CA-ND	3.19	30.31
B	15	1.5	6115CA-ND	3.69	35.06
D	5	.5	6405CA-ND	1.69	16.06
D	10	1.0	6410CA-ND	2.69	25.56
D	15	1.5	6415CA-ND	3.69	35.06
E	10	1.0	6510CA-ND	2.69	25.56
E	20	2.0	6520CA-ND	4.49	42.65
F	8	.8	6808CA-ND	2.19	20.80
F	16	1.6	6816CA-ND	3.59	34.11
G	8	.8	6908CA-ND	2.19	20.80
G	16	1.6	6916CA-ND	3.59	34.11
SURFBOARDS™ for SOT-89					
C	3	.3	6303CA-ND	1.29	12.26
C	6	.6	6306CA-ND	1.79	17.01
C	9	.9	6309CA-ND	2.29	21.75

Master Assortment Kit for Discretes:
The MK-6000 assortment contains 2 each of all 23 models in the 6000 series of surfboards for discrete components.
MK-6000CA-ND 99.00

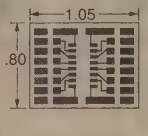
H



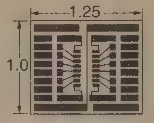
I



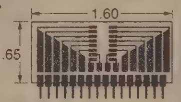
J



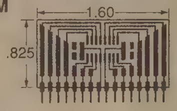
K



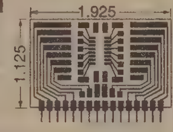
L



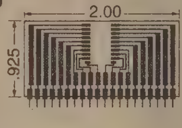
M



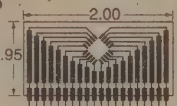
N



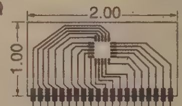
O



P



Q



9000 Series for ICs:
• Build Prototype Circuits • Evaluate I.C.s Easily • Build Circuit Upgrades • Adapt SMD to Thru-Hole

Fig. No.	Digi-Key Part No.	Price 1	10
8 Pin SOIC			
H	9081CA-ND	1.39	13.20
I	9082CA-ND	3.59	34.11
16 Pin SOIC			
J	9161CA-ND	1.79	17.00
K	9162CA-ND	1.89	17.96
L	9163CA-ND	5.49	52.16
M	9164CA-ND	5.69	54.05
N	9165CA-ND	5 99	56.90
20 Pin (.300 Wide)			
O	9210CA-ND	6 49	61.66
20 Pin PLCC			
P	9301CA-ND	6.49	61.66
Q	9302CA-ND	6.49	61.66

Master Assortment Kit for IC's:
The MK-9000 contains 5 each of models 9081, 9082, 9161, 9162, and 2 each of models 9163, 9164, 9165, 9210, 9301, and 9302 for a total of 32 pieces.
MK-9000CA-ND **99.00**

CAPITAL ADVANCED TECHNOLOGIES INC.™

UNI-SIP™

UNIVERSAL SINGLE-IN-LINE PACKAGE

Single-In-Line Universal Boards for Thru-Hole Components

Miniature Breadboard Modules feature pins on .100 Centers

Offer useful hole patterns and pad designs
Greatly increase packaging density

Compatible with standard breadboards, sockets, and solderless breadboards using .1 centerlines

From simple networks and component arrays to I.C. circuits using up to .600 wide Dips, UNI-SIP breadboards offer the perfect packaging solution for building both prototype and production thru-hole circuit modules.

Use a solderless breadboard to test your idea, use a UNI-SIP breadboard to "KEEP IT".

Specifications: • **Board Material:** G-10 FR-4 Glass Epoxy • **Thickness:** .032 + -.005 • **Foils:** Solder coated 1 oz. copper 1-side • **Holes:** .036 Diameter + -.003 • **Pins:** .1 centers + -.004. • **Pin Length:** .130 + =.010 Pins are soldered in position • **Board Tolerances:** + -.015 Typ. Overall (all dimensions are in inches)

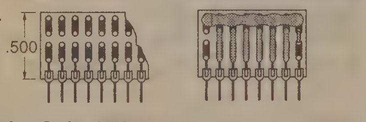


Fig. A — Series 1000
Available in 6, 7, 8, 9, and 10 pin models. Excellent for prototype or production circuits.

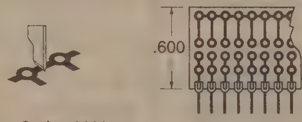


Fig. B — Series 2000
Available in 6, 7, 8, 10, and 12 pin models. Foil modifications expand layout options.

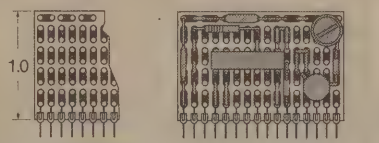


Fig. C — Series 3000
Available in 8, 10, 12, and 14 pin models. For general use applications where compatibility with a large number of device sizes is desirable. Features 2 holes per pad on a .100 matrix.

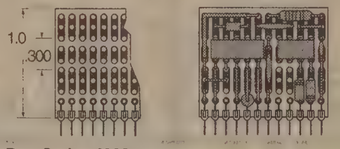


Fig. D — Series 4000
Available in 7, 8, 10, 12, 14, and 16 pin models. Make selection based on signal connections required. Example: 8 pin model can support 1-16 pin Dip, with 8 signal lines (pins).

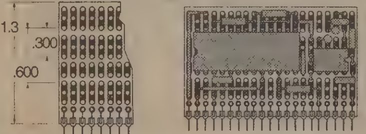


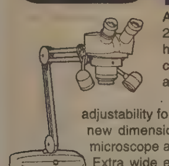
Fig. E — Series 5000
Available in 8, 10, 12, 14, 16, and 20 pin models. Center lines for .300 and .600 Dips. 20 pin model can hold 1-40 pin Dip with 20 signal lines to input/output pins.

Fig. No.	No. of Pins	Board Width	Digi-Key Part No.	Pricing 1	10	Mfg. Part No.
1000 Series for Basic Networks and Component Arrays						
A	6	.6	1006CA-ND	.79	7.51	US-1006
A	7	.7	1007CA-ND	.89	8.45	US-1007
A	8	.8	1008CA-ND	.99	9.41	US-1008
A	9	.9	1009CA-ND	1.09	10.35	US-1009
A	10	1.0	1010CA-ND	1.19	11.30	US-1010
2000 Series Accepts Components on .1, .2, .3, or .4 Centers						
B	6	.6	2006CA-ND	.89	8.45	US-2006
B	7	.7	2007CA-ND	.99	9.41	US-2007
B	8	.8	2008CA-ND	1.09	10.35	US-2008
B	10	1.0	2010CA-ND	1.39	13.21	US-2010
B	12	1.2	2012CA-ND	1.59	15.11	US-2012
3000 Series for Higher Density General Purpose Application						
C	8	.8	3008CA-ND	1.49	14.16	US-3008
C	10	1.0	3010CA-ND	1.79	17.00	US-3010
C	12	1.2	3012CA-ND	2.09	19.85	US-3012
C	14	1.4	3014CA-ND	2.39	22.70	US-3014
4000 Series Accepts DIPS on Standard .300 Centerline						
D	7	.7	4007CA-ND	1.29	12.25	US-4007
D	8	.8	4008CA-ND	1.49	14.16	US-4008
D	10	1.0	4010CA-ND	1.79	17.00	US-4010
D	12	1.2	4012CA-ND	2.09	19.85	US-4012
D	14	1.4	4014CA-ND	2.39	22.70	US-4014
D	16	1.6	4016CA-ND	2.69	25.56	US-4016
5000 Series Accepts Standard .300 or .600 Centerline DIPS						
E	8	.8	5008CA-ND	1.69	16.06	US-5008
E	10	1.0	5010CA-ND	1.99	18.91	US-5010
E	12	1.2	5012CA-ND	2.39	22.70	US-5012
E	14	1.4	5014CA-ND	2.69	25.56	US-5014
E	16	1.6	5016CA-ND	2.99	28.41	US-5016
E	20	2.0	5020CA-ND	3.69	35.05	US-5020

Master Assortment Kit for UNI-SIP:
The MK260CA Assortment contains 2 each of all 26 types in the UNI-SIP Series, packaged in reclosable bags grouped by series number.
MK260CA-ND **$79.00**

LUXO LAMPS & ACCESSORIES

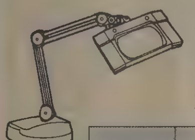
MicroLux Microscope



A system that finally addresses Ergonomics in the workplace. Meets Mil standard 2000, D0D 2000 and WS 6536E. Luxo's MicroLux Microscope System features high quality, precision microscopes combined with Luxo's patented "K" arm. This combination produces a microscope system permitting the user more comfort and more flexibility than any system before. It was designed with the user in mind . . . wide range of magnification, excellent lighting, easy to use and infinite adjustability for maximum user comfort. The MicroLux Microscope System from Luxo will add a new dimension to today's workplace environment. Luxo has selected a 10X - 20X stereo microscope as its standard magnification device. Good depth of field maintains work in focus. Extra wide eyepiece to provide a large field of view. Comes standard with 10X extra wide eyepiece, eye-guards and cover glass to protect lens from fumes and scratches. A full complement of eyepieces, shields, amplifying lenses and mounting accessories. Luxo's MicroLux Microscope System features Luxo's patented, infinitely adjustable "K" arm. Construction of 20 gauge cold rolled steel. Heat treated springs assuring long lasting balancing of arm. Available with a choice of edge clamp, permanent surface bracket or table top weighted base. Backed by a 3-yr. mechanical warranty. Luxo's MicroLux Microscope System has several methods of illumination. Dual 5 watt halogen lights mounted on the flexible necks allowing full adjustability depending on job and operator. Comes with two low-voltage halogen, adjustable lamps (5 watt).

Arm	Mount	Digi-Key Part No.	Price	Luxo Part No.
26"K	Weighted base	L602LB-ND	1484.41	18205
26"K	Clamp bracket	L601LB-ND	1414.17	18200

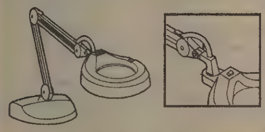
Wave® Series Magnifiers 3-DIOPTER LENS



The Luxo Wide Angle Viewing Enlargement system with stadium shaped lens offers the largest distortion-free viewing area in the industry. Magnification 3/4X: Focal length: 13"; viewing area: 6 3/4". ABS molded housing. Independently switched, energy-efficient, long-life compact fluorescent lamps offer both shadow-free dual light two-dimensional and single light three-dimensional viewing. (7W PL Compact Bulb)

Arm	Mount	Digi-Key Part No.	Price	Luxo Part No.
45"K	Clamp bracket (A)	L805LG-ND	379.48	17805LG
30"K	Clamp bracket (A)	L806LG-ND	379.48	17806LG
30"K	Weighted base (FE)	L807LG-ND	429.76	17807LG

KFM Series Magnifiers

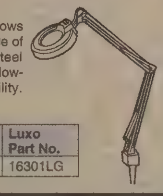


KFM's multi-lens capability offers a wider range of distortion-free magnification than any other magnifier. KFM's patented internal spring arm offers perfect balance and full adjustability to an infinite number of positions. There are no knobs to tighten, nothing to adjust. The 5" diameter lenses are mounted in die-cast aluminum housing. Comes with a 22W energy-efficient fluorescent bulb which provides cool, shadow-free illumination. (22W T-9 Bulb)

Lens Type	Arm	Mount	Color	Digi-Key Part No.	Price	Luxo Part No.
3d	45"K	Clamp brkt (A)	Black	L225B-ND	237 74	17113BK
3d	45"K	Clamp brkt (A)	Lt. Gray	L225LG-ND	237.74	17113LG
5d	45"K	Clamp brkt (A)	Black	L230B-ND	253.29	17115BK
5d	45"K	Clamp brkt (A)	Lt. Gray	L230LG-ND	253.29	17115LG
3d	30"K	Weighted base (FE)	Black	L235B-ND	303.57	17253BK
3d	30"K	Weighted base (FE)	Lt. Gray	L235LG-ND	303.57	17253LG

IFM Series

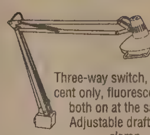
Full size 5" 3 diopter lens provides distortion free 3/4 power magnification. Lens allows a generous 13" (focal length) work area between lens and objects. 9" shade is made of tough, mar-resistant cycolac, and is reinforced at neck and back with heavy steel plate. Comes with an energy-efficient 22W circular fluorescent lamp for cool, shadow-free illumination (22W T-9 Bulb). 5-tube L-arm offers a full range of adjustability. Perfect balance maintained by individually calibrated, tempered-steel springs.



Lens Type	Arm	Mount	Color	Digi-Key Part No.	Price	Luxo Part No.
3d	45"L	Clamp brkt (A)	Lt. Gray	L301LG-ND	160.03	16301LG

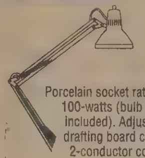
Ledu Task Master Series

C12D Series



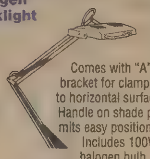
Three-way switch, incandescent only, fluorescent only, or both on at the same time. Adjustable drafting board clamp.

UN12D Series



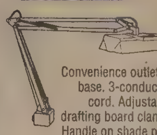
Porcelain socket rated for 100-watts (bulb not included). Adjustable drafting board clamp. 2-conductor cord.

L554 Series Halogen Worklight



Comes with "A"-bracket for clamping to horizontal surfaces. Handle on shade permits easy positioning. Includes 100W halogen bulb

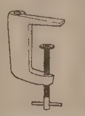
DF12D Series



Convenience outlet in base. 3-conductor cord. Adjustable drafting board clamp. Handle on shade permits easy positioning.

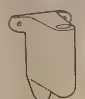
Arm	Mount	Color	Digi-Key Part No.	Price	Luxo Part No.	Luxo Series
42"L	Clamp Bracket (D)	White	L120WT-ND	155.61	L012WT	C12D
42"L	Clamp Bracket (D)	Black	L120BK-ND	155.61	L012BM	C12D
42"L	Clamp Bracket (D)	White	L121WT-ND	148.64	L512WT	DF12D
42"L	Clamp Bracket (D)	Black	L121BK-ND	148.64	L512BK	DF12D
42"L	Clamp Bracket (D)	White	L122WT-ND	80.81	L112WT	UN12D
42"L	Clamp Bracket (D)	Black	L122BK-ND	80.81	L112BK	UN12D
42"L	Clamp Bracket (A)	Black	L123BK-ND	151.62	L554BK	L554

A-clamp bracket for edge-mounting on horizontal surfaces.



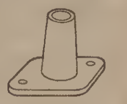
L501BK-ND Black
L501LG-ND Lt. Gray
$11.90 ea.

B-wall bracket for permanent mounting on vertical surface.



L503BK-ND Black
L503LG-ND Lt. Gray
$11.90 ea.

C-bracket for permanent mounting on horizontal surface.

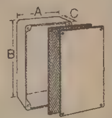


L505BK-ND Black
L505LG-ND Lt. Gray
$11.90 ea.

Replacement Bulbs

Description	Digi-Key Part No.	Price	Luxo Part No.
22 Watt T-9 Bulb	L540-ND	14.63	31640
15 Watt T-8 Bulb	L541-ND	12.80	31641
7 Watt PL Compact	L536-ND	18.75	34436
5 Watt Halogen Lamp	L577-ND	16.17	34977

KEYSTONE Instrument Boxes

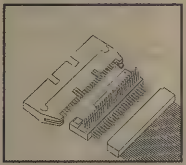


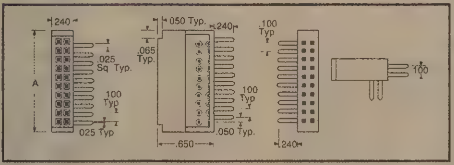
Panels: Mount flush inside of Case, holes drilled in panel positioned for the inserts.
Phenolic Panel: 3/32≤ thick glossy black MIL-P-3115C.
Aluminum Panel: .055 thick, #5052-H34 per QQ 318 C.
Boxes: Precision molded with rounded outside corners, and 6/32x3/16≤ deep threaded Brass inserts imbedded in each cover.

Dimensions			Case Only		Black Phenolic Panel Only		Aluminum Panel Only	
A	B	C	Part No.	Price	Part No.	Price	Part No.	Price
2.88	3.94	1.44	703K-ND*	1.96	2042K-ND	.56	2044K-ND	.89
2.88	3.94	1.44	705K-ND*	1.80	2042K-ND	.56	2044K-ND	.89
3.06	5.88	2.25	704K-ND*	4.57	2043K-ND	.93	2045K-ND	1.45
3.75	6.25	2.00	700K-ND	4.43	2037K-ND	1.40	2046K-ND	1.31
5.25	6.75	2.31	701K-ND	8.12	2038K-ND	2.08	2047K-ND	1.94
7.38	8.38	3.00	702K-ND	14.13	2039K-ND	4.53	2048K-ND	4.34

*703 & 704 have 4-40 tapped hole in each corner - no brass. 705 mounting holes untapped - Use #4 self tapping screw.

3M Intra-Connector™

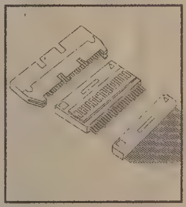


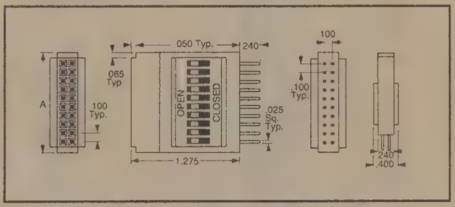


When you wanted to test for a problem that might lie on the circuit board or in the cable, you had a problem. Inaccessible? Not with a 3M ESP Intra-Connector(TM) system. The Intra-Connector mates in-line with standard double row socket connectors. It has one set of female contacts, but two sets of male contacts at right angles. So, it provides instant line-by-line "probe-ability." The pins can also be used to make daisy chaining possible from a single connector cable end. Modified configurations are quickly available for special connections. The Intra-Connector system provides both straight-in and right angle functions. It mates with a standard .10" x .10" dual row connector or PC board-mounted .025" square pins. Two Intra-Connector systems used with the Intra-Switch(TM) system form a complete test assembly for probing signals under no load and full-load conditions. Contacts are non-corrosive Alloy 770; body is glass-filled polyester thermo-plastic.

No. of Contacts	Dim. "A"	Digi-Key Part No.	Price
20	1.160	922576-20-ND	10.34
26	1.460	922576-26-ND	11.92
34	1.860	922576-34-ND	13.87
40	2.160	922576-40-ND	15.47
50	2.660	922576-50-ND	16.94
60	3.160	922576-60-ND	20.10

3M Intra-Switch™





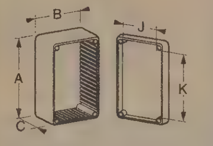
There are a lot of complicated, time consuming ways to interrupt a signal line on an assembly — some may even be damaging to your PC board. But there's one easy way; Intra-Switch(TM) from 3M ESP. Simply by inserting the Intra-Switch(TM) connector between mating system connectors you have instant line-by-line switching. The low profile design and recessed switch buttons give you room to work in confined areas. Using a pencil or probe tip, any or all switches may be actuated. Applications include switching command signals to or from test equipment and programming optional preset logic functions. Switch buttons are recessed to prevent accidental switching. "Open" and "closed" positions are clearly marked, molded-in the body. Contacts are non-corrosive Alloy 770; body is glass-filled polyester thermoplastic. Intra-Switch is compatible with most sockets and mating headers for flat cable, including 3M, T&B/Ansley, Berg, Amp, Symbex and many others.

No. of Contacts	Dim. "A"	Digi-Key Part No.	Price
20	1.160	922578-20-ND	15.52
26	1.460	922578-26-ND	17.85
34	1.860	922578-34-ND	20.79
40	2.160	922578-40-ND	23.10
50	2.660	922578-50-ND	27.01

HAMMOND
MANUFACTURING™

Plastic & Aluminum Enclosures

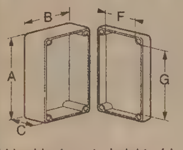
Fig. A



Lid adds 4mm to height of box. For Dimensions A, B, & C, See Charts Below.

Part No.	"J"	"K"
1591L	1.34	2.48
1591A	1.10	3.07
1591B	1.57	3.54
1591C	1.62	3.86
1591D	2.28	5.04
1591E	3.46	6.61
1591G	2.80	3.86
1591H	1.89	5.63
1591S	2.36	3.46
1591T	2.28	3.86
1591U	3.85	3.86
1591V	3.85	3.86

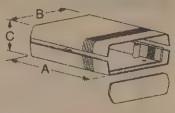
Fig. B

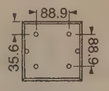


Lid adds 4mm to height of box. For Dimensions A, B, & C, See Charts Below.

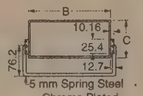
Part No.	"F"	"G"
1590A	0.84	2.96
1590B	1.74	3.75
1590BB	2.92	3.89
1590C	2.86	3.86
1590D	3.89	6.59
1590E	3.82	6.56
1590F	6.59	6.59
1590LB	1.34	1.34
1590S	2.53	3.60
1590T	2.42	3.95
1590U	3.85	3.85
1590V	3.85	3.85

Fig. C



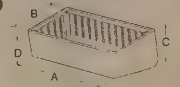


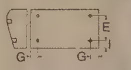
Example of Digi-Key part no. 1598E mounting bosses.



Example of case with optional tilt handle.

Fig. D

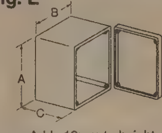




Aluminum Lid and Rubber Feet Included

Part No.	D	E	G	I
1595C	1.56	2.45	.86	.40
1595E	2.031	3.35	.86	.40

Fig. E



Cover Adds 12mm to height.

Fig. F

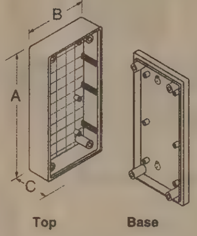


Fig. G

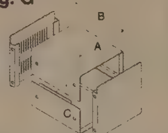


Fig. H

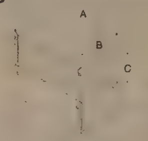


Fig. I

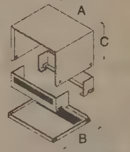


Fig. J

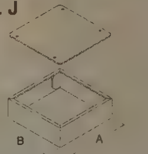


Fig. K

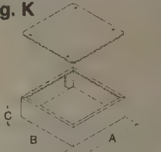
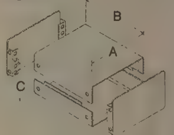


Fig. L



Plastic Instrument Enclosures - 1591 Series (Fig. "A"): Available in both High Impact Polystyrene (black) and in Flame Retardant ABS (black, blue, or light grey). Economical styrene versions come with four self-tapping #4 x 1/2" flat head screws countersunk into the lid. ABS versions carry a UL flammability rating of 94V-0 at 1.47mm thickness and a continuous use temperature rating of 60°C. ABS versions come with M3 x .5 x 10mm Philips head screws, countersunk lid, and integral tapped brass bushings. Both versions have interlocking flanged lid and integral card guides to accept .062" PC cards.

Diecast Aluminum Enclosures - 1590 Series (Fig. "B"): Drilled and tapped with lid and four 6-32 x 1/2 countersunk Philips screws. Interlocking flanged lid provides complete RF shielding.

Plastic Instrument Cases - 1598 Series (Fig. "C"): Available in both Flame Retardant ABS (black or light grey) and High Impact Polystyrene (light grey). Both versions have a matte textured finish, .064" thick brushed aluminum front and rear panels, integral horizontal PC board mounts on Eurocard centers, front and rear vertical PC board slots. Both versions accept optional tilt handles. ABS versions carry a UL flammability rating of 94V-0 and are secured with M3 x .5 x 10mm Philips head screws into integral brass bushings. Styrene versions are secured with #4 x 1/2" self-tapping screws.

Plastic Hand Held Cases - 1599 Series (Fig. "F"): Available in both High Impact Polystyrene (light grey) and Flame Retardant ABS (black or light grey). Both versions have these features: attractively styled and ergonomically designed for use as a hand held enclosure; ends sized for infra-red applications; extra deep top and ultra shallow base; two piece lap joint construction; recessed top area ideal for membrane display; internal universal battery compartment; user friendly 10mm x 10mm reference grid is molded into the top interior; six PC board mounting bosses molded into both the top and the base; vertical mounting slots molded into the top for PC boards or optional dividers. ABS versions carry UL flammability rating of 94V-0 and are secured with integral tapped brass bushings. Styrene versions are secured with self-tapping screws.

Plastic Instrument Boxes - 1594 Series (Fig. "E"): Available in both High Impact Polystyrene (light grey) and Flame Retardant ABS (black or light grey). Both versions feature lap joint construction, interlocking flange on lid, and a rugged and robust design.

Plastic Instrument Consoles - 1595 Series (Fig. "D"): Available in Flame Retardant ABS (black or light grey) which meets UL 94V-0 flammability tests. Unique sloped front design comes with 0.04" thick brushed aluminum front panel, four self-adhesive rubber feet, and four M3 x .5 x 10mm machine screws threaded into integral brass bushings. Integral card guides accept .062" PC boards. Base has four internal 0.20" stand-off bosses.

***NEW!* Ventilated High Profile Instrument Cases - 1401 Series (Fig. G):** 20 gauge steel case finished in satin off-white. 0.064" thick aluminum panels, front finished in satin black and vented back finished in satin off-white. Rear panel is vented top and bottom 6-32 Philips nickel plated screws and self-adhesive rubber feet included.

***NEW!* Aluminum Utility Cases - 1411 Series (Fig. H):** .040" thick aluminum. 4 self-tapping screws included. ASA 61 grey baked enamel finish (outside only).

***NEW!* Ventilated Low Profile Instrument Cases - 1426 Series (Fig. I):** 20 gauge steel enclosure finished in satin off-white. 0.064" thick aluminum panels front and rear. Front panel is satin black, rear panel matches case color.

***NEW!* Heavy Duty Chassis Case and Cover Plates - 1444 Series (Fig. J):** Spot welded heavy duty construction chassis. Cover holes are punched with 4 holes (hardware not provided). Natural finish.

***NEW!* Metal Utility Cases - 1415 Series (Fig. K):** Sizes A to E are 20 gauge 0.036" thick steel. Sizes F to J are 18 guage 0.048" thick steel. Self-tapping screws included. ASA 61 grey baked enamel finish (outside only). Models A to D have 4 mounting holes. Models E to J have 6 mounting holes

***NEW!* Low Profile Instrument Cases - 1458 Series (Fig. L):** 20 gauge steel case with black satin finish. 0.064" thick aluminum panels (one satin black and one satin white for each case). Symmetrical design so either end can be front. 6-32 Philips nickel plated screws and self-adhesive rubber feet included.

1591 Economy Styrene Plastic Enclosures (Fig. A)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Black	3.34	2.20	1.38	HM100-ND	3.74	16.60	138.36	1591LSBK
	3.93	1.97	.82	HM102-ND	3.47	15.40	128.36	1591ASBK
	4.41	2.44	1.06	HM103-ND	3.76	16.70	139.19	1591BSBK
	4.72	2.55	1.41	HM104-ND	3.98	17.70	147.53	1591CSBK
	5.90	3.14	1.80	HM105-ND	5.92	26.30	219.21	1591DSBK
	7.47	4.33	2.24	HM106-ND	7.09	31.50	262.55	1591ESBK
	4.72	3.66	1.18	HM107-ND	4.73	21.00	175.04	1591GSBK
	6.50	2.76	.98	HM108-ND	4.70	20.90	174.20	1591HSBK
	4.33	3.23	1.58	HM109-ND	5.06	22.50	187.54	1591SSBK
	4.72	3.15	2.17	HM110-ND	5.58	24.80	206.71	1591TSBK
	4.72	4.72	2.17	HM111-ND	5.99	26.60	221.71	1591USBK
	4.72	4.72	3.54	HM112-ND	7.16	31.80	265.05	1591VSBK

1591 ABS Flame Retardant Plastic Enclosures (Fig. A)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Black	3.34	2.20	1.38	HM113-ND	5.96	26.50	220.88	1591LBK
	3.93	1.97	.82	HM114-ND	5.56	24.70	205.87	1591ABK
	4.41	2.44	1.06	HM115-ND	6.01	26.70	222.54	1591BBK
	4.72	2.55	1.41	HM116-ND	6.39	28.40	236.71	1591CBK
	5.90	3.14	1.80	HM117-ND	9.45	42.00	350.07	1591DBK
	7.47	4.33	2.24	HM118-ND	11.34	50.40	420.08	1591EBK
	4.75	3.69	1.18	HM119-ND	7.56	33.60	280.06	1591GBK
	6.52	2.78	.98	HM120-ND	7.52	33.40	278.39	1591HBK
	4.33	3.23	1.58	HM121-ND	8.08	35.90	299.23	1591SBK
	4.72	3.15	2.17	HM122-ND	8.93	39.70	330.90	1591TBK
	4.72	4.72	2.17	HM123-ND	9.56	42.50	354.24	1591UBK
	4.72	4.72	3.54	HM124-ND	11.45	50.90	424.25	1591VBK
Blue	3.34	2.20	1.38	HM125-ND	5.96	26.50	220.88	1591LBU
	3.93	1.97	.82	HM126-ND	5.56	24.70	205.87	1591ABU
	4.41	2.44	1.06	HM127-ND	6.01	26.70	222.54	1591BBU
	4.72	2.55	1.41	HM128-ND	6.39	28.40	236.71	1591CBU
	5.90	3.14	1.80	HM129-ND	9.45	42.00	350.07	1591DBU
	7.47	4.33	2.24	HM131-ND	11.34	50.40	420.08	1591EBU
	4.75	3.69	1.18	HM132-ND	7.56	33.60	280.06	1591GBU
	6.52	2.78	.98	HM133-ND	7.52	33.40	278.39	1591HBU
	4.33	3.23	1.58	HM134-ND	8.08	35.90	299.23	1591SBU
	4.72	3.15	2.17	HM135-ND	8.93	39.70	330.90	1591TBU
	4.72	4.72	2.17	HM136-ND	9.56	42.50	354.24	1591UBU
	4.72	4.72	3.54	HM137-ND	11.45	50.90	424.25	1591VBU
Lt. Grey	3.34	2.20	1.38	HM138-ND	5.96	26.50	220.88	1591LGY
	3.93	1.97	.82	HM139-ND	5.56	24.70	205.87	1591AGY
	4.41	2.44	1.06	HM140-ND	6.01	26.70	222.54	1591BGY
	4.72	2.55	1.41	HM141-ND	6.39	28.40	236.71	1591CGY
	5.90	3.14	1.80	HM142-ND	9.45	42.00	350.07	1591DGY
	7.47	4.33	2.24	HM143-ND	11.34	50.40	420.08	1591EGY
	4.75	3.69	1.18	HM144-ND	7.56	33.60	280.06	1591GGY
	6.52	2.78	.98	HM145-ND	7.52	33.40	278.39	1591HGY
	4.33	3.23	1.58	HM146-ND	8.08	35.90	299.23	1591SGY
	4.72	3.15	2.17	HM147-ND	8.93	39.70	330.90	1591TGY
	4.72	4.72	2.17	HM148-ND	9.56	42.50	354.24	1591UGY
	4.72	4.72	3.54	HM149-ND	11.45	50.90	424.25	1591VGY

1590 Diecast Aluminum Alloy Enclosures (Fig. B)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
—	3.63	1.52	1.07	HM150-ND	7.88	35.00	291.73	1590A
	4.37	2.37	1.07	HM151-ND	9.00	40.00	333.40	1590B
	4.70	3.70	1.18	HM152-ND	11.70	52.00	433.42	1590BB
	4.70	3.70	2.06	HM153-ND	13.16	58.50	487.60	1590C
	7.39	4.72	2.06	HM154-ND	21.56	95.80	798.49	1590D
	7.39	4.72	3.06	HM155-ND	23.06	102.50	854.34	1590E
	7.41	7.41	2.50	HM156-ND	31.01	137.80	1148.56	1590F
	1.98	1.98	1.07	HM157-ND	8.12	36.10	300.89	1590LB
	4.33	3.23	1.58	HM158-ND	11.88	52.80	440.09	1590S
	4.72	3.15	2.17	HM159-ND	12.26	54.50	454.26	1590T
	4.72	4.72	2.17	HM160-ND	18.00	80.00	666.80	1590U
	4.72	4.72	3.54	HM161-ND	24.75	110.00	916.85	1590V

1598 ABS Flame Retardant
2-Piece Plastic Instrument Cases (Fig. C)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Black	6.10	3.62	1.38	HM162-ND	10.94	48.60	405.08	1598ABK
	5.24	5.24	2.01	HM163-ND	11.99	53.30	444.26	1598BBK
	7.01	6.02	2.01	HM164-ND	15.03	66.80	556.78	1598CBK
	7.01	7.99	2.48	HM165-ND	18.34	81.50	679.30	1598DBK
	6.30	6.30	3.35	HM166-ND	18.02	80.10	667.63	1598EBK
	9.84	6.30	1.58	HM167-ND	19.28	85.70	714.31	1598FBK
	9.84	6.30	2.95	HM168-ND	22.59	100.40	836.83	1598GBK
	11.02	7.87	1.58	HM169-ND	23.69	105.30	877.68	1598HBK
	11.02	7.87	2.95	HM170-ND	29.36	130.50	1087.72	1598JBK
Lt. Grey	6.10	3.62	1.38	HM171-ND	10.94	48.60	405.08	1598AGY
	5.24	5.24	2.01	HM172-ND	11.99	53.30	444.26	1598BGY
	7.01	6.02	2.01	HM173-ND	15.03	66.80	556.78	1598CGY
	7.01	7.99	2.48	HM174-ND	18.34	81.50	679.30	1598DGY
	6.30	6.30	3.35	HM175-ND	18.02	80.10	667.63	1598EGY
	9.84	6.30	1.58	HM176-ND	19.28	85.70	714.31	1598FGY
	9.84	6.30	2.95	HM177-ND	22.59	100.40	836.83	1598GGY
	11.02	7.87	1.58	HM178-ND	23.69	105.30	877.68	1598HGY
	11 02	7.87	2.95	HM179-ND	29.36	130.50	1087.72	1598JGY

1598 Styrene 2-Piece Plastic Insrument Cases (Fig. C)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Lt. Grey	6.102	3.622	1.378	HM245-ND	8.01	35.60	296.73	1598ASGY
	5.236	5.236	2.008	HM246-ND	9.00	40.00	333.40	1598BSGY
	7.008	6.024	2.008	HM247-ND	10.53	46.80	390.08	1598CSGY
	7.008	7.992	2.480	HM248-ND	12.62	56.10	467.59	1598DSGY
	6.299	6.299	3.346	HM249-ND	12.60	56.00	466.76	1598ESGY
	9.843	6.299	1.575	HM250-ND	12.31	54.70	455.92	1598FSGY
	9.843	6.299	2.953	HM251-ND	14.45	64.20	535.11	1598GSGY
	11.024	7.874	1.575	HM252-ND	14.38	63.90	532.61	1598HSGY
	11.024	7.874	2.953	HM253-ND	16.81	74.70	622.62	1598JSGY

1599 Styrene Hand Held Cases (Fig. F)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Lt. Grey	5.12	2.56	0.98	HM209-ND	6.95	30.90	257.55	1599BSGY
	6.70	3.35	1.375	HM210-ND	8.01	35.60	296.73	1599ESGY
	8.65	4.33	1.772	HM211-ND	9.34	41.50	345.90	1599HSGY

1599 ABS Hand Held Cases (Fig. F)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Black	5.12	2.56	0.98	HM212-ND	9.07	40.30	335.90	1599BBK
	6.70	3.35	1.375	HM213-ND	10.98	48.80	406.75	1599EBK
	8.65	4.33	1.772	HM214-ND	13.52	60.10	500.93	1599HBK
Lt. Grey	5.12	2.56	0.98	HM215-ND	9.07	40.30	335.90	1599BGY
	6.70	3.35	1.375	HM216-ND	10.98	48.80	406.75	1599EGY
	8.65	4.33	1.772	HM217-ND	13.52	60.10	500.93	1599HGY

1594 Styrene Plastic Instrument Boxes (Fig. E)

	Dimensions			Digi-Key	Pricing			Hammond
Color	A	B	C	Part No.	1	5	50	Part No.
Lt. Grey	2.17	2.17	1.10	HM221-ND	5.11	22.70	189.20	1594ASGY
	3.15	2.17	1.10	HM222-ND	5.36	23.80	198.37	1594BSGY
	4.13	2.56	1.30	HM223-ND	5.85	26.00	216.71	1594CSGY
	5.12	2.56	1 70	HM224-ND	6.23	27.70	230.88	1594DSGY
	6.50	4.13	2.09	HM225-ND	8.15	36.20	301.73	1594ESGY

Color	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	5	50	Hammond Part No.
1594 ABS Plastic Instrument Boxes (Fig. E)								
Black	2.17	2 17	1.10	HM226-ND	8.15	36.20	301.73	1594ABK
	3.15	2.17	1.10	HM227-ND	8.82	39.20	326.73	1594BBK
	4.13	2.56	1.30	HM228-ND	9.88	43.90	365.91	1594CBK
	5.12	2.56	1.70	HM229-ND	10.58	47.00	391.75	1594DBK
	6.50	4.13	2.09	HM230-ND	13.70	60.90	507.60	1594EBK
Lt. Grey	2.17	2.17	1.10	HM231-ND	8.15	36.20	301.73	1594AGY
	3 15	2.17	1.10	HM232-ND	8.82	39.20	326.73	1594BGY
	4.13	2.56	1.30	HM233-ND	9.88	43.90	365.91	1594CGY
	5.12	2.56	1.70	HM234-ND	10.58	47.00	391.75	1594DGY
	6.50	4.13	2.09	HM235-ND	13.70	60.90	507.60	1594EGY
1595 ABS Plastic Instrument Consoles (Fig. D)								
Lt. Grey	6.34	3.78	2.28	HM241-ND	14.13	62.80	523.44	1595CGY
	8.46	5.12	2.95	HM242-ND	17.51	77.80	648.46	1595EGY
Black	6.34	3.78	2.28	HM243-ND	14.13	62.80	523.44	1595CBK
	8.46	5.12	2.95	HM244-ND	17.51	77.80	648.46	1595EBK
NEW! 1401 Ventilated High Profile Cases (Fig. G) NEW!								
Off-White	4.0	6.0	4.0	HM287-ND	51.98	231.00	1925.39	1401AAA
	6.0	6.0	5.0	HM288-ND	49.61	220.50	1837.87	1401AA
	6.0	10.0	5.0	HM289-ND	47.25	210.00	1750.35	1401A
	8.0	10.0	9.0	HM290-ND	68.51	304.50	2538.01	1401C
	8.0	8.0	8.0	HM291-ND	63.79	283.50	2362.97	1401E
	10.0	12.0	9.0	HM292-ND	89.78	399.00	3325.67	1401G
	10.0	14.0	6.5	HM293-ND	80.33	357.00	2975.60	1401K
	12.0	8.0	9.0	HM294-ND	82.69	367.50	3063.11	1401M
	14.0	8.0	9.0	HM295-ND	92.14	409.50	3413.18	1401N
	14.0	10.0	5.0	HM296-ND	77.96	346.50	2888.08	1401P
NEW! 1411 Aluminum Utility Cases (Fig. H) NEW!								
Lt. Grey	2.7	2.2	1.6	HM315-ND	5.60	24.90	207.54	1411B
	3.2	2.2	1.1	HM316-ND	6.05	26.90	224.21	1411C
	3.2	2.2	1.6	HM317-ND	6.12	27.20	226.71	1411D
	4.0	2.2	3.0	HM318-ND	7.07	31.40	261.72	1411F
	4.0	2:2	1.6	HM319-ND	6.32	28.10	234.21	1411G
	4.0	2.2	2.2	HM320-ND	6.71	29.80	248.38	1411H
	5.0	2.2	2.2	HM321-ND	7.16	31.80	265.05	1411K
	5.0	4.0	3.0	HM322-ND	8.28	36.80	306.73	1411L
	6.0	3.0	3.0	HM323-ND	8.51	37.80	315.06	1411M
Lt. Grey	5.0	3.0	2.2	HM324-ND	8.10	36.00	300.06	1411N
	6.0	5.0	4.0	HM325-ND	10.64	47.30	394.25	1411P
	7.0	5.0	3.0	HM326-ND	11.14	49.50	412.58	1411Q
	8.0	6.0	3.5	HM327-ND	13.03	57.90	482.60	1411R
	8.0	4.0	3.0	HM328-ND	11.09	49.30	410.92	1411S
	10.0	2.2	1.6	HM329-ND	13.10	58.20	485.10	1411T
	10.0	6.0	3.5	HM330-ND	15.23	67.70	564.28	1411U
	12.0	3.0	2.2	HM331-ND	15.50	68.90	574.28	1411W
	12.0	7.0	4.0	HM332-ND	20.45	90.90	757.65	1411X
	17.0	5.0	4.0	HM333-ND	23.69	105.30	877.68	1411Z
NEW! 1426 Ventilated Low Profile Cases (Fig. I) NEW!								
Off-White	6.0	5.0	4.0	HM297-ND	44.89	199.50	1662.83	1426K
	8.0	6.0	4.0	HM298-ND	47.25	210.00	1750.35	1426M
	10.0	7.0	4.0	HM299-ND	49.61	220.50	1837.87	1426O
	11.0	11.7	5.5	HM300-ND	63.79	283.50	2362.97	1426Q
	12.0	6.0	4.0	HM301-ND	68.51	304.50	2538.01	1426S
	12.0	8.0	4.0	HM302-ND	63.79	283.50	2362.97	1426V
	12.0	10.0	4.0	HM303-ND	68.51	304.50	2538.01	1426W
	12.0	6.0	5.5	HM304-ND	70.88	315.00	2625.53	1426Y
NEW! 1444 Heavy Duty Chassis Cases (Fig. J) NEW!								
Natural	4.0	4.0	2.0	HM257-ND	9.32	41.40	345.07	1444-6
	6.0	4.0	2.0	HM258-ND	9.70	43.10	359.24	1444-8
	8.0	4.0	1.0	HM259-ND	10.42	46.30	385.91	1444-9
	8.0	4.0	2.0	HM260-ND	11.84	52.60	438.42	1444-10
	7.0	5.0	2.0	HM261-ND	9.88	43.90	365.91	1444-12
	9.0	5.0	2.0	HM262-ND	10.78	47.90	399.25	1444-14
	10.0	6.0	1.0	HM263-ND	11.68	51.90	432.59	1444-15
	10.0	6.0	2.0	HM264-ND	13.48	59.90	499.27	1444-16
	13.5	5.0	2.0	HM265-ND	14.58	64.80	540.11	1444-18
	17.0	4.0	3.0	HM266-ND	18.86	83.80	698.47	1444-20
	12.0	8.0	2.0	HM267-ND	19.40	86.20	718.48	1444-22
	12.0	8.0	3.0	HM268-ND	19.73	87.70	730.98	1444-24
	16.0	8.0	2.0	HM269-ND	20.43	90.80	756.82	1444-26
	16.0	8.0	3.0	HM270-ND	24.03	106.80	890.18	1444-28
	12.0	10.0	2.0	HM271-ND	24.03	106.80	890.18	1444-29
	17.0	10.0	2.0	HM272-ND	22.82	101.40	845.17	1444-30
	17.0	10.0	3.0	HM273-ND	24.77	110.10	917.68	1444-32
	17.0	10.0	4.0	HM274-ND	37.31	165.80	1381.94	1444-33
NEW! Cover Plates (Fig. J) NEW!								
Natural	4.0	4.0	—	HM275-ND	4.73	21.00	175.04	1434-6
	6.0	4.0	—	HM276-ND	4.86	21.60	180.04	1434-8
	8.0	4.0	—	HM277-ND	5.06	22.50	187.54	1434-10
	7.0	5.0	—	HM278-ND	6.01	26.70	222.54	1434-12
	9.0	5.0	—	HM279-ND	6.14	27.30	227.55	1434-14
	10.0	6.0	—	HM280-ND	6.44	28 60	238.38	1434-16
	13.5	5.0	—	HM281-ND	9.07	40.30	335.90	1434-18
	17.0	4.0	—	HM282-ND	9.23	41.00	341.74	1434-20
	12.0	8.0	—	HM283-ND	8.51	37.80	315.06	1434-22
	16.0	8.0	—	HM284-ND	11.39	50.60	421.75	1434-26
	12.0	10.0	—	HM285-ND	10.64	47.30	394.25	1434-29
	17.0	10.0	—	HM286-ND	12.85	57.10	475.93	1434-30
NEW! 1415 Metal Utility Cases (Fig. K) NEW!								
Grey	4.0	2.0	4.0	HM305-ND	12.71	56.50	470.93	1415A
	4.0	3.0	5.0	HM306-ND	15.73	69.90	582.62	1415B
	6.0	4.0	5.0	HM307-ND	16.20	72.00	600.12	1415C
	6.0	6.0	6.0	HM308-ND	20.45	90.90	757.65	1415D
	9.0	5.0	6.0	HM309-ND	29.50	131.10	1092.72	1415E
	10.0	7.0	8.0	HM310-ND	37.71	167.60	1396.95	1415F
	12.0	6.0	7.0	HM311-ND	41.38	183.90	1532.81	1415G
	8.0	10.0	10.0	HM312-ND	50.99	226.60	1888.71	1415H
	12.0	8.0	11.0	HM313-ND	42.10	187.10	1559.48	1415I
	7.0	9.0	15.0	HM314-ND	55.19	245.30	2044.58	1415J
NEW! 1458 Low Profile Instrument Cases (Fig. L) NEW!								
Black	4.0	4.0	3.0	HM334-ND	35.44	157.50	1312.76	1458A3
	6.0	4.0	4.0	HM335-ND	39.29	174.60	1455.29	1458B4
	6.0	6.0	3.0	HM336-ND	35.44	157.50	1312.76	1458C3
	6.0	6.0	4.0	HM337-ND	36.63	162.80	1356.94	1458C4
	8.0	8.0	3.0	HM338-ND	42.84	190.40	1586.98	1458D3
	8.0	8.0	4.0	HM339-ND	45.20	200.90	1674.50	1458D4
	8.0	8.0	5.0	HM340-ND	48.74	216.60	1805.36	1458D5
	8.0	10.0	3.0	HM341-ND	46.35	206.00	1717.01	1458E3
	8.0	10.0	4.0	HM342-ND	49.03	217.90	1816.20	1458E4
	8.0	10.0	5.0	HM343-ND	51.28	227.90	1899.55	1458E5
	10.0	8.0	3.0	HM344-ND	49.03	217.90	1816.20	1458G3
	10.0	8.0	4.0	HM345-ND	53.17	236.30	1969.56	1458G4
	10.0	8.0	5.0	HM346-ND	50.20	223.10	1859.54	1458G5

LMB HEEGER Aluminum Enclosures

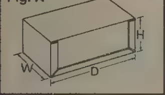
Fig. A


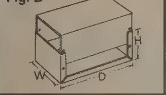
Fig. B


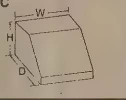
Fig. C


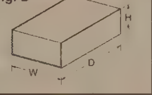
Fig. D


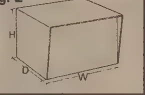
Fig. E


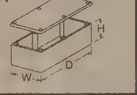
Fig. F


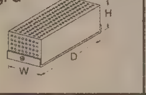
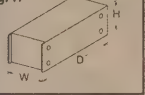
Fig. G


Fig. H


Aluminum Boxes: • .040 Plain Aluminum • Screw fastening, punched and tapped.

Snap Together Aluminum Boxes: • .040 Plain Aluminum • An ideal box for construction where screws cannot be used and where access to the box must be quick and often. the catches hold the box together tightly.

Aluminum Consoles: • Plain Aluminum • The length of the Flat Top of the MDC Series is 1/2 the total depth.

Small Cabinets: • Finished in Grey • By removing four screws in bottom, cover slides off for easy access to interior of enclosure. • A housing for small instruments, amplifiers, intercoms, public address systems, and for any small or medium sized item that is being prepared for the market and where price and appearance is a major factor.

Die Cast Enclosures: Easily machined units useful as instrument and meter cases • Close-fitted flange lids fasten to bosses in the body with counter sunk screws. • Aluminum alloy (380) offers excellent screening properties. • Lid adds .156" to height of enclosure.

Uni-Cab Universal Cabinet System: • Bases are .090 aluminum. covers are .063 aluminum, 3003-H14 metal. • Pem nuts used throughout for longer life and ease of assembly and disassembly. • All parts are primed to protect the metal against the elements and to serve as a paint base. Bases are finished in textured blue, covers are finished in semi-gloss white. • The base is approximately 1/4" larger than the cover dimensions.

LMB Perforated Box Chassis: • LMB perforated boxes are adaptable wherever heat dissipation is required, as well as utmost shielding. • Plain Aluminum

UNI-PAC Universal Packaging System: A quality cabinet, engineered for versatility and value, at an affordable price. The Uni-Pac is constructed with .063 aluminum, with .125 aluminum sides and four adhesive rubber feet. The top, bottom, and sides are finished in textured blue, the front and rear panels are finished in semi-gloss white • Interchangeable front, back, top and bottom panels.

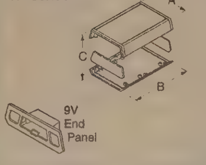
Dimensions D	W	H	Digi-Key Part No.	Pricing 1	10	100
A. Aluminum Boxes						
2-3/4	2-1/8	2-3/4	L100-ND	4.52	37.52	339.00
3-1/2	2-1/8	1-5/8	L101-ND	4.32	35.86	324.00
4	2-1/4	2-1/4	L102-ND	5.44	45.15	408.00
5	2-1/4	2-1/4	L103-ND	5.84	48.47	438.00
5	4	3	L104-ND	8.14	67.56	610.50
6	5	4	L105-ND	11.40	94.62	855.00
7	5	3	L106-ND	11.54	95.78	865.50
8	6	3-1/2	L107-ND	14.06	116.70	1054.50
10	6	3-1/2	L108-ND	16.62	137.95	1246.50
12	7	4	L109-ND	23.08	191 56	1731.00
17	5	4	L110-ND	25.34	210.32	1900.50
B. Aluminum Boxes (Snap Together)						
2-3/4	2-1/8	1-5/8	L111-ND	4.00	33.20	300.00
2-3/4	2-1/8	2-3/4	L112-ND	4.52	37.52	339.00
3-1/4	2-1/8	1-1/8	L113-ND	4.00	33.20	300.00
4	2-1/8	1-5/8	L114-ND	4.44	36.85	333.00
4	2	2-3/4	L115-ND	5.46	45.32	409.50
5	2-1/4	2-1/4	L116-ND	5.84	48.47	438.00
5	4	3	L117-ND	8.14	67.56	610.50
6	5	4	L118-ND	11.40	94.62	855.00
7	5	3	L119-ND	11.54	95.78	865.50
8	6	3-1/2	L120-ND	14.06	116.70	1054.50
10	6	3-1/2	L121-ND	16.62	137.95	1246.50
C. Aluminum Consoles						
4	3	2	L122-ND	7.42	61.59	556.50
5	3	2	L123-ND	8.56	71.05	642.00
6	4	2-1/4	L124-ND	10.24	84.99	768.00
7	5	2-1/2	L125-ND	11.80	97 94	885.00
8	6	2-3/4	L126-ND	15.50	128.65	1162.50
9	7	3	L127-ND	17.06	141.60	1279.50
10	4-1/2	2-1/2	L128-ND	15.28	126.82	1146.00
11	8	3-1/2	L129-ND	25.52	211.82	1914.00
13	10	4	L130-ND	34.63	287.45	2597.40
15	15	5	L131-ND	56.48	468.78	4236.00
C. Uni-Cab Universal Cabinet System						
5	5	1-3/4	L155-ND	26.68	221.44	2001.00
6	6	2-3/4	L156-ND	31.02	257.47	2326.50
7	6	3-1/2	L157-ND	33.06	274.40	2479.50
5	7	3	L158-ND	30.66	254.48	2299.50
6	6	5	L159-ND	35.50	294.65	2662.50
10	10	3	L161-ND	48.94	406.20	3670.50
10	12	4	L162-ND	60.66	503.48	4549.50
D. Uni-Cab Universal Cabinet System						
6	4	2	L154-ND	27.70	229.91	2077.50
10	6	4	L160-ND	39.18	325.19	2938.50
E. Small Cabinets						
5	6	4	L147-ND	23.18	192.39	1738.50
6	8	5	L148-ND	34.04	282.53	2553.00
F. Die Cast Enclosures						
3-5/8	1-1/2	1-1/16	L149-ND	6.38	52.95	478.50
4-3/8	2-3/8	1-1/16	L150-ND	6.96	57.77	522.00
4-11/16	3-11/16	2-1/16	L151-ND	11.34	94.12	850.50
7-25/64	4-45/64	2-1/16	L152-ND	17.80	147.74	1335.00
7-25/64	4-45/64	3-1/16	L153-ND	18.92	157.04	1419.00
G. LMB Perforated Box Chassis						
2-3/4	2-1/8	2-5/8	L163-ND	6.32	52.49	474.30
4-1/4	2-1/4	1-1/4	L164-ND	6.46	53.62	484.50
4	2	2-3/4	L165-ND	7.64	63.45	573.30
2-3/4	2-1/8	2-1/8	L166-ND	6.16	51.09	461.70
4	2-1/4	2-1/4	L167-ND	7.20	59.76	540.00
5	2-1/4	2-1/4	L168-ND	8.33	69.12	624.60
3-3/4	3	2-1/8	L169-ND	8.82	73.21	661.50
5-1/4	3	2-1/8	L170-ND	9.22	76.49	691.20
8	3	2-3/4	L171-ND	13.33	110.66	999.90
6-1/4	3-1/2	2-1/8	L172-ND	12.41	102.99	930.60
5-1/2	3	1-1/4	L173-ND	8.84	73.41	663.30
3	4	5	L174-ND	11.77	97.71	882.90
6	4	3	L175-ND	13.81	114.64	1035.90
6	4	5	L176-ND	16.68	138.44	1251.00
4	4	2	L177-ND	9.05	75.10	678.60
10	4	2-1/2	L178-ND	17.27	143.32	1295.10
7	5	3	L179-ND	18.56	154.05	1392.00
8	6	4-1/2	L180-ND	25.74	213.64	1930.50
H. UNI-PAC Universal Packaging System						
7	12	1-3/4	L181-ND	61.14	507.46	4585.50
9	12	3-1/2	L182-ND	75.05	622.90	5628.60
9	17	3-1/2	L183-ND	87.48	726.08	6561.00
12	17	3-1/2	L184-ND	102.25	848.69	7668.90
7	14	5-1/4	L185-ND	80.58	668.81	6043.50
9	17	5-1/4	L186-ND	97.37	808.15	7302.60
12	17	5-1/4	L187-ND	114.80	952.87	8610.30
12	17	7	L188-ND	128.47	1066.32	9635.40
14	17	7	L189-ND	140.26	1164.12	10519.20

SERPAC Plastic Electronic Enclosures

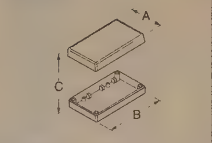
Models available with or without 9-volt battery compartments. All models come with vertical card guides and are bossed for mounting horizontal circuit boards. All enclosures are made from ABS GSM UL Rated 94 HB plastic.

Colors Available: Black (B), Gray (G), and Almond (A).

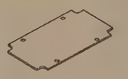
"A" Series



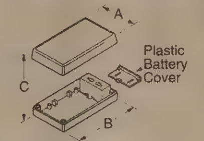
Standard/Standard with Insert



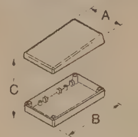
Standard Enclosure Copper Clad Board



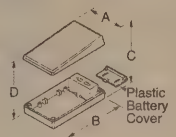
9V Standard/9V Standard with Insert



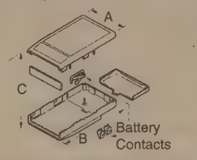
Slanted



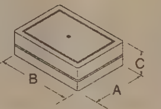
9V Slanted



M4, M6, M8 Series



C-4 Series



Dimensions (Inches)				Digi-Key	Pricing			Serpac
A	B	C	D	Part No.	1	25	50	Model No.
"A" Series								
2.6	4.25	1.12	—	SRA21□-ND	5.95	118.13	203.18	A-21□
2.6	4.25	875	—	SRA20□-ND	5.76	114.38	196.73	A-20□
3.35	5.3	1.5	—	SRA27□-ND	11.94	236.88	407.43	A-27□
5.0	7.1	1.3	—	SRA41□-ND	13.58	269.38	463.33	A-41□
5.0	7.1	1.62	—	SRA42□-ND	15.18	301.25	518.15	A-42□
5.1	5.3	1.71	—	SRA31□-ND	11.94	236.88	407.43	A-31□
"A" Series - 9V								
2.6	4.3	1.1	—	SRA21-9V□-ND	7.47	148.13	254.78	A-219V□
3.35	5.3	1.5	—	SRA27-9V□-ND	13.42	266.25	457.95	A-279V□
5.1	5.3	1.8	—	SRA31-9V□-ND	13.42	266.25	457.95	A-319V□
5	7.1	1.3	—	SRA41-9V□-ND	14.90	295.63	508.48	A-419V□
5	7.1	1.6	—	SRA42-9V□-ND	17.20	341.25	586.95	A-429V□
"A" Series Optional End Panels								
A20 Series End Panel				SRA20-□□-ND	2.58	51.25	88.15	2003□
A21 Series End Panel				SRA21-□□-ND	6.90	136.88	235.43	2005□
A27 Series End Panel				SRA27-□□-ND	7.59	150.63	259.08	2010□
A31 Series End Panel				SRA31-□□-ND	7.59	150.63	259.08	2015□
A41 Series End Panel				SRA41-□□-ND	7.59	150.63	259.08	2020□
A42 Series End Panel				SRA42-□□-ND	9.14	181.25	311.75	2024□
Standard								
2.25	3.6	1.5	—	SR111□-ND	4.22	83.75	144.05	SR111□
3.25	4.38	0.9	—	SR031□-ND	5.36	106.25	182.75	SR031□
3.25	4.38	1.9	—	SR033□-ND	6.05	120.00	206.40	SR033□
3.25	5.624	1.4	—	SR052□-ND	7.28	144.38	248.33	SR052□
3.25	5.624	1.9	—	SR053□-ND	7.65	151.88	261.23	SR053□
3.25	4.38	1.5	—	SR131□-ND	5.36	106.25	182.75	SR131□
3.25	4.38	2.5	—	SR133□-ND	6.05	120.00	206.40	SR133□
3.25	5.624	1.5	—	SR151□-ND	6.77	134.38	231.13	SR151□
3.25	5.624	2.0	—	SR152□-ND	7.28	144.38	248.33	SR152□
4.876	6.876	2.0	—	SR172□-ND	10.02	198.75	341.85	SR172□
4.876	6.876	2.5	—	SR173□-ND	10.52	208.75	359.05	SR173□
4.88	6.88	0.9	—	SR071□-ND	9.32	185.00	318.20	071□
6.34	9.5	1.5	—	SR191□-ND	14.90	295.63	508.48	191□
Standard with Insert (Non-Textured Top)								
3.25	4.38	0.9	—	SR031-I□-ND	5.36	106.25	182.75	SR031-I□
3.25	5.624	0.9	—	SR051-I□-ND	6.77	134.38	231.13	SR051-I□
2.25	3.6	0.995	—	SR110-I□-ND	3.65	72.50	124.70	SR110-I□
3.25	4.38	1.5	—	SR131-I□-ND	5.36	106.25	182.75	SR131-I□
3.25	5.624	1.5	—	SR151-I□-ND	6.77	134.38	231.13	SR151-I□
4.876	6.876	2.0	—	SR172-I□-ND	10.02	198.75	341.85	SR172-I□
4.876	6.876	2.5	—	SR173-I□-ND	10.52	208.75	359.05	SR173-I□
6.34	9.5	1.5	—	SR191I□-ND	14.90	295.63	508.48	191-I□
Standard Enclosure Prototyping Boards								
.1" Grid Perfboard								
For Box #'s "SRX1X"				SR310-ND	2.74	54.38	93.53	310SR
For Box #'s "SRX3X"				SR330-ND	4.25	84.38	145.13	330SR
For Box #'s "SRX5X"				SR350-ND	4.63	91.88	158.03	350SR
For Box #'s "SRX7X"				SR370-ND	10.11	200.63	345.08	370SR
Standard Enclosure Prototyping Boards								
Copper Clad Board (1 Side)								
For Box #'s "SRX1X"				SR410-ND	2.74	54.38	93.53	410SR
For Box #'s "SRX3X"				SR430-ND	4.25	84.38	145.13	430SR
For Box #'s "SRX5X"				SR450-ND	4.63	91.88	158.03	450SR
For Box #'s "SRX7X"				SR470-ND	10.11	200.63	345.08	470SR
9-Volt								
2.60	4.10	1.5	—	SR211□-ND	5.13	101.88	175.23	SR211□
3.25	4.38	2.0	—	SR232□-ND	6.65	131.88	226.83	SR232□
3.25	5.624	2.0	—	SR252□-ND	8.19	162.50	279.50	SR252□
4.876	6.876	2.0	—	SR272□-ND	10.93	216.88	373.03	SR272□
9-Volt with Insert (Non-Textured Top)								
3.25	4.38	1.5	—	SR231-I□-ND	6.30	125.00	215.00	SR231-I□
3.25	5.624	1.5	—	SR251-I□-ND	7.69	152.50	262.30	SR251-I□
4.876	6.876	2.0	—	SR272-I□-ND	10.93	216.88	373.03	SR272-I□
Standard Slant								
3.25	5.624	1.5	.968	SR15-S□-ND	6.77	134.38	231.13	SR15-S□
6.88	4.88	1.88	0.9	SR07S□-ND	11.94	236.88	407.43	07-S□
6.88	4.88	2.48	1.5	SR17S□-ND	11.94	236.88	407.43	17-S□
9-Volt Slanted								
3.25	5.624	1.5	.968	SR25-S□-ND	7.69	152.50	262.30	SR25-S□
6.88	4.88	2.48	1.5	SR27S□-ND	13.42	266.25	457.95	27-S□
C-4 Series								
1.380	2.130	0.580	—	SCR4□-ND	3.06	60.63	104.28	C-4□
1.613	2.263	0.750	—	SCR6□-ND	3.06	60.63	104.28	C-6□
1.850	2.400	0.925	—	SCR8□-ND	3.06	60.63	104.28	C-8□
"Remote" M 4 (AA), M6-M8 (AA or 9V)								
2.2	2.8	.710	—	SRM4□-ND	5.48	108.75	187.05	M-4□
2.4	4.15	.85	—	SRM6□-ND	6.77	134.38	231.13	M-6□
2.4	6.97	.860	—	SRM8□-ND	8.00	158.75	273.05	M-8□
M Series Lenses								
M4 Series Clear				SRM4-FPC-ND	2.30	45.63	78.48	4004CL
M4 Series Infrared				SRM4-FPI-ND	2.30	45.63	78.48	4004IR
M6 Series Clear				SRM6-FPC-ND	2.30	45.63	78.48	4008CL
M6 Series Infrared				SRM6-FPI-ND	2.30	45.63	78.48	4008IR
M8 Series Clear				SRM8-FPC-ND	2.30	45.63	78.48	M-8FPC
M8 Series Infrared				SRM8-FPI-ND	2.30	45.63	78.48	M-8FPI
Rubber Feet								
1xx, 2xx				SR50-ND	.77/4	3.66/24	6.30/48	SR50
0xx				SR51-ND	.77/4	3.66/24	6.30/48	SR51
For A Series				SR52-ND	.77/4	3.66/24	6.30/48	52
Standoff Kits								
100pc Standoff/Screws				SR60KIT-ND		47.07/each		60 KIT
100pc Standoff Posts				SR61KIT-ND		39.83/each		61 KIT

Note: □: B = Black, G = Gray, A = Almond.

Note: □□ IR = Infared, AL = Aluminum, CL = Clear

Note: Bottom half of enclosure height remains at 0.79".

Plastic E.M.I. Enclosures

50-55dB @ 30-2000MHZ

Electromagnetic Interference (E.M.I.) is "electronic pollution" that can cause damage to sensitive electronic components should they be exposed to it. Serpac E.M.I. enclosures offer a higher degree of protection than painting the surface of a standard plastic enclosure. The shielding effectiveness of an enclosure is equal to the sum of the reflected energy and the absorbed energy S.E. = (R+A), (db = 10 LOG (incident power / transmitted power.)) *"It is recommended that open field site measurement tests be conducted to determine the actual emission and susceptibility of a completed product.*

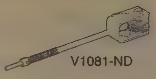
Material: ABS Stainless Steel Fiber

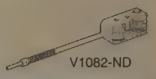
Note: EMI plastic enclosures should be considered electronically conductive, and require the same design considerations given a metal enclosure.

Dimensions (Inches)				Digi-Key	Pricing			Serpac
A	B	C	D	Part No.	1	25	50	Model No.
"A" Series								
3.35	5.3	1.5	—	SRA27E-B-ND	20.44	405.63	697.68	A-27-EMI-BLACK
Remote "M" Series								
2.4	4.15	.85	—	SRM6E-9VB-ND	11.15	221.25	380.55	M-6-EMI-BLACK
Standard								
2.25	3.6	1.5	—	SR111E-B-ND	6.62	131.25	225.75	111-EMI-BLACK
3.25	4.38	1.5	—	SR131E-B-ND	8.63	171.25	294.55	131-EMI-BLACK
3.25	5.62	1.5	—	SR151E-B-ND	11.15	221.25	380.55	151-EMI-BLACK
4.88	6.88	2.0	—	SR172E-B-ND	17.04	338.13	581.58	172-EMI-BLACK
6.34	9.5	1.5	—	SR191E-B-ND	25.80	511.88	880.43	191-EMI-BLACK
9-Volt Standard								
2.60	4.10	1.5	—	SR211E-B-ND	8.25	163.75	281.65	211-EMI-BLACK
9-Volt with Insert (Non-Textured Top)								
3.25	4.38	1.5	—	SR231E-B-ND	10.30	204.38	351.53	231- I-EMI-BLACK
Standard Slant								
3.25	5.62	1.5	.968	SR015E-B-ND	11.15	221.25	380.55	15-S-EMI-BLACK

VECTOR
ELECTRONIC COMPANY

Slit-N-Wrap Tools & Wire

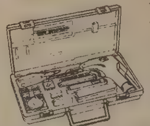

V1081-ND


V1082-ND

No Pre-cutting or Pre-stripping. Fast, reliable, spool fed wire. Slits and opens insulation exposing bare wire before wire is wrapped on post, forming actual wire wrapped gas tight joint as tool is rotated.

Description	Digi-Key Part No.	Price
Manual Slit-N-Wrap Tool(#28) Includes bit, 50' roll of green wire	V1081-ND	72.76
Replacement Wirewrap Bit #28	V1083-ND	48.26
Manual Slit-N-Wrap Tool(#30) Includes bit, 200' roll of blue wire	V1082-ND	108.11
Replacement Wirewrap Bit #30	V1084-ND	48.26
150' 28 AWG Tefzel Wire Green	V1085-ND	15.28
150' 28 AWG Tefzel Wire Red	V1086-ND	15.17
150' 28 AWG Tefzel Wire Blue	V1087-ND	15.64
150' 28 AWG Tefzel Wire White	V1088-ND	15.64
150' 28 AWG Tefzel Wire Yellow	V1089-ND	15.64
200' 30 AWG Tefzel Wire White	V1090-ND	20.38
200' 30 AWG Tefzel Wire Blue	V1091-ND	17.83
200' 30 AWG Tefzel Wire Orange	V1092-ND	18.92
200' 30 AWG Tefzel Wire Yellow	V1093-ND	19.15

OK
Industries
Inc.



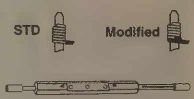
Hobby Wire Wrapping Kit WK-5

• Battery Tool • Hobby Wrap Tool • PC Edge Connector CON-1 • DIP/IC Extractor Tool • DIP/IC Insertion Tool • PC Card Guides & Brackets • Mini-Shear with Safety Clip • 14, 16, 24 and 40 DIP PIN Sockets • Terminals • Tri-Color Wire Dispenser • Hobby Board • Product Catalog

Use "C" NICAD BATTERIES NOT INCLUDED

K177-ND Wire-Wrapping Kit **207.07**

Hobby Wrap Hand Tools



Wire-wrapping, stripping, unwrapping tool for AWG 30 on .025" (0,63mm) Square Post

K104-ND	Regular Wrap	**21.00**
K105-ND	Modified Wrap	**22.00**

Hobby Wrap Battery Tool

For .025" (0,63mm) sq. post "MODIFIED" wrap, positive indexing, anti-overwrapping device.

USE "C" SIZE NICAD BATTERIES
BATTERIES & BIT NOT INCLUDED

Description	Digi-Key Part No.	Price
Battery Wrap Tool (BW2630)	K106-ND	75.50
Bit For AWG 30	K102-ND	22.00
Bit For AWG 26 & 28	K103-ND	22.00

Wire Wrap Wire

Pre-Cut/Pre-Stripped — 50 Wires/Pkg.

1" Stripped Ends

Description	Digi-Key Part No.	Price
30-AWG Blue Wire, 3" Overall Length	B3-ND	3.49
30-AWG Yellow Wire, 3" Overall Length	Y3-ND	3.49
30-AWG White Wire, 3" Overall Length	W3-ND	3.49
30-AWG Red Wire, 3" Overall Length	R3-ND	3.49
30-AWG Blue Wire, 4" Overall Length	B4-ND	3.85
30-AWG Yellow Wire, 4" Overall Length	Y4-ND	3.85
30-AWG White Wire, 4" Overall Length	W4-ND	3.85
30-AWG Red Wire, 4" Overall Length	R4-ND	3.85
30-AWG Blue Wire, 5" Overall Length	B5-ND	4.14
30-AWG Yellow Wire, 5" Overall Length	Y5-ND	4.14
30-AWG White Wire, 5" Overall Length	W5-ND	4.14
30-AWG Red Wire, 5" Overall Length	R5-ND	4.14
30-AWG Blue Wire, 6" Overall Length	B6-ND	4.44
30-AWG Yellow Wire, 6" Overall Length	Y6-ND	4.44
30-AWG White Wire, 6" Overall Length	W6-ND	4.44
30-AWG Red Wire, 6" Overall Length	R6-ND	4.44
30-AWG Blue Wire, 7" Overall Length	B7-ND	4.73
30-AWG Yellow Wire, 7" Overall Length	Y7-ND	4.73
30-AWG White Wire, 7" Overall Length	W7-ND	4.73
30-AWG Red Wire, 7" Overall Length	R7-ND	4.73
30-AWG Blue Wire, 8" Overall Length	B8-ND	5.03
30-AWG Yellow Wire, 8" Overall Length	Y8-ND	5.03
30-AWG White Wire, 8" Overall Length	W8-ND	5.03
30-AWG Red Wire, 8" Overall Length	R8-ND	5.03

PRE-CUT/PRE-STRIPPED WIRE ASSORTMENTS

Wire Assortment No. WK1-ND

600 pre-cut/pre-stripped No. 3 wire wrap wire. Assortment contains 1 each of the following parts described above: R3-ND, W3-ND, R4-ND, W4-ND, R5-ND, W5-ND, R6-ND, W6-ND, R7-ND, W7-ND, R8-ND and W8-ND.

Catalog No. **WK1-ND** **32.57**

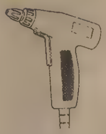
Wire Assortment No. WK2-ND

1200 pre-cut/pre-stripped No. 30 wire wrap wire. Assortment contains 1 each of the following parts described above: B3-ND, Y3-ND, W3-ND, R3-ND, B4-ND, Y4-ND, W4-ND, R4-ND, B5-ND, Y5-ND, W5-ND, R5-ND, B6-ND, Y6-ND, W6-ND, R6-ND, B7-ND, Y7-ND, W7-ND, R7-ND, B8-ND, Y8-ND, W8-ND, and R8-ND.

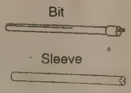
Catalog No. **WK2-ND** **65.12**

OK Industries Inc.

Wire Wrap Gun and Bits



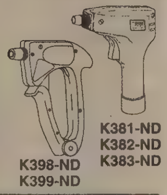
OK-20 WW Gun: The OK-20's ergonomic design has features such as two-finger trigger control, lightweight ABS housing and extended handle to reduce operator fatigue. The high torque gear drive and high speed will wrap 18-30 AWG wire. The ideal tool for prototyping up thru high volume applications. Available in 115V or 230V versions. Backforce version prevents over-wrapping.



Cut/Strip/Wrap Bit: Make connections directly from cable, wire harness or reel. Cuts off excess wire, strips insulation and wraps correct number of turns automatically.

Description	Digi-Key Part No.	Price
Wire Wrap Gun 115V Ergonomic handle	K319-ND	205.00
Wire Wrap Gun 115V w/ Backforce	K378-ND	215.00
Wire Wrap-Unwrap Gun 115V	K379-ND	220.00
Wire Wrap Gun 230V Ergonomic Handle	K380-ND	225.00
Wire Wrap Bit 30 AWG	K320-ND	39.75
Wire Wrap Bit 28 AWG	K321-ND	41.12
Wire Wrap Sleeve for 28 & 30 AWG Bit	K322-ND	24.50
Wire Wrap Bit 26 AWG	K323-ND	41.12
Wire Wrap Sleeve for 26 AWG Bit	K324-ND	24.50
Wire Wrap Wire 30 AWG 100' Blue	K325-ND	9.17
Wire Wrap Wire 30 AWG 100' Black	K394-ND	9.17
Wire Wrap Wire 30 AWG 100' Red	K395-ND	9.17
Wire Wrap Wire 30 AWG 100' Yellow	K396-ND	9.17
Wire Wrap Wire 30 AWG 100' White	K397-ND	9.17
Wire Wrap Wire 28 AWG 100' Blue	K326-ND	10.35
Wire Wrap Wire 28 AWG 100' Black	K390-ND	10.35
Wire Wrap Wire 28 AWG 100' Red	K391-ND	10.35
Wire Wrap Wire 28 AWG 100' Yellow	K392-ND	10.35
Wire Wrap Wire 28 AWG 100' White	K393-ND	10.35
Wire Wrap Wire 26 AWG 100' Blue	K327-ND	11.83
Wire Wrap Wire 26 AWG 100' Black	K386-ND	11.83
Wire Wrap Wire 26 AWG 100' Red	K387-ND	11.83
Wire Wrap Wire 26 AWG 100' Yellow	K388-ND	11.83
Wire Wrap Wire 26 AWG 100' White	K389-ND	11.83
Cut/Strip/Wrap Bit 30 AWG (Modified wrap) (for use with K319-ND WW Gun Only)	K328-ND	235.47
Kynar Wire 30 AWG for Cut Strip Wrap Bit	K329-ND	11.83
Universal Wire Wrap Unwrap Hand Tool	K330-ND	13.50
Power Unwrap Bit/Sleeve for 20-26 AWG	K384-ND	45.00
Power Unwrap Bit/Sleeve for 26-32 AWG	K385-ND	45.00

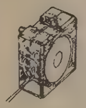
Battery Powered and Manual Wire Wrap Tools



Model BW-520 is a heavy duty battery operated wire wrapping tool, also available in a reversible model, for wrapping and unwrapping operations. Useful for field service work as well as small production job's. Available with backforce to prevent overwrapping. Batteries Included. Uses bits and sleeves above.

Description	Digi-Key Part No.	Price
Heavy Duty Battery Wrap Gun (includes batteries)	K381-ND	254.40
Battery Wrap/Unwrap Gun (includes batteries)	K382-ND	281.61
Battery Wrap Gun w/ Backforce (includes batteries)	K383-ND	266.23
Manual Wrap Tool Lexan for use w/ bits and sleeves above	K398-ND	93.50
Manual Wrap Tool Aluminum for use w/ bits and sleeves above	K399-ND	129.00

Tri-Color Dispenser



- 3 Rolls of Wire in one dispenser.
- 3 Colors: Blue, White, Red. 50 ft. of each color.
- AWG 30 (0,25 mm) KYNAR Insulated Wire.
- Built-In Plunger cuts wire to desired length.
- Built-In Stripper strips 1" of insulation.
- Refillable (for refills, see below).

Description	Digi-Key Part No.	Price
Tri-Color Dispenser	K227-ND	19.75
Replacement Rolls	K228-ND	14.95

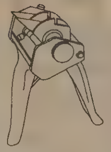
Single Wire Dispenser

- With 50 ft. Roll of AWG 30 KYNAR wire-wrapping wire.
- Built-in Plunger cuts wire to desired length.
- Built-In Stripper strips 1" of insulation.
- Refillable (for refills, see below).

Description	Digi-Key Part No.	Price
Blue Wire	K223-ND	11.75
Yellow Wire	K224-ND	11.75
White Wire	K225-ND	11.75
Red Wire	K226-ND	11.75
Dispenser Replacement Rolls		
30-AWG Blue 50 Ft. Roll	K229-ND	7.50
30-AWG Yellow 50 Ft. Roll	K230-ND	7.50
30-AWG White 50 Ft. Roll	K231-ND	7.50
30-AWG Red 50 Ft. Roll	K232-ND	7.50

OK Industries Inc.

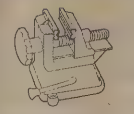
Lead Bender



Hand tool for rapidly bending component leads to preset dimension. Pointers on tool accurately set lead distance to match hole to hole locations on printed circuit board. The K400-ND will bend 0.016" to 0.055" diameter leads with an easy squeeze of the handles.

K400-ND **72.00**

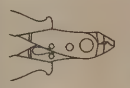
Vacuum Vise



Unique vacuum based light duty vise for precision handling of small components and assemblies. Rugged ABS construction. 1-1/2" (38 mm) wide jaws, 1-1/4" (32 mm) travel for maximum versatility. Also features screw lugs for permanent installation. Mounting screws included.

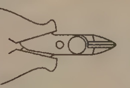
K143-ND Vacuum Vise **10.50**

Surface Mount - Prototype Tools



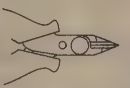
This tool cuts and clinches the lead in one operation. Handles lead diameters up to 18 AWG/.040". Size: 5"

K401-ND **22.48**



Fine Flush Cutter suitable for up to a maximum of 20 AWG copper wire. Size: 4,5"

K403-ND **22.48**

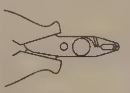


50° Angle Flush Cutter enabling access in most difficult areas. Size: 4.5"

K404-ND **22.48**

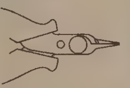
Reversed Cutting Tool a finely machined tool ideal for cutting the leads of flat pack components on SMT Boards. Size: 4.5"

K405-ND **28.40**



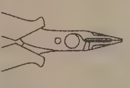
30° Angle Head Cutter with small profile cutting jaws, providing good access to component leads and wires. Size: 4.5"

K406-ND **26.03**



Micro Nose Plier with finely ground jaws, ideal for handling small components.

K407-ND **22.48**



Fine Round Nose Plier with 45° angle jaws, enabling easy reach into difficult work areas. Size: 4.5"

K408-ND **26.03**

EREM® Tweezers

Straight Tapered Tip Tweezer

EROP 4 1/2". Straight, round, tapered tip tweezers. Provide larger, flat gripping surface for handling a variety of small components.

EROP2A-SA-ND **$6.76**

Straight Precision Tip Tweezer

EROP 4 1/4". Straight Point Tweezer. For general use.

EROP3C-SA-ND **$6.82**

Curved Precision Tip Tweezer

EROP 4 1/2". Curved precision tip tweezers improve visibility when used under magnification.

EROP7-SA-ND **$6.82**

Straight Fine Tip Tweezer

EROP 5". General use straight point tweezers with hardened tips.

EROPAA-SA-ND **$6.76**

Angled Cutting Tip Tweezer

EREM 4 1/2". 304/305 stainless steel. Angled cutting tweezer. Cuts wire to .010 diameter. Nonmagnetic and noncorrosive. Resistant to hydrochloric and nitric acids.

15A-GW-ND **$46.56**

Straight Soft Carbon Tip Tweezer

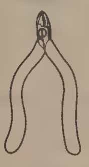
EREM 5". 304/305 stainless steel. Soft carbon tipped handling tweezer. Soft tips minimize scratching or nicking of fragile wires and parts. Temperature range is 250° to 300°F. Nonmagnetic and noncorrosive. Resistant to hydrochloric and nitric acids.

249-SA-ND **$48.64**

EREM Ergonomic Diagonal Cutters and Pliers

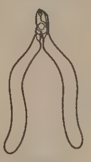
Diamond-Xcelite® has developed the ergonomic handle specifically to reduce wrist discomfort caused by frequent compression. This design not only reduces pressure of the median nerve but on the fingers and hand as well. Soft foam grips eliminate pressure on the sides of fingers preventing skin, nerve and vessel damage. • Handle coil springs standard. • Forged from high quality alloy steel. • Polished heads.

Diagonal Cutting Plier EMS54-ND



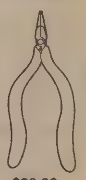
$25.22

Angled Cutting Plier EGA54J-ND



$37.20

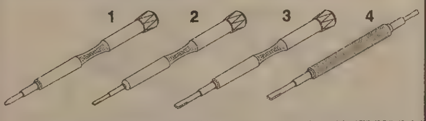
Needle Nose Plier ELN54-ND



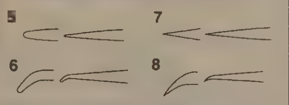
$26.66

NEW! AVEN Ceramic Tuning Tools, Tweezers, Knives and Blades

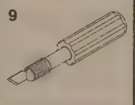
Ceramic blade alignment tools for zero electromagnetic induction



Plastic static dissipative tweezers



Knife



Blades

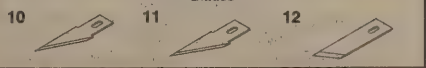


Fig.	Description	Digi-Key Part No.	Price 1
1	1.7 mm Phillips Blade	243-1011-ND	10.00
2	1.3 mm Flat Blade	243-1012-ND	10.00
3	2.6 mm Flat Blade	243-1013-ND	10.00
4	4 in 1 Reversible, (#0 & #1 Phillips, .9 mm & 1.8 mm Flat Blade)	243-1014-ND	32.46
5	Straight, Flat, Rounded Tips	243-1001-ND	3.40
6	Curved, Rounded Tips	243-1002-ND	3.40
7	Very Fine, Straight Tips	243-1003-ND	3.40
8	Very Fine, Curved Tips	243-1004-ND	3.40
—	Utility Knife with Rubber Grip	243-1005-ND	2.55
9	Heavy Duty Utility Knife	243-1006-ND	2.51
—	3-Piece Knife Set (Light, Med. & Hvy. Duty, 10 Asst. Blades)	243-1010-ND	11.23
10	No. 2 Med. to Heavy Blade, 5 Pc.	243-1007-ND	1.29
11	No. 11 Precision Blade, 5 Pc.	243-1008-ND	1.09
12	No. 24 Deburring Blade, 5 Pc.	243-1009-ND	1.14

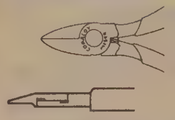
DIAMOND-Xcelite

COPALOY® ELECTRONIC PLIERS

All Copaloy pliers are furnished with coil spring and plastic covered handles.

The copper alloy rivet distinguishes the Copaloy® line of miniature electronic pliers. Like a precision bearing, Copaloy® eliminates steel-against-steel friction in a permanent, corrosion-proof joint that will wear longer and smoother . . . and maintain perfect alignment of tips and cutting edges. Each plier is drop forged of special analysis steel for extreme toughness and rigidity. Cutting edges are electronically hardened. Machining is to close tolerances, with individual finishing and testing for exact fit of jaws. All have polished heads with gun metal handles.

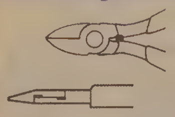
Thin Diagonal Cutter



Diagonal flush cutter, ground down on back side for reaching into confined places. Size: 4".

MS54-3-ND **$17.32**

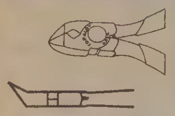
Flush Diagonal Cutter



Diagonal cutter with flush ground cutting edges. Size: 4".

MS54-ND **$15.22**

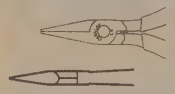
Angled Flush Cutter



Cutting blade is flush ground and angled at 208. Cutting plier is designed to give long wear for cutting soft wire. Size: 4".

GA54-ND **$27.20**

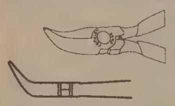
Long Nose Pliers



Very fine point for delicate work in very confined areas. Has scored jaws. Size: 4".

L4-ND **$15.16**

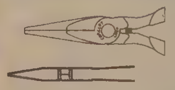
Curved Long Nose Pliers



For reaching into confined places. Nose bent approximately 608. Smooth jaws. Size: 5".

CN54-ND **$18.72**

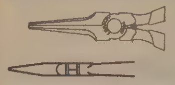
Long Nose Pliers



Has finely scored jaws. Size: 4".

COO-LN54-ND **$16.66**

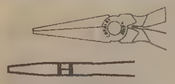
Needle Nose Pliers



Has scoring on jaws. Size: 4".

NN54-2-ND **$19.72**

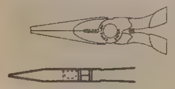
Duck Bill Pliers



Flat nose duck bill pliers with smooth jaws. Size: 5".

DN54-G-ND **$15.22**

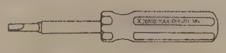
Long Nose Side Cutter



Similar to long nose pliers but with 7/32" cutter near joint. Size: 4".

SN54-ND **$18.72**

4-in-1 Screwdriver



4 bits in one compact tool. Changes in seconds: pull out, reverse, snap back, 2 Phillips bits and 2 slotted bits are always ready. Alloy steel, heat treated for maximum strength, precision ground and polished. Large, 6-spline, easy-to-grip red Tenite handle.

FSD-1V-ND **$11.76**

Swanstrom Tools USA Tools

Cutters and Pliers

Standard or Ergonomic Handles

Fig. 1

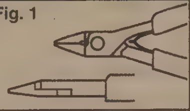


Fig. 2

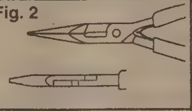


Fig. 3

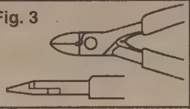


Fig. 4

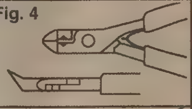


Fig. 5

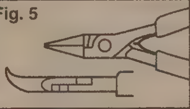


Fig. 6

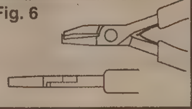


Fig. 7

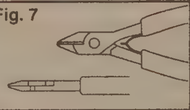
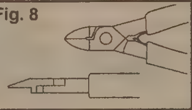


Fig. 8



Spartan Standard:

- High carbon, alloy forged American steel—for long tool life.
- Alloy steel rivets—for smooth action.
- Machined and lapped joints—for better jaw alignment.
- Polished finish—for cleanliness and rust prevention.
- Double stainless steel leaf spring—for quick action.
- Soft touch static dissipative foam grips—to minimize ESD & CTS.

Fig. No.	Description	Digi-Key Part No.	Price Each	Mfg. Part #
	Cutter Tapered			
1	Flush Standard. Size: 4"	10312-ND	23.00	415
1	Flush Standard. Size: 5"	10318-ND	25.00	515
	Long Nose Serrated Shear Cut			
2	Standard. Size: 6"	10314-ND	28.00	351
	Long Slim Nose Smooth Jaw			
2	Standard. Size: 5"	10319-ND	20.00	324
	Long Slim Nose Serrated Jaw			
2	Standard. Size: 5"	10315-ND	20.00	325
2	Standard. HD. Size: 6"	11029-ND ***NEW!***	22.00	631
	Cutter Oval			
3	Flush Standard. Size: 4"	10311-ND	23.00	411
3	Flush Standard. Size: 5"	10317-ND	25.00	511
3	Flush Standard. Size: 6"	11028-ND ***NEW!***	26.00	611
	Angle End Nipper			
4	Standard. Size: 4" Flush	10313-ND	31.50	491
	Curved Needle Nose			
5	Smooth Standard. Size: 5"	10316-ND	26.00	240

Super Ergonomic:

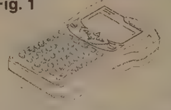
- Swedish American high chromium, alloy forged steel—for maximum tool life.
- Electronic induction hardening—for maximum cutter life.
- Hard alloy self-lubricating bearings—for perfect jaw alignment.
- Precision machined and lapped joints—for perfect jaw alignment.
- Beautiful black anti-glare finish—to minimize visual fatigue.
- Soft touch double stainless steel leaf springs—for smooth minimum effort.
- Soft touch static dissipative foam grips—to minimize ESD & CTS.

Fig. No.	Description	Digi-Key Part No.	Price Each	Mfg. Part #
	Cutter Tapered			
1	Flush Ergonomic. Size: 4"	10303-ND	47.00	S415E
1	Flush Ergonomic. Size: 5"	10309-ND	47.00	S515E
	Long Nose Serrated Shear Cut			
2	Ergonomic. Size: 6"	10305-ND	38.00	S351E
	Long Slim Nose Smooth Jaw			
2	Ergonomic. Size: 5"	10306-ND	28.00	S324E
	Long Slim Nose Serrated Jaw			
2	Micro. Needle Nose. Size: 4"	11031-ND ***NEW!***	23.00	S109
2	Ergonomic. Size: 5"	10310-ND	28.00	S325E
	Cutter Oval			
3	Flush Ergonomic. Size: 4"	10302-ND	47.00	S411E
3	Flush Ergonomic. Size: 5"	10308-ND	47.00	S511E
	Angle End Nipper			
4	Ergonomic. Size: 4" Flush	10304-ND	51.00	S491E
	Curved Needle Nose			
5	Smooth Ergonomic. Size: 5"	10307-ND	33.00	S240E
5	Smooth. Size: 5"	11030-ND ***NEW!***	30.00	S340
	Crimp & Bend Cutter			
6	Anti-shock shear cut. .040"	11032-ND ***NEW!***	48.00	S205B
	Short Nose Cutter			
7	Taper shear. Size: 5"	11033-ND ***NEW!***	37.00	SC15E
	Oval Short Nose Cutter			
8	Slim, FF, w/stop for cir. boards. 6"	11034-ND ***NEW!***	44.00	S63E

NEW! DYMO®

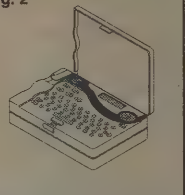
Labelmakers & Label Tape

Fig. 1



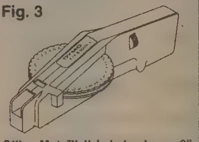
Dymo 2000™ Electronic Labelmaker: • ABC style keyboard • 15-character LCD display • Compact lightweight design • Prints in 6 sizes, 2 widths and 3 heights (including Bar Code) • Dimensions: 7.6" x 4.3" x 2.6"

Fig. 2



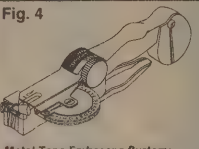
Dymo 3500™ Electronic Labelmaker: • 8 1/2-character LCD display • QWERTY (typewriter style) keyboard • Prints vertical and horizontal labels in 6 sizes, 3 widths and 2 heights • Dimensions: 6.6" x 2.2" x 4.2"

Fig. 3



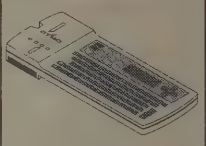
Office-Mate™ II Labelmaker: • 2" character horizontal wheel • Imprints 3/8" & 1/2" tape • Jam-free tape cutter with automatic tab for easy tape-backing removal

Fig. 4



Metal Tape Embossng System: • 1.188" horizontal wheel • Heavy duty cast aluminum • Built-in hole punch • Front scissor cut-off

Fig. 5



Dymo 6000™ Electronic Labelmaker: • Prints up to 4 lines, horizontally or vertically • Underlines and boxes • Bold, italic or outline-style type can be mixed • Bar Code formats • Numbers labels sequentially and repeats up to 99 times • Produces bar-code formats • 4-line graphic display • Stores up to 6000 characters

Labelmakers

Fig.	Description	Digi-Key Part No.	Price Each
1	Dymo 2000™ Electronic Labelmaker	20201-ND	205.00
2	Dymo 3500™ Electronic Labelmaker	21910-ND	125.00
3	Office-Mate™ II Labelmaker	22540-ND	41.10
4	Metal Tape Embossing System	23011-ND	275.05
5	Dymo 6000™ Electronic Labelmaker	24001-ND	395.00
—	Carrying Case for Dymo 6000™	24011-ND	81.00
—	AC Adaptor for Dymo 6000™	25112-ND	37.79
—	Cutter Blade for Dymo 6000™	24030-ND	37.79
—	Black Ink Ribbon, 3/4"x163' for Dymo 6000™	170100-ND	21.55
—	Red Ink Ribbon, 3/4"x163' for Dymo 6000™	170300-ND	21.55
—	Blue Ink Ribbon, 3/4"x163' for Dymo 6000™	170200-ND	21.55

Label Tape

Colors available for the following tapes:

Vinyl Tape: (print/tape color)	Glossy Vinyl: (tape color)	Tape Cassette 1/4" x 32': (tape color)	Tape Cassette 1/2" x 32': (tape color)	Tape Cassette 3/4" x 32': (tape color)
Black/Blue	Black	Blue	Blue	Blue
Black/Red	Blue	Red	Red	Red
Black/White	Red	White	White	White
Black/Clear	Clear	Clear	Clear	Green
Black/Green	Green	Green	Green	Yellow
Black/Yellow	Yellow	Yellow	Yellow	Gold
Blue/White	Orange		Gold	Silver
Blue/Clear	Brown		Silver	
Red/White	Neon Pink			
Red/Clear	Neon Green			
White/Black	Neon Yellow			
White/Clear				

How to order tape: **1 1 ☐☐ ☐☐ - ND**

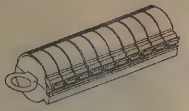
Base Part Number — Print Color — Tape Color

Print Color	
00	N/A
01	Black
02	Blue
03	Red
04	White

Tape Color					
01	Black	06	Green	11	Neon Green
02	Blue	07	Yellow	12	Neon Yellow
03	Red	08	Orange	13	Gold
04	White	09	Brown	14	Silver
05	Clear	10	Neon Pink		

Description	Digi-Key Part No.	Price Ea. 1 Roll
Vinyl Tape, 1/2"x23' for Dymo 2000™ & 3500™	11☐☐☐☐-ND	18.00
Vinyl Tape, 3/4"x23' for Dymo 2000 Only	12☐☐☐☐-ND	25.00
Glossy Vinyl Tape, 3/8"x12' for Office-Mate™ II	13☐☐☐☐-ND	3.25
Glossy Vinyl Tape, 1/2"x12' for Office-Mate™ II	14☐☐☐☐-ND	4.09
Tape Cassette, 1/4"x32' for Dymo 6000™	17☐☐☐☐-ND	17.29
Tape Cassette, 1/2"x32' for Dymo 6000™	18☐☐☐☐-ND	17.29
Tape Cassette, 3/4"x32' for Dymo 6000™	19☐☐☐☐-ND	21.60
Aluminum Tape w/Adhesive, 1/2"x12' for Metal Tape Embossing System	150000-ND	6.00
Aluminum Tape Non-Adhesive, 1/2"x16' for Metal Tape Embossing System	160000-ND	2.99

3M Scotchcode Wire Marker Tape Dispenser



BK = Black
BL = Blue
BN = Brown
GN = Green
GY = Gray
OR = Orange
RD = Red
VL = Violet
WH = White
YL = Yellow

Description	Digi-Key Part No.	Price
Dispenser Only	STD-ND	9.10
Dispenser with 0-9 Marker Tape	STD-0-9-ND	27.70
Dispenser with Colored Marker Tape	STD-C-ND	27.70
Refill, 1 roll, number – □ = 0 thru 9	SDR-□-ND*	2.04
Refill, 1 roll, colors – □□ = Color Designation	SDR-□□-ND*	2.04

* Refill Rolls 8 Feet in Length

3M Electrical Tape

Description	Digi-Key Part No.	Price
Super 33 + Vinyl Plastic Electrical Tape (¾" x 66')	3M33 + A-ND	4.26/Roll
Super 88 Vinyl Plastic Electrical Tape (¾" x 66')	3M88A-ND	4.80/Roll
Highland Vinyl Plastic Tape (¾" x 66')	3M1700-ND	.78/Roll
Vinyl Mastic Pad (3 ¼" x 4 ½")	3M11008-ND	2.48/Roll
Vinyl Mastic Pad (2 ½" x 2 ½")	3M06149-ND	7.42/25

3M Tape

Scotch™ brand No. 5413 Polyimide Film Tape

Increase your productivity with this superior performing Kapton™ polyimide film tape. • Chemical and radiation resistant polyimide film is dimensionally stable at high temperatures, and flame retardant. • Strong, heat resistant silicone adhesive resists adhesive transfer at elevated temperatures, providing higher productivity. • Rated for continuous use at 500°F and intermittent use at 700°F, Scotch™ brand No. 5413 provides an excellent mask for high temperature powder coating. **Construction:** • Backing: Kapton™ Polyimide Film • Adhesive: Silicone • Liner: None • Color: Amber • Roll Length: 36 yds. (33m) **Typical Physical Properties:** • Adhesion to Steel: 20 oz./in. width (22N/100mm) • Tensile Strength at Break: 33 lbs./in. width (578N/100mm) • Elongation at Break: 60% • Backing Thickness: 1 mil (.03mm) • Total Tape Thickness: 2.7 mils (.07mm) • Temperature Use Range: -100°F to 500°F (-73°C to 270°C)

Description	Width inch	Digi-Key Part No.	Price Each
Scotch™ brand No. 5413	0.75	3M541334-ND	29.09
Scotch™ brand No. 5413	0.5	3M541312-ND	18.62

Scotch™ brand No. 5414 Water Soluble Tape

Get reliable protection for your circuit boards during wave soldering with this water soluble tape. • Saves time and clean-up costs by completely dissolving during in-line, aqueous cleaning operations. • Biodegradable, non-toxic tape has a neutral pH and leaves no residue. • Eliminates static and labor usually associated with tape removal. • Packaged in a moisture impervious bag which ensures long term storage stability under extreme humidity. • Available in roll format or die-cut circles for easy application manually or by machine. **Construction:** • Backing: PVA film • Adhesive: Water soluble synthetic adhesive • Liner: Kraft paper • Color: Hazy, transparent • Standard Roll Length: 36 yds. (33m) **Typical Physical Properties:** Not recommended for specification purposes. • Adhesion to Steel: 7 oz./in. width (7.8 N/100mm) • Tensile Strength: 6.2 lbs./in. width (115.6 N/100mm) • Elongation at Break: 98% • Total Thickness: 2.5 mils (.06mm) • Dissolution Time: 40 seconds at 140° with agitation • Electrostatic Decay Time: <0.1 second **Features:** • Total water solubility • Low static upon liner release • Biodegradability • Absolute moisture barrier packaging plus desiccant

Description	Width inch	Digi-Key Part No.	Price Each
Scotch™ brand No. 5414	0.75	3M541434-ND	29.62
Scotch™ brand No. 5414	0.5	3M541412-ND	19.74

Scotch™ brand No. 5419 Low Static Polyimide Film Tape

A translucent, polyimide film-backed silicone adhesive tape with unique and extremely low electrostatic discharge properties. For gold tab protection during wave soldering of printed circuit boards. **General Information:** • 5419 tape employs a proprietary technology that results in extremely low electrostatic discharge at unwind and removal from the PWB. Conventional polyimide tapes can typically generate over 10,000 volts during use which can damage board mounted electronic components. 5419 tape overcomes this problem without any of the typical drawbacks of conventional "anti static" or "static-free" tapes (e.g., variable adhesion and opaqueness). • At room temperature the properties of polyimide and polyester film are similar. However, as the temperature increases or decreases, the properties of the polyimide film are less affected than polyester. • Polyimide film does not soften at elevated temperatures, thus, the film provides and excellent release surface at elevated temperatures. **Construction:** • Backing: Polyimide • Adhesive: Silicone • Color: Gold • Standard Roll Length: 36 yds (33m)**Typical Physical Properties and Performance Characteristics:** • Adhesion to Steel: 20 oz./in. width (22N/100mm) • Tensile Strength: 33 lbs./in. width (578N/100mm) • Elongation at Break: 60% • Backing Thickness: 1 mil (.03mm) • Total Tape Thickness: 2.7 mils (.07mm) • Temperature Use Range: -100°F to +500°F (-73°C to +260°C) • Dielectric Strength: 7000 volts • Insulation Resistance: >1*10⁶ ohms • Static Charge: (measured @ 50% RH, 70° in an ESD controlled environment • Removal from roll: <150 volts • Removal from PWB: <50 volts **Application Ideas:** • Mask for printed circuit boards during wave solder or solder dip process • Used as release surface in fabrication of parts cured at elevated temperatures.

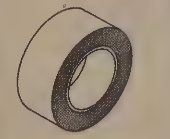
Description	Width inch	Digi-Key Part No.	Price Each
Low Static Polyimide Film Tape	0.75	3M591934-ND	29.85
Low Static Polyimide Film Tape	0.5	3M591912-ND	19.92

Scotch™ brand No. 854 Polyester Tape

An opaque, cream-colored polyester tape with excellent chemical resistance in precious metal plating, especially gold. **General Information:** • Polyester film backing imparts excellent chemical and thermal stability • Remains flexible at -60°F (-50°C) and retains dimensional stability up to 300°F (149°C) • **Construction:** • Backing: Polyester • Adhesive: Rubber • Color: Cream • Standard Roll Length: 72 yds.(66m) **Typical Physical Properties:** • Adhesion to Steel: 59 oz./in. width (64N/100mm) • Tensile Strength at Break: 29 lbs./in. width (509N/100mm) • Elongation at Break: 123% • Backing Thickness: 1 mil (.02mm) • Total Tape Thickness: 2.7 mils (.065mm) • Water Vapor Transmission Rate: 1.6 gms H_20/100sq. in./24 hrs (24.8 g/m²/24hrs) • Resists many solvents found in photographic, electroplating and chemical milling processes. Hot caustics will weaken the backing after prolonged immersion. • Extended periods of exposure to elevated temperatures or outdoor conditions will cause an increase in bond strength. However, the film can become brittle and lose its tensile strength. • Roll stability is excellent up to one year. **Application Ideas:** • Excellent chemical resistance in precious metal plating, especially gold. • Excellent results in sodium hydroxide etching of aluminum • Chemical milling • General splicing

Description	Width inch	Digi-Key Part No.	Price Each
Polyester Tape	0.75	3M85402-ND	25.35
Polyester Tape	0.5	3M85401-ND	12.66

Scotch™ brand No. 1285 Plating Tapes



3M's family of Scotch™ brand Plating Tapes is the answer to your PWB industry needs. • Scotch™ brand Plating Tapes each have a specially designed adhesive formulation for specific plating tape requirements. • All plating tapes have a 1 mil polyester backing that resists plating and etching solutions to help you reduce your board reject rate. Scotch™ brand 1285 are silicone-free plating tapes designed to eliminate the clean-up associated with silicone adhesive residue. 1285 is recommended for all types of PWBs. • Color: Blue • Adhesive Type: Rubber • Adhesive Thickness: 3 mils (.08mm) • Adhesive Strength: 25 oz./in. width (27N/100mm)

Description	Width inch	Digi-Key Part No.	Price Each
Plating Tape	1.0	3M12851-ND	25.35

Scotch™ brand Adhesive Transfer Tapes 9703

Scotch Adhesive Transfer Tapes aren't really "tapes" at all. They're actually thin strips of pressure sensitive adhesive pre-applied on special release liners. This allows you to quickly and easily apply a neat, precise strip of clean, dry adhesive exactly where you want it. And with no mess or time-consuming cleanup. They are very often the better alternative to liquid adhesives, hot melts, staples, waxes and other conventional joining methods. **Mounts flat, flexible circuits:** Scotch 9703 Adhesive Transfer Tape features electrical conductivity only through the adhesive thickness, not along the plane of the tape. This allows you to mount or splice flat, flexible circuits very quickly. Completely eliminates the need for soldering, solvents, messy cleanup. • Thickness: 0.002" (.05mm) • Adhesive: Acrylic A-40 **Applications:** • Attach EMI/RFI shields • Connect flat flexible circuits • Attach electronic components

Description	Width inch	Digi-Key Part No.	Price Each
Adhesive Transfer Tape	0.75	3M970334-ND	74.26
Adhesive Transfer Tape	0.5	3M970312-ND	55.68

Scotch-Mount™ brand No. 4008 & 4026 Double Coated Foam Tapes

These tapes are composed of a layer of adhesive, a foam carrier, another layer of adhesive and a liner. The foam carrier makes them flexible and conformable, great for filling space and ideal for joining rough and irregular surfaces. • Adhesive: Acrylic A-20 **Description:** Off-white, open-cell urethane foam carrier. features high shear adhesive with high temperature resistance. **Applications:** • Bond mirrors to walls or furniture • Bond acoustic panels to walls • Mount air fresheners and soap dispensers • Mount interior signs and nameplates • Attach wire clips to various surfaces

Description	Thickness inch	Digi-Key Part No.	Price Each
Double Coated Foam Tape	0.125	3M4008-ND	38.57
Double Coated Foam Tape	0.062	3M4026-ND	22.31

3M Spray Pumps

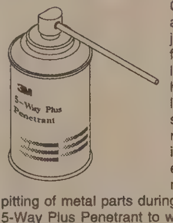
Citrus Base Cleaner

3M
Citrus Base Cleaner

Pump action puts 100% active ingredients on a dirty surface and helps you remove oil, grease, tar, liquid adhesive, adhesive tape residue, inks, dirt and scuff marks. Non-corrosive, this industrial strength cleaner/degreaser has a fresh citrus scent. Residue can be washed away with water. **Features:** • No chlorinated solvents • Cleans gently • Fresh citrus scent **Typical Physical Properties:** • Base: Citrus oil • Density (approx): 7.2 lbs • Odor: Citrus • Flash point: 112°F (44°C) • Color: Clear • Solids (by wt.): 4-6% **Handling/Application Information:** Thoroughly coat 3M Citrus Base Cleaner on surfaces or parts being cleaned. Wait a few minutes to allow maximum penetration and loosening action. Then wipe away with a clean, damp rag. Wipe with clean cloth, let air dry. Repeat application when substance to be removed is too thick for maximum penetration. *Note:* 3M Citrus Base Cleaner may attack some plastics, painted materials and rubbers. The Cleaner should be tested on a small area of any surface or part being cleaned before using. **Storage and Handling:** Store product at 60-80°F (16-27°C) for maximum storage life.

Description	Digi-Key Part No.	Price Each
Citrus Base Cleaner	3M624668-ND	5.71

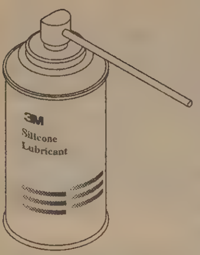
5-Way Plus Penetrant



Concentrated in this compact pump are 100% active ingredients for five jobs. 1. Penetrates: Helps free rusted, frozen bolts, nuts, controls and linkages. 2. Lubricates: Migrates to hard-to-reach areas and provides a long-lasting lubricating film. No silicone. 3. Demoisturizes: Displaces moisture and "dries out" electrical ignitions, generators and other electrical apparatus. 4. Helps prevent rust: Uniform film inhibits corrosion and pitting of metal parts during storage. 5. Helps stop squeaks: Put 5-Way Plus Penetrant to work indoors and out on tools, gauges, motors, appliances, or metal parts where you want to help stop squeaks.

Description	Digi-Key Part No.	Price Each
5-Way Plus Penetrant	3M624696-ND	4.55

3M brand Silicone Lubricant



In a palm-sized, spray pump which now makes your job that much easier.

This versatile spray:

- Resists temperatures to 350°F (177°C)
- Won't stain or become gummy
- Helps prevent build-up of glues, waxes, inks and paints
- Lubricates cutting tools and tables

- **Contains no:**
  - Chlorofluorcarbons (CFCs)
  - 1,1,1-trichloroethane
  - methylene chloride

- FDA acceptable; Conforms to FDA regulations for indirect food additives (21 CFR and 178.3570), surface lubricants (21 CFR & 178.3910), and release agents (21 CFR & 181.28)

Application Ideas:

• Printing presses • Punch presses • Lab equipment • Oil field equipment • General plant maintenance • Locks and pulleys • Musical instruments • Doors/Windows • Air conditioner fans • Cutting blades • Die cutting equipment • Slitters • Collators • Air tools • General lube

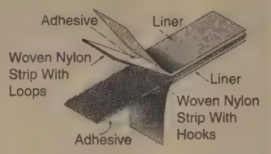
You get two major benefits: • No aerosol propellant, so you're not paying for chemicals you don't need on the job or in the air. • Helps put more chemical to work for your money.

At only 6 fluid ounces, you may think the pump won't take you far. It fits in your palm and tucks in a tool box for take-it-to-the-job convenience. But each pump holds enough active ingredients for two typical 16 fluid ounce aerosol cans. That means concentrated value and fewer cans for disposal. Contents are not under pressure. Spray pumps contain no chloroflourocarbons (CFCs), 1,1,1-trichloroehtane, or methylene chloride.

Description	Digi-Key Part No.	Price Each
Silicone Lubricant	3M624678-ND	5.95

3M Fastening Systems

Scotchmate™ brand Hook and Loop Fastening Systems



When the two sides of a Scotchmate Hook and Loop Fastener are pressed together, hundreds of tiny, stiff hooks mesh with a surface of pliable loops. You simply press together to fasten and pull apart to open. And do it thousands of times during the life of your product. Depending on the application, select either plain-backed or adhesive-backed versions. Plain-backed versions are easily sewn or stapled in place. Adhesive-backed fasteners are available for bonding to bare or painted metal, many plastics including plasticized vinyl, plus wood, glass and more.

Plain, standard sew on:

Wash or dry clean. • Operating Temp.: Up to 250°F (121°C) continuous. • Features: Tailored appearance for garments.

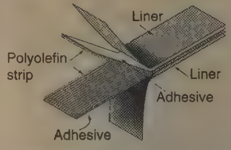
Pressure sensitive rubber adhesive:

- **Operating Temp.:** -20°F to 120°F (-29°C to 49°C)
- **Features:** General purpose adhesion to most smooth surfaces.

Note: Roll length is 50 yards

Description	Digi-Key Part No.	Price Each
Hook and Loop Fastening Systems		
Loop, plain back sew on, 5/8" x 50 yd., black	SJ340158-0-ND	10.77
Hook, plain back sew on, 5/8" x 50 yd., black	SJ340258-0-ND	10.77
Loop, plain back sew on, 5/8" x 50 yd., white	SJ340158-9-ND	10.77
Hook, plain back sew on, 5/8" x 50 yd., white	SJ340258-9-ND	10.77
Loop, plain back sew on, 1" x 50 yd., black	SJ340110-0-ND	15.38
Hook, plain back sew on, 1" x 50 yd., black	SJ340210-0-ND	15.38
Loop, plain back sew on, 1" x 50 yd., white	SJ340110-9-ND	15.38
Hook, plain back sew on, 1" x 50 yd., white	SJ340210-9-ND	15.38
Hook, adhesive back, 5/8" x 50 yd., black	SJ352658-0-ND	52.34
Loop, adhesive back, 5/8" x 50 yd., black	SJ352758-0-ND	52.34
Hook, adhesive back, 1" x 50 yd., black	SJ352610-0-ND	65.44
Loop, adhesive back, 1" x 50 yd., black	SJ352710-0-ND	65.44

Dual Lock™ brand Reclosable Fastening Systems



When Dual Lock brand Reclosable Fasteners are pressed together, hundreds of mushroom-shaped stems interlock with one another. An audible snap announces that the fastener is locked. Compared to hook and loop fasteners, you get improved tensile strength with five times more holding power. Open and close hundreds of times during the life of your product. Depending on the applications, you can select either plain-backed or adhesive-backed versions. Plain-backed versions can be easily sewn, stapled or ultrasonically bonded in place. Adhesive-backed versions are available for bonding to bare or painted metal, many plastics including plasticized vinyl, plus wood, glass and more. Mating Type 400 and Type 170 stems provides the most universal Dual Lock fastener combination. As an alternative when the closure involves two flexible surfaces, Type 400 can be mated with itself. For even greater strength closures with limited openings and closing, Type 170 can be mated with Scotchmate Loop Products. **Plain-backed:** Sew on or staple. Wash or dry clean. • Operating Temp.: -20°F - 200°F (-29°C - 93°C) **Pressure sensitive rubber adhesive:** General purpose. Bonds to most surfaces. • Operating Temp.: -20°F - 120°F (-29°C - 49°C) continuous. **Pressure sensitive very high bond Scotch™ VHB™ acrylic adhesive:** High performance for aircraft, automotive, business equipment, electronics. Resists harsh wet/dry, hot/cold cycles. • Operating Temp.: -20°F -158°F (-29°C - 70°C) continuous

Note: Roll length is 50 yards

Description	Digi-Key Part No.	Price Each
Dual-Lock Fastening Systems		
Loop, plain back sew on, .5", black	SJ344112-ND*	57.23
Hook, plain back sew on, .5", black	SJ344212-ND•	57 23
Loop, plain back sew on, 1", black	SJ344110-ND*	95.40
Hook, plain back sew on, 1", black	SJ344210-ND•	95.40
Loop, pressure sensitive adhesive back, .5", black	SJ354112-ND*	72 59
Hook, pressure sensitive adhesive back, .5", black	SJ354212-ND•	72.59
Loop, pressure sensitive adhesive back, 1", black	SJ354110-ND*	121.03
Hook, pressure sensitive adhesive back, 1", black	SJ354210-ND•	121.03
Dual-Lock High Bond Fastening Systems		
Loop, pressure sensitive adhesive back, .5", black	SJ355112-ND*	104.39
Hook, pressure sensitive adhesive back, .5", black	SJ355212-ND•	104.39
Loop, pressure sensitive adhesive back, 1", black	SJ355110-ND*	166.82
Hook, pressure sensitive adhesive back, 1", black	SJ355210-ND•	166.82
Hook, plain back sew on, .5", clear	SJ346012-ND	65.41
Loop, pressure sensitive very hi bond back, .5", clear	SJ356012-ND	116.77
Hook, plain back sew on, 1", clear	SJ346010-ND	109.09
Loop, pressure sensitive very hi bond back, 1", clear	SJ356010-ND	186.62

* Mating Type 400 • Mating Type 170

3M Bumpons® Protective Products

(Available in: White, Gray, Brown, Black)
(Dimensions in inches.)

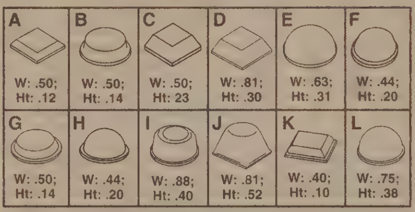


Fig.	Digi-Key Part No.*	Pricing					
		8	80	520	1,040	3,040	6,080
A	SJ5508-☐-ND	.52	4.44	24.05	32.00/M	30.00/M	29.00/M
		56	560	1,008	3,024	6,048	9,072
B	SJ5012-☐-ND	3.87	33.18	49.38/M	34.01/M	32.01/M	31.00/M
		8	80	520	1,040	3,080	6,080
C	SJ5518-☐-ND	.90	7.68	41.57	55.00/M	52.00/M	50.00/M
		4	36	504	1,008	5,040	10.080
D	SJ5523-☐-ND	.68	5.24	61.10	84.00/M	79.00/M	75.00/M
		40	520	1,000	5,000	10,000	15,000
E	SJ5027-☐-ND	6.96	77.52	86.00	81.00/M	77.00/M	71.00/M
		56	560	1,008	3,024	6,048	9,072
F•	SJ5303-7-ND	4.46	38.19	56.83/M	39.01/M	37.01/M	35.00/M
		56	560	1,008	3,024	6,048	9,072
G•	SJ5312-7-ND	4.47	38.35	57.08/M	39.01/M	37.01/M	35.00/M
		56	560	1,008	3,024	6,048	9,072
H	SJ5003-☐-ND	3.59	30.81	45.86/M	32.01/M	30.00/M	28.01/M
		24	72	504	1008	5,040	10,080
I	SJ5009-☐-ND	6.97	17.92	104.54	143.00/M	136.00/M	129 00/M
		4	36	504	1,008	5,040	10,080
J	SJ5514-☐-ND	1.59	12.25	142.86	196.01/M	186.00/M	176.00/M
		54	540	1,080	3,024	6,048	9,072
K	SJ5007-0-ND	3.25	27.85	42.98/M	30.00/M	28.00/M	27.00/M
		40	520	1,000	5,000	10,000	15,000
L	SJ5017-☐-ND	8.91	99.28	110.00	104.00/M	99.00/M	91.00/M

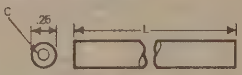
* To designate color, use the following numbers: **9**–white, **8**–gray, **1**–brown, **0**–black, in the ☐ of each part number. • Transparent.

Johnson Components

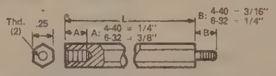
Formerly EJJohnson Components

Spacers

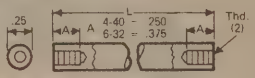
Round Tubular (Aluminum)



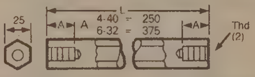
Hex Threaded M/F (Aluminum)



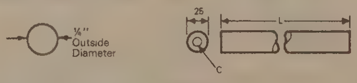
Round Threaded (Aluminum)



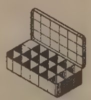
Hex Threaded (Aluminum)



Nylon Round Tubular



Spacer Kit



Components included are 10 each of part numbers marked with ●. 150 components. Price includes convenient divided plastic box with bin guide for easy storage and quick access.

Catalog No. **J200-KIT-ND** **$29.95**

Thread Size	Clear-ance	Dim L	Digi-Key Part No.	Pricing 10	100	250
Round Tubular Spacers						
—	4(.115)	187	J166-ND	1 01	9.11	21.26
—	4(.115)	.250	J167-ND•	1.07	9.63	22.47
—	6(.140)	.125	J168-ND•	.98	8.80	20.53
—	6(.140)	.250	J169-ND•	1.07	9.63	22.47
Hex Threaded Male/Female Spacers						
4-40	—	.250	J210-ND	3.09	27.77	64.79
4-40	—	.375	J211-ND	3.35	30.15	70.35
6-32	—	.500	J212-ND	3.40	30.60	71.40
6-32	—	625	J213-ND	3.44	30.98	72.29
6-32	—	.750	J214-ND	3.49	31.41	73.29
6-32	—	.875	J215-ND	3 55	31.95	74.55
6-32	—	1.000	J216-ND	3.67	32.99	76.97
6-32	—	1.250	J217-ND	3.88	34.92	81 48
6-32	—	1.500	J218-ND	5.08	45.68	106.58
Round Threaded Spacers						
4-40	—	.375	J170-ND•	1.24	11 12	25.94
4-40	—	.500	J241-ND	1.60	14.40	33.60
4-40	—	.625	J242-ND	3.31	29.77	69.46
4-40	—	.750	J240-ND	2.99	26.93	62.84
4-40	—	.875	J171-ND•	3.13	28.15	65.68
4-40	—	1.000	J243-ND	3.16	28.44	66.36
4-40	—	1.250	J172-ND•	2.86	25.74	60.06
6-32	—	.500	J244-ND	1.60	14.40	33.60
6-32	—	.625	J173-ND•	2.55	22.91	53.45
6-32	—	.750	J245-ND	2.99	26 93	62.84
6-32	—	.875	J246-ND	3.13	28.15	65.68
6-32	—	1.000	J247-ND	3.16	28.44	66.36
8-32	—	.500	J248-ND	1.01	9.11	21.26
8-32	—	.750	J249-ND	2.99	26.93	62.84
8-32	—	1.000	J250-ND	3.16	28.44	66.36
Hex Threaded Spacers						
4-40	—	.375	J174-ND•	1.39	12.47	29.09
4-40	—	.625	J175-ND•	2.94	26.42	61.64
4-40	—	.875	J176-ND•	3.05	27.47	64.10
6-32	—	.250	J177-ND•	1.24	11.12	25.94
6-32	—	.500	J178-ND•	1.55	13.95	32.55
6-32	—	.625	J179-ND•	1.70	15.30	35.70
6-32	—	.750	J180-ND•	2.93	26.35	61.48
6-32	—	1.000	J181-ND•	3.01	27.09	63.21
Nylon Round Tubular Spacers						
—	4(.115)	.125	J230-ND	.49	4.41	10.29
—	4(.115)	.187	J231-ND	.52	4.64	10.82
—	4(.115)	.250	J232-ND	.54	4.86	11.34
—	6(.140)	.312	J233-ND	.61	5.51	12.86
—	6(.140)	.375	J234-ND	.76	6.86	16.01
—	6(.140)	.500	J235-ND	.90	8.06	18.80
—	6(.140)	.625	J236-ND	1.05	9.41	21.95
—	6(.140)	.750	J237-ND	1.15	10.31	24.05

Alligator Clips

Fig. A

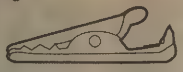


Fig. B

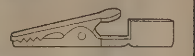
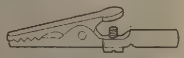
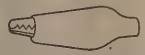


Fig. C



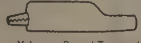
Large With Screw Conn.

Fig. D



Small with Solder Conn.

Fig. E



X-Large Barrel Type w/ Solder Connection

Fig. F

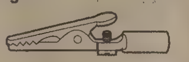
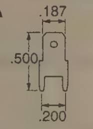


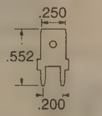
Fig.	Description	Color	Size	Digi-Key Part No.	Pricing 1	10	100
A	w/o Cover	—	27mm	CP-2400-ND	.36	2.93	22.50
A	w/o Cover	—	35mm	CP-2401-ND	.36	2.93	22.50
A	w/o Cover	—	44mm	CP-2402-ND	.36	2.93	22.50
B	w/o Cover	—	50mm	CP-2403-ND	.40	3.25	25.00
C	w/Wire Term	—	50mm	CP-2404-ND	.44	3.58	27.50
A	w/Screw	—	44mm	CP-2405-ND	.44	3.58	27.50
D	w/Cover	Black	27mm	CP-2406-ND	.44	3.58	27.50
D	w/Cover	Red	27mm	CP-2407-ND	.44	3.58	27.50
E	w/Cover	Black	35mm	CP-2408-ND	.44	3.58	27.50
E	w/Cover	Red	35mm	CP-2409-ND	.44	3.58	27.50
E	w/Cover	Black	44mm	CP-2410-ND	.52	4.23	32.50
E	w/Cover	Red	44mm	CP-2411-ND	.52	4.23	32.50
E	w/Screw, w/Cov	Black	44mm	CP-2412-ND	.60	4.88	37.50
E	w/Screw, w/Cov	Red	44mm	CP-2413-ND	.60	4.88	37.50
F	w/Handle	Black	50mm	CP-2414-ND	.52	4.23	32.50
F	w/Handle	Red	50mm	CP-2415-ND	.52	4.23	32.50

Terminals

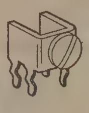
A



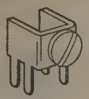
B



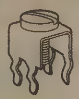
C



D



E



F

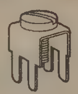
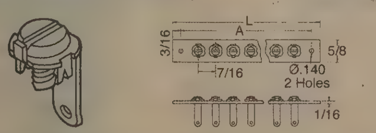


Fig. No.	Description	Digi-Key Part No.	Pricing 10	100
A	.187 PC Quick-Fit Tab Terminal	1285K-ND	.56	3.74
B	.250 PC Quick-Fit Tab Terminal	1287K-ND	.66	4.43
—	Terminal Hand Insertion Tool	1288K-ND	18.26/1	
C	Snap-In PC Horiz MT Screw Terminal	7690K-ND	—	19.48
C	Snap-In PC Horiz MT Screw Terminal	7692K-ND*	—	25.31
D	PC Horiz MT Screw Terminal	8190K-ND	—	17.78
D	PC Horiz MT Screw Terminal	7700K-ND*	—	24.49
E	Snap-In PC Vert MT Screw Terminal	7691K-ND	—	17.90
E	Snap-In PC Vert MT Screw Terminal	7693K-ND*	—	23.98
F	PC Vert MT Screw Terminal	8191K-ND	—	16.39
F	PC Vert MT Screw Terminal	7701K-ND*	—	23.29

* Screw Installed & Captivated

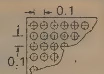
Standard Binding Post Strips

Material Specifications: Fiberglass: Reinforced Polyester NEMA Grade GPO-1, rated for 300°F (155°C).



Length (L)	Mfg. Centers	No. of Terminals (A)	Digi-Key Part No.	Pricing 1	1,000
3-7/8	3-1/2	7	4173K-ND	1.88	941.63

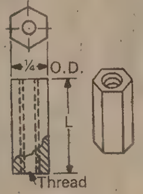
Prepunched Insulating Boards



Dimensions Width	Length	Digi-Key Part No.	Pricing 1	10	Mfg. Part No.
Perfboard — Holes .042" Diameter, Glass Epoxy					
2.00	4.50	3405K-ND	2.42	20.09	3405
2.00	6.00	3406K-ND	3.14	26.06	3406
2.75	17.00	3407K-ND	9.44	78.35	3407
3.00	4.50	3408K-ND	3.28	27.22	3408
4.50	6.00	3409K-ND	4.62	38.35	3409
4.50	6.50	3410K-ND	5.34	44.32	3410
4.50	8.50	3411K-ND	6.66	55.28	3411
4.50	17.00	3412K-ND	12.98	107.73	3412
6.00	17.00	3413K-ND	17.48	145.08	3413

Nylon Spacers

Flame Retardant Hex Threaded Spacers — Material: Monsanto 340 FR UL 94V-0 rating



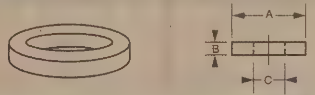
Economical for terminal or printed circuit board supports. Hex Threaded Spacers — Material: Nylon 6/6

"L" Length Inches	4-40 Thread Part No.	6-32 Thread Part No.	Pricing 10	100
.250	8440AK-ND	8441AK-ND	4.88	28.67
.375	8440BK-ND	8441BK-ND	4.99	29.29
.500	8440CK-ND	8441CK-ND	5.19	30.49
.625	8440DK-ND	8441DK-ND	5.70	33.46
.750	8440EK-ND	8441EK-ND	6.20	36.45
.875	8440FK-ND	8441FK-ND	6.41	37.65
1.000	8440GK-ND	8441GK-ND	6.72	39.46

"L" Length Inches	4-40 Thread Part No.	6-32 Thread Part No.	Pricing 10	100
.250	1902AK-ND	1903AK-ND	4.41	25 93
.375	1902BK-ND	1903BK-ND	4.52	26.53
.500	1902CK-ND	1903CK-ND	4.70	27.64
.625	1902FK-ND	1903FK-ND	4.10	24.08
.750	1902DK-ND	1903DK-ND	6.04	35.51
.875	1902GK-ND	1903GK-ND	4.62	27.12
1.000	1902EK-ND	1903EK-ND	6.08	35.71

Flat Washers

Fibre: Commercial per MIL-F-1148A, Grade CH Nylon: Grade 6/6 per ASTM D4066



Material	Screw Size	Dimensions (In.) A O.D.	B Thick	C I.D.	Digi-Key Part No.	Pricing 100	500	1,000
Fibre	#4	.250	.032	.120	3116K-ND	2.03	7.26	9.03
Fibre	#4	.312	.032	.120	348K-ND	2.01	6.80	9.52
Fibre	#4	.375	.032	.120	3117K-ND	2.33	8.33	10.36
Fibre	#4	.250	.047	.120	3154K-ND	2.19	7.82	9.73
Fibre	#4	.312	.047	.120	3155K-ND	2.39	8.55	10.64
Fibre	#4	.375	.047	.120	3156K-ND	2.68	9.56	11 90
Fibre	#4	.250	.062	.120	3368K-ND	2.41	8.61	10.71
Fibre	#4	.312	.062	.120	3196K-ND	2.98	10.63	13.23
Fibre	#4	.375	.062	.120	3197K-ND	2.77	9.90	12.32
Nylon	#4	.250	.032	.120	3348K-ND	2.32	8.27	10.29
Nylon	#4	.312	.032	.120	3359K-ND	3.20	11.42	14.21
Nylon	#4	.375	.032	.120	3118K-ND	3.39	12.09	15.05
Nylon	#4	.250	.047	.120	345K-ND	2.30	7.80	10.92
Nylon	#4	.312	.047	.120	3157K-ND	3.10	11.08	13.79
Nylon	#4	.375	.047	.120	3158K-ND	3.42	12.21	15.19
Nylon	#4	.250	.062	.120	3358K-ND	3.04	10.86	13.51
Nylon	#4	.312	.062	.120	3198K-ND	4.11	14.68	18.27
Nylon	#4	.375	.062	.120	3200K-ND	3.87	13.84	17.22
Fibre	#6	.250	.032	.140	3119K-ND	2.03	7.26	9.03
Fibre	#6	.312	.032	140	3120K-ND	2.14	7.65	9.52
Fibre	#6	.375	.032	.140	3121K-ND	2.33	8.33	10.36
Fibre	#6	.250	.047	.140	3159K-ND	2.19	7.82	9.73
Fibre	#6	.312	.047	.140	3160K-ND	2.39	8.55	10.64
Fibre	#6	.375	.047	.140	3161K-ND	2.68	9.56	11.90
Fibre	#6	.250	.062	.140	3369K-ND	2.41	8.61	10.71
Fibre	#6	.312	.062	.140	3370K-ND	2.63	9.39	11.69
Fibre	#6	.375	.062	.140	3201K-ND	2.77	9.90	12.32
Nylon	#6	.250	.032	.140	3122K-ND	2.32	8.27	10.29
Nylon	#6	.312	.032	.140	3349K-ND	2.54	9.06	11.27
Nylon	#6	.375	.032	.140	3123K-ND	3.39	12.09	15.05
Nylon	#6	.250	.047	.140	3162K-ND	2.46	8.78	10.92
Nylon	#6	.312	.047	.140	346K-ND	2.91	9.85	13.79
Nylon	#6	.375	.047	.140	3163K-ND	3.42	12.21	15.19
Nylon	#6	.250	.062	.140	3360K-ND	3.04	10.86	13.51
Nylon	#6	.312	.062	.140	3361K-ND	4.11	14.68	18.27
Nylon	#6	.375	.062	.140	3202K-ND	3.87	13.84	17.22

Recessed Bumpers

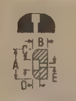


Fig. 1

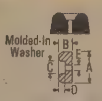


Fig. 2

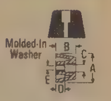


Fig. 3

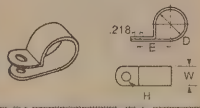
Provides excellent traction and shock absorbing qualities. Materials: Rubber, BUNA S, (fig. 1 & 2) Vinyl, (fig. 3).

Fig.	Dimensions (In.) A	B	C	D	E	Screw Size	Digi-Key Part No.	Pricing 10	100
1	500	.250	.250	.125	125	#4	720K-ND	1.38	9.29
1	.625	.312	250	.187	.125	#4	721K-ND	2 18	14.73
1	.718	.437	.250	.218	125	#4	722K-ND	4.38	29.54
2	.937	.375	.375	.187	.187	#8	723K-ND	4.20	28.32
3	.687	.250	.343	.125	.155	#6	724K-ND*	3.23	21.78
3	.875	.312	.406	.187	.187	#8	725K-ND*	5.96	40.20
3	1 062	.437	.468	.234	.200	#10	726K-ND*	7.43	50.08
3	562	.375	.218	.187	.115	#4	727K-ND	3.91	26.35
3	.750	.437	.265	.250	.148	#6	728K-ND	4.40	29.69
3	.937	.625	.359	.328	.174	#8	729K-ND	6.51	43.91

* Gray — all others black.

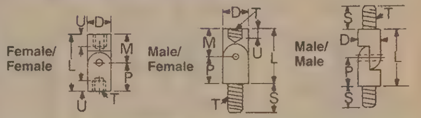
Cable Clamps

Ideal for securing, insulating and routing cable wiring, piping, tubing, components and fibre optics. Made of .050 thick nylon 6/6, white.



Dimensions (In.) D	E	W	H	Digi-Key Part No.	Pricing 100	500	1,000
.125	.325	.375	.140	7620K-ND	3.28	13.10	18 67
.125	.325	.375	.203	7621K-ND	3 28	13.10	18.67
.187	.380	.375	.140	7622K-ND	3 30	13.20	18 81
.187	.380	.375	.203	7623K-ND	3.30	13 20	18.81
.250	.410	.375	.140	7624K-ND	3.39	13.55	19.31
.250	.410	.375	.203	7625K-ND	3.39	13.55	19 31
.312	.445	.375	.140	7626K-ND	3.54	14.15	20.16
.312	.445	.375	203	7627K-ND	3.54	14.15	20.16
.375	.475	.375	.140	7628K-ND	3.76	15.05	21.45
.375	.475	.375	.203	7629K-ND	3.76	15.05	21.45
.437	.525	.375	.140	7630K-ND	3 93	15 70	22.37
.437	.525	.375	.203	7631K-ND	3.93	15.70	22.37
.500	.550	.375	.140	7632K-ND	4.04	16.15	23.01
.500	.550	.375	.203	7633K-ND	4 04	16.15	23.01
.562	.625	.500	.203	7634K-ND	6 16	24 65	35.13
.625	.660	.500	.203	7635K-ND	6.48	25.90	36.91
.750	.785	.500	.203	7636K-ND	7.41	29 65	42.25
.875	.845	.500	.203	7637K-ND	7.90	31.60	45.03
1.000	.910	.500	.203	7638K-ND	8 24	32 95	46.95
1.125	.970	.500	.203	7639K-ND	11.63	46.50	66.26
1.125	1.060	.500	.203	7640K-ND	12.63	50.50	71.96

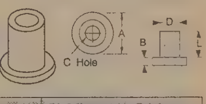
Hinged Standoffs



T Thread	D Dia.	Dimensions L	S	U	M	P	Digi-Key Part No.	Pricing 10	100
Female/Female Hinge									
4-40	.187	.750	—	.172	.375	.375	351K-ND	5.48	49.34
4-40	187	1.000	—	250	.375	.625	352K-ND	5 84	52 60
6-32	.250	.750	—	.172	.375	.375	353K-ND	7.82	70.37
6-32	.250	1.000	—	.250	.375	.625	354K-ND	7.99	71.87
8-32	.250	.750	—	.172	.375	.375	355K-ND	7.07	63.60
8-32	.250	1.000	—	.250	.375	625	356K-ND	7.44	66.93
Male/Female Hinge									
4-40	.187	.625	.250	.172	.375	.250	333K-ND	6.43	57 85
4-40	.187	.875	.250	.250	.625	.250	334K-ND	6.79	61.11
6-32	.250	.625	.312	.172	375	.250	335K-ND	7.74	69 62
6-32	.250	.875	.312	.250	.625	.250	336K-ND	7.90	71.12
Male/Male Hinge									
4-40	.187	.500	.250	—	—	.250	357K-ND	7.37	66.36
6-32	.250	.500	.312	—	—	.250	358K-ND	7.65	68.86
8-32	.250	.500	.312	—	—	.250	359K-ND	8.59	77.29

Nylon Shoulder Washers/Bushings

Material: Nylon, Grades 6/6 per ASTM DC789-66



Screw Size	Dimensions (In.) L	A	B	C	D	Digi-Key Part No.	Pricing 100	500
#4	.031	.218	.040	.115	.135	3049K-ND	3.99	15.95
#4	.047	.250	.032	.115	.185	7681K-ND	4.04	16.15
#4	.093	.235	.047	.115	.145	3053K-ND	4.73	18.90
#4	.125	.235	.047	.115	.145	3102K-ND	5.11	20.45
#4	.187	.235	.047	.115	.145	3103K-ND	5.11	20.45
#4	.250	.235	.047	.115	.145	340K-ND	5.11	20.45
#6	.032	.385	.062	.145	.240	7682K-ND	4.44	17.75
#6	.032	.250	.062	.140	.187	7683K-ND	3.83	15.30
#6	.032	.312	.062	.140	.187	7684K-ND	4.16	16.65
#6	.125	.290	.047	.140	.170	3054K-ND	5.24	20.95
#6	.187	.290	.047	.140	.170	3104K-ND	5.33	21.30
#6	.250	.290	.047	.140	.170	341K-ND	5.11	20.45
#6	.500	.290	.047	.140	.170	3055K-ND	5.64	22.55

ELECTRONIC HARDWARE

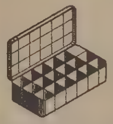
Description	Digi-Key Part No.	Pricing 100	Pricing 1000
Slotted, Panhead, Steel, Zinc Plated			
2 - 56 x ¼ Machine Screw	H130-ND	4.12	32.93
2 - 56 x ½ Machine Screw	H134-ND	4.64	37.15
2 - 56 x ¾ Machine Screw	H138-ND	5.55	44.40
4 - 36 x ½ Machine Screw	H140-ND	2.40	19.20
4 - 40 x ¼ Machine Screw	H142-ND	1.11	8.88
4 - 40 x 5/16 Machine Screw	H143-ND	1.21	9.70
4 - 40 x ½ Machine Screw	H146-ND	1.37	10.99
4 - 40 x ⅝ Machine Screw	H148-ND	1.52	12.14
4 - 40 x ¾ Machine Screw	H150-ND	1.68	13.44
6 - 32 x ¼ Machine Screw	H154-ND	1.48	11.81
6 - 32 x 5/16 Machine Screw	H155-ND	1.54	12.34
6 - 32 x ⅜ Machine Screw	H156-ND	1.59	12.72
6 - 32 x 7/16 Machine Screw	H157-ND	1.65	13.20
6 - 32 x ½ Machine Screw	H160-ND	1.69	13.54
6 - 32 x ⅝ Machine Screw	H164-ND	1.84	14.69
6 - 32 x ¾ Machine Screw	H168-ND	1.95	15.60
6 - 32 x 1 Machine Screw	H172-ND	2.29	18.34
8 - 32 x ¼ Machine Screw	H176-ND	2.01	16.08
8 - 32 x ⅜ Machine Screw	H180-ND	2.15	17.23
8 - 32 x ½ Machine Screw	H184-ND	2.27	18.19
8 - 32 x ⅝ Machine Screw	H188-ND	2.50	19.97
8 - 32 x ¾ Machine Screw	H192-ND	2.71	21.70
8 - 32 x 1 Machine Screw	H196-ND	3.23	25.87
10 - 32 x ½ Machine Screw	H200-ND	3.30	26.40
10 - 32 x ¾ Machine Screw	H204-ND	4.06	32.45
10 - 32 x 1 Machine Screw	H208-ND	5.48	43.87

Description	Digi-Key Part No.	Pricing 100	Pricing 1000
Phillips, Panhead, Steel, Zinc Plated			
2-56 x ¼ Machine Screw Phillips	H330-ND	4.12	32.93
2-56 x ½ Machine Screw Phillips	H334-ND	4.64	37.15
2-56 x ¾ Machine Screw Phillips	H338-ND	5.57	44.54
4-40 x ¼ Machine Screw Phillips	H342-ND	1.11	8.88
4-40 x 5/16 Machine Screw Phillips	H343-ND	1.21	9.70
4-40 x ½ Machine Screw Phillips	H346-ND	1.37	10.99
4-40 x ⅝ Machine Screw Phillips	H348-ND	1.52	12.14
4-40 x ¾ Machine Screw Phillips	H350-ND	1.68	13.44
6-32 x ¼ Machine Screw Phillips	H354-ND	1.48	11.81
6-32 x 5/16 Machine Screw Phillips	H355-ND	1.54	12.34
6-32 x ⅜ Machine Screw Phillips	H356-ND	1.59	12.72
6-32 x 7/16 Machine Screw Phillips	H357-ND	4.74	37.92
6-32 x ½ Machine Screw Phillips	H360-ND	1.69	13.54
6-32 x ⅝ Machine Screw Phillips	H364-ND	1.84	14.69
6-32 x ¾ Machine Screw Phillips	H368-ND	1.95	15.60
6-32 x 1 Machine Screw Phillips	H372-ND	2.29	18.34
8-32 x ¼ Machine Screw Phillips	H376-ND	2.01	16.08
8-32 x ⅜ Machine Screw Phillips	H380-ND	2.15	17.23
8-32 x ½ Machine Screw Phillips	H384-ND	2.27	18.19
8-32 x ⅝ Machine Screw Phillips	H388-ND	2.50	19.97
8-32 x ¾ Machine Screw Phillips	H392-ND	2.71	21.70
8-32 x 1 Machine Screw Phillips	H396-ND	3.23	25.87
10-32 x ½ Machine Screw Phillips	H400-ND	3.30	26.40
10-32 x ¾ Machine Screw Phillips	H404-ND	4.06	32.45
10-32 x 1 Machine Screw Phillips	H408-ND	5.48	43.87
Hex Nuts, Lock Washers			
2 -56 Hex Nut	H212-ND	1.31	10.51
4 -40 Hex Nut	H216-ND	.93	7.44
6 -32 Hex Nut	H220-ND	1.28	10.27
8 -32 Hex Nut	H224-ND	1.57	12.58
10 -32 Hex Nut	H228-ND	1.76	14.11
No. 2 Internal Tooth Lock Washer	H232-ND	1.26	10.08
No. 4 Internal Tooth Lock Washer	H236-ND	1.07	8.59

Description	Digi-Key Part No.	Pricing 100	Pricing 1000
No. 6 Internal Tooth Lock Washer	H240-ND	1.13	9.07
No. 8 Internal Tooth Lock Washer	H244-ND	1.20	9.60
No. 10 Internal Tooth Lock Washer	H248-ND	1.47	11.76
Phillips Nylon Machine Screw, Nylon 66*			
2-56 x ¼ Nylon Machine Screw Phillips	H530-ND	8.86	70.90
2-56 x ½ Nylon Machine Screw Phillips	H534-ND	9.10	72.82
2-56 x ¾ Nylon Machine Screw Phillips	H538-ND	9.26	74.11
4-40 x ¼ Nylon Machine Screw Phillips	H542-ND	8.86	70.90
4-40 x ⅜ Nylon Machine Screw Phillips	H544-ND	9.00	72.00
4-40 x ½ Nylon Machine Screw Phillips	H546-ND	9.10	72.82
4-40 x ⅝ Nylon Machine Screw Phillips	H548-ND	9.19	73.54
4-40 x ¾ Nylon Machine Screw Phillips	H550-ND	9.26	74.11
6-32 x ¼ Nylon Machine Screw Phillips	H554-ND	9.26	74.11
6-32 x ⅜ Nylon Machine Screw Phillips	H556-ND	9.43	75.46
6-32 x ½ Nylon Machine Screw Phillips	H560-ND	9.51	76.08
6-32 x ⅝ Nylon Machine Screw Phillips	H564-ND	9.57	76.56
6-32 x ¾ Nylon Machine Screw Phillips	H568-ND	9.59	76.75
6-32 x 1 Nylon Machine Screw Phillips	H572-ND	9.66	77.28
8-32 x ¼ Nylon Machine Screw Phillips	H576-ND	9.17	73.34
8-32 x ⅜ Nylon Machine Screw Phillips	H580-ND	9.24	73.92
8-32 x ½ Nylon Machine Screw Phillips	H584-ND	9.04	72.34
8-32 x ⅝ Nylon Machine Screw Phillips	H588-ND	9.46	75.70
8-32 x ¾ Nylon Machine Screw Phillips	H592-ND	9.42	75.36
8-32 x 1 Nylon Machine Screw Phillips	H596-ND	9.46	75.65
10-32 x ½ Nylon Machine Screw Phillips	H600-ND	10.19	81.55
10-32 x ¾ Nylon Machine Screw Phillips	H604-ND	10.20	81.60
10-32 x 1 Nylon Machine Screw Phillips	H608-ND	10.38	83.04
2-56 Nylon Hex Nut	H612-ND	10.55	84.38
4-40 Nylon Hex Nut	H616-ND	10.50	84.00
6-32 Nylon Hex Nut	H620-ND	10.80	86.40
8-32 Nylon Hex Nut	H624-ND	11.06	88.46
10-32 Nylon Hex Nut	H628-ND	11.30	90.43

*Nylon 66 melting point is 500°F

ELECTRONIC HARDWARE KITS



1600 pieces (unless otherwise noted) of zinc plated hardware complete with divided plastic box for easy storage.

1600-KIT-ND (Slotted)	**$17.95**
1601-KIT-ND (Slotted)	**$27.95**
1602-KIT-ND (Phillips)	**$17.95**
1603-KIT-ND (Phillips)	**$27.78**
1604-KIT-ND (Nylon - 1500 pcs)	**$53.94**

1600-KIT-ND & 1602-KIT-ND:

100	2 - 56 x ¼ Machine Screws
100	2 - 56 x ½ Machine Screws
100	4 - 40 x ¼ Machine Screws
100	4 - 40 x ½ Machine Screws
100	6 - 32 x ¼ Machine Screws
100	6 - 32 x ½ Machine Screws
100	8 - 32 x ⅜ Machine Screws
100	8 - 32 x ⅝ Machine Screws
100	2 - 56 Hex Nuts
100	4 - 40 Hex Nuts
100	6 - 32 Hex Nuts
100	8 - 32 Hex Nuts
100	No. 2 Internal Tooth Lock Washers
100	No. 4 Internal Tooth Lock Washers
100	No. 6 Internal Tooth Lock Washers
100	No. 8 Internal Tooth Lock Washers

1601-KIT-ND & 1603-KIT-ND:

100	6 - 32 x ⅜ Machine Screws
100	6 - 32 x ⅝ Machine Screws
100	6 - 32 x ¾ Machine Screws
100	6 - 32 x 1 Machine Screws
100	8 - 32 x ½ Machine Screws
100	8 - 32 x ¾ Machine Screws
100	8 - 32 x 1 Machine Screws
100	10 - 32 x ½ Machine Screws
100	10 - 32 x ¾ Machine Screws
100	10 - 32 x 1 Machine Screws
100	6 - 32 Hex Nuts
100	8 - 32 Hex Nuts
100	10 - 32 Hex Nuts
100	No. 6 Internal Tooth Lock Washers
100	No. 8 Internal Tooth Lock Washers
100	No. 10 Internal Tooth Lock Washers

1604-KIT-ND:

100	2-56 x ½ Machine Screws Nylon
100	4-40 x ¼ Machine Screws Nylon
100	4-40 x ⅜ Machine Screws Nylon
100	4-40 x ½ Machine Screws Nylon
100	4-40 x ¾ Machine Screws Nylon
100	6-32 x ¼ Machine Screws Nylon
100	6-32 x ½ Machine Screws Nylon
100	8-32 x ¼ Machine Screws Nylon
100	8-32 x 1 Machine Screws Nylon
100	10-32 x 1 Machine Screws Nylon
100	2-56 Hex Nuts Nylon
100	4-40 Hex Nuts Nylon
100	6-32 Hex Nuts Nylon
100	8-32 Hex Nuts Nylon
100	10-32 Hex Nuts

PANAVISE®

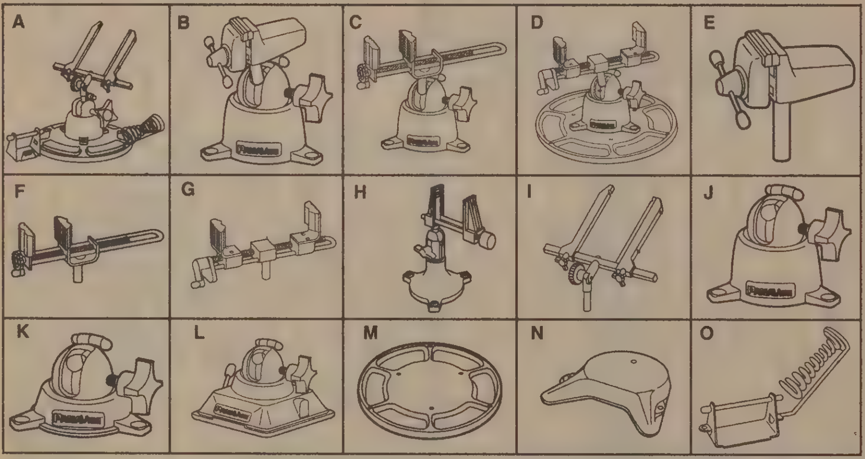


Fig.	Description	Digi-Key Part No.	Pricing
A	Panavise Deluxe Electronic Work Center - Solder wire & soldering station not included	324PV-ND	76.99
B	Standard Panavise Station (303 head/300 base)	301PV-ND	42.99
C	Wide Opening Panavise Station (366 head/300 base)	396PV-ND	45.99
D	Wide Opening-Self Centering Panavise Work Station (376 head/300 base/312 tray base mount)	350PV-ND	76.99
E	Standard Head - 2 1/2" wide, opens to 2 1/4"	303PV-ND	23.99
F	Wide Opening Head - 1 3/4" wide, opens to 6"	366PV-ND	30.99
G	Wide Opening-Self Centering Head - 1 3/4" wide, opens to 6"	376PV-ND	41.99
H	Panavise Junior Universal Vise	201PV-ND	19.95
I	Circuit-Board Holder - 6" arms, extends to 12" wide	315PV-ND	29.99
J	Standard Base 3 3/4" high	300PV-ND	19.99
K	Low-Profile Base - Only 2 1/2" high	305PV-ND	19.99
L	Vacuum Base	380PV-ND	31.99
M	Tray Base Mount - 8 1/2" dia., base mount only	312PV-ND	19.99
N	Weighted Base Mount	308PV-ND	27.99
O	Solder Station - Solder iron holder, wire holder and 2 slit sponges, can be used for left or right hand use	371PV-ND	10.99

PANAVISE®

The 502 Precision PanaPress is a 501 Standard PanaPress with four nylon gibs for precision directional control of the vertical ram.

The 506 Retrofit Kit converts a 502 Precision PanaPress into the 505 IDC Bench Assembly Press. The kit includes the assembly base, standard platen, modified ram, guide arm, and an allen wrench.

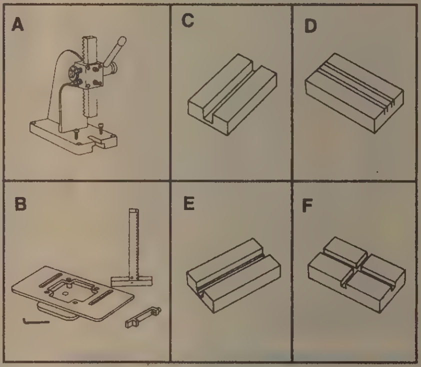
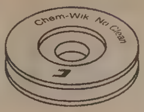


Fig.	Description	Digi-Key Part No.	Pricing
A	Hand Press Bench Mount	502PV-ND	109.99
B	Hand Press IDC Conversion Kit	506PV-ND	90.00
C	Standard IDC Card Edge Connector Base Plate	511PV-ND	26.99
D	Standard IDC Dip Plugs Base Plate	512PV-ND	26.99
E	Standard IDC D-Sub Connector Base Plate	513PV-ND*	26.99
F	Standard Female IDC Socket Base Plate	510PV-ND	26.99

* Do not use with CW Industries all plastic D-sub connectors.

Chemtronics®

Chem-Wik® Desoldering Braid



Pure copper braid construction coated with high purity rosin, quickly and thoroughly removes solder. Use Chem-Wik to remove components, SMDs, ICs, blobs and clean up poor solder connections.

Meets or exceeds these requirements: • Mil-F-14256F Type R • NASA NHB 5300.4(3A) Reliability and Quality Assurance publication • NASA SP-5002 Soldering Electrical Connections • NASA NPC200-4 Quality publication • DOD Standard 1686B and DOD Handbook 263 • Mil-B-81705C Static Decay Rate Provision • Mil-Std-2000A

Width (Inches)	Length (Feet)	Label Color	Digi-Key Part No.	Price Each 1	25	100	Chemtronics Part No.
.035	5	White	CW2-5-ND	2.10	1.89	1.53	2-5L
.050	5	Yellow	CW5-5-ND	2.10	1.89	1.53	5-5L
.075	5	Green	CW7-5-ND	2.20	1.98	1.60	7-5L
.100	5	Blue	CW10-5-ND	2.30	2.07	1.67	10-5L
.150	5	Brown	CW15-5-ND	2.70	2.43	1.96	15-5L
.025	25	White	CW2-25-ND	9.20	8.28	6.67	2-25L
.050	25	Yellow	CW5-25-ND	9.20	8.28	6.67	5-25L
.075	25	Green	CW7-25-ND	9.50	8.55	6.89	7-25L
.100	25	Blue	CW10-25-ND	10.20	9.18	7.40	10-25L
.150	25	Brown	CW15-25-ND	12.00	10.80	8.70	15-25L
.030	100	Gray	2-100L-ND ***NEW!***	36.70	33.03	26.61	2-100L
.050	100	Yellow	5-100L-ND ***NEW!***	36.70	33.03	26.61	5-100L
.075	100	Green	7-100L-ND ***NEW!***	38.10	34.29	27.63	7-100L
.100	100	Blue	10-100L-ND ***NEW!***	40.80	36.72	29.58	10-100L
.150	100	Brown	15-100L-ND ***NEW!***	48.10	43.29	34.88	15-100L

NEW! No-Clean Desoldering Braid

Width (Inches)	Length (Feet)	Label Color	Digi-Key Part No.	Price Each 1	25	100	Chemtronics Part No.
.030	5	Gray	2-5NC-ND	2.30	2.07	1.67	2-5NC
.050	5	Yellow	5-5NC-ND	2.30	2.07	1.67	5-5NC
.075	5	Green	7-5NC-ND	2.50	2.25	1.82	7-5NC
.100	5	Blue	10-5NC-ND	2.80	2.52	2.03	10-5NC

NEW! Swabs and Applicators

Use for general purpose cleaning of magnetic heads, video heads and optical pickups.

Fig. 1

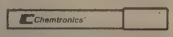


Fig. 2

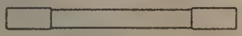


Fig. 3

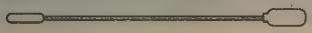


Fig. 4

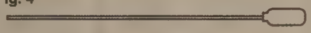


Fig. 5

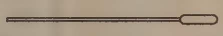


Fig. 6

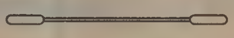


Fig.	Description	Length (in.)	Digi-Key Part No.	Price Each 1	25	100	Chemtronics Part No.
1	Chamois Tip, ABS Handle (15 Pcs)	3.25	CC15-ND	7.64	6.90	6.44	CC15
1	Chamois Tip, ABS Handle (50 Pcs)	3.25	CC50-ND	22.41	20.25	18.90	CC50
2	Chamois Tip, Double Ended (15 Pcs)	6.50	CCD15-ND	14.11	12.75	11.90	CCD15
2	Chamois Tip, Double Ended (50 Pcs)	6.50	CCD50-ND	41.00	37.05	34.58	CCD50
3	Foamtip Pro, Double Ended (10 Pcs)	6.75	CFP10-ND	5.23	4.73	4.41	CFP10
4	Foamtip, Wood Handle (15 Pcs)	6.125	CF15-ND	4.23	3.83	3.57	CF15
4	Foamtip, Polypro Handle (10 Pcs)	2.875	CF4010-ND	2.82	2.55	2.38	CF4010
4	Foamtip, Polypro Handle (10 Pcs)	6.125	CF3010-ND	2.99	2.70	2.52	CF3010
4	Foamtip, Polypro Handle (10 Pcs)	5.00	CF1010-ND	3.15	2.85	2.66	CF1010
5	Cottontip, Wood Handle (100 Pcs)	6.00	CT100-ND	2.24	2.03	1.89	CT100
5	Cottontip, Wood Handle (1000 Pcs)	6.00	CT1000-ND	17.43	15.75	14.70	CT1000
6	Cottontip, Double Ended (100 Pcs)	6.00	CT200-ND	2.32	2.10	1.96	CT200
6	Cottontip, Double Ended (1000 Pcs)	6.00	CT2000-ND	19.51	17.63	16.45	CT2000

NEW! Presaturated Wipes

Description	Digi-Key Part No.	Pricing Each 1	25	100	Chemtronics Part No.
Optic Prep High Quality Optical Cleaning and Polishing Pads (50 Pcs)	CP410-ND	13.11	11.85	11.06	CP410
Chempad General Purpose, Lint-free, Nonabrasive Cleaning Pads (50 Pcs)	CP400-ND	14.36	12.98	12.11	CP400
Screen-Prep Wet-and-Dry Wipes for Monitor Screens (25 Twin Packs)	CSP20-ND	15.44	13.95	13.02	CSP20
Gold Guard Pads for Cleaning Gold, Tin and Silver Contacts (50 Pcs)	CP420E-ND	26.48	23.93	22.33	CP420E

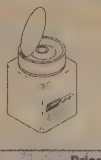
NEW! Heat Sink Grease

For fast heat transfer from components. • Nonflammable • Noncorrosive • Stable from -0°F to +342°F • Will not dry out, harden or melt • Meets MIL-C-47113

Description	Digi-Key Part No.	Price Each 1	25	100	Chemtronics Part No.
Silicon Grease, 5 oz. tube	CT40-5-ND	4.90	4.43	4.13	CT40-5

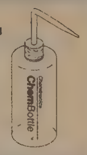
NEW! Liquid Dispensers

Chempump™



Automatic liquid dispenser eliminates waste caused by spills and evaporation.

Chembottle™



Provides controlled delivery of oils, solvents and cleaners.

Description	Digi-Key Part No.	Price Each 1	25	100	Chemtronics Part No.
Chempump 4 oz. Automatic Liquid Dispenser for Solvents	CP40-ND	14.86	13.43	12.53	CP40
Chempump 6 oz. Automatic Liquid Dispenser for Solvents	CP60-ND	15.11	13.65	12.74	CP60
Chembottle 4 oz. Liquid Dispenser with Curved Spout	CB40-ND	5.06	4.58	4.27	CB40
Chembottle 8 oz. Liquid Dispenser with Curved Spout	CB80-ND	5.73	5.18	4.83	CB80

EASY BRAID CO.

Desoldering Braid

QUICK BRAID™
EASY BRAID

25% cleaner than most major brands (leaving less residue on the desoldered connection). Meets the requirements of Mil-F-14256F Type R, Mil STD. 2000 and in compliance with DOD Standard 1686A. Also meets the requirements of Bellcore spec. TR-T5Y-000078 and Ipc Test Method III.

Width (Inches)	Length (Feet)	Label Color	Digi-Key Part No.	Price Each 1	25	50
Quick Braid						
.025	5	Silver	EB1020-ND	1.76	1.50	1.35
.025	25	Silver	EB1021-ND	7.64	6.50	5.85
.050	5	Gold	EB1022-ND	1.76	1.50	1.35
.050	25	Gold	EB1023-ND	7.64	6.50	5.85
.075	5	Green	EB1024-ND	1.76	1.50	1.35
.075	25	Green	EB1025-ND	7.64	6.50	5.85
.100	5	Blue	EB1026-ND	2.02	1.72	1.55
.100	25	Blue	EB1027-ND	9.28	7.90	7.11
.125	5	Brown	EB1028-ND	2.14	1.82	1.64
.125	25	Brown	EB1029-ND	9.52	8.10	7.29
No-Clean						
.025	5	Silver	EB1050-ND	1.97	1.68	1.52
.025	25	Silver	EB1051-ND	8.84	7.52	6.77
.050	5	Gold	EB1052-ND	1.97	1.68	1.52
.050	25	Gold	EB1053-ND	8.84	7.52	6.77
.075	5	Green	EB1054-ND	1.97	1.68	1.52
.075	25	Green	EB1055-ND	8.84	7.52	6.77
.100	5	Blue	EB1056-ND	2.35	2.00	1.80
.100	25	Blue	EB1057-ND	10.20	8.68	7.82
.125	5	Brown	EB1058-ND	2.75	2.34	2.11
.125	25	Brown	EB1059-ND	11.68	9.94	8.95

EASY BRAID CO. NEW!

63/37 Eutectic Solder

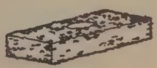
SEA STEP SOLDER
EASY BRAID

EasyBraid's No-Clean solder has excellent wetting action and is intended for applications where residue removal is not required or recommended. Available in .020" and .031" diameters and meets Bellcore Issue 3 TR-NWT-000078, IPC-SF-818 Type LR 3CN and IPC-SF-818 Type H3C specifications. Sea Step solder is water washable solder where flux residue becomes soluble in water. Available in regular bobbin or anti-static type bobbin.

Dia. (Inches)	Length (Feet)	Digi-Key Part No.	Price Each 1	25	50	EasyBraid Part No.
No-Clean Solder - 2.2% Flux						
.020	25	EB1060-ND	2.12	1.80	1.62	OS-S020
.020	25 antistatic	EB1061-ND	2.37	2.02	1.82	OS-S020AS
.031	20	EB1062-ND	2.12	1.80	1.62	OS-S031
.031	20 antistatic	EB1063-ND	2.37	2.02	1.82	OS-S031AS
Sea Step Solder - 2.2% Flux						
.020	25	EB1064-ND	2.12	1.80	1.62	SS-S020
.020	25 antistatic	EB1065-ND	2.37	2.02	1.82	SS-S020AS
.031	20	EB1066-ND	2.12	1.80	1.62	SS-S031
.031	20 antistatic	EB1067-ND	2.37	2.02	1.82	SS-S031AS

EASY BRAID CO.

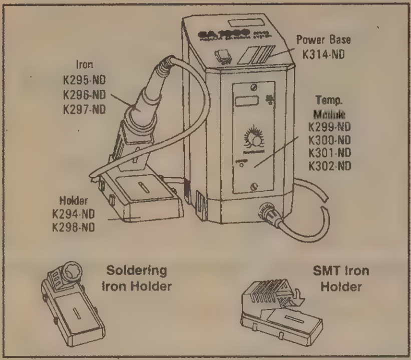
Solder Sponges



Replacements	Size (Inches)	Digi-Key Part No.	Price Each 1	10	100
OK Ind. 45803S	1.2 x 2.7	EB1001-ND	.75	.56	.48
Ungar 9901	1.55 x 2.55	EB1002-ND	.75	.56	.48
Weller MP	2 x 2.6	EB1003-ND	.84	.63	.54
Weller DS-100; EC-1000; EC-2000	2.2 x 3.5	EB1004-ND	1.14	.86	.73
Weller WTCP; EC-3000; EC-4000; TC205	2.6 x 2.6	EB1005-ND	1.17	.88	.75
Metcal; Plato CS-46	3.2 x 1.9	EB1006-ND	.96	.72	.61
Hexacon 810; 812; 890; 891; 892	3.4 x 4.4	EB1007-ND	1.98	1.48	1.26
Hakko 926; Plato CS-43	4 x 1.7	EB1008-ND	1.08	.81	.69
Sponge Sheet	8.5 x 17	EB1009-ND	18.75	14.00	11.88
EDSYN Models	2.4 x 3.2	EB1010-ND	1.14	.86	.73

OK Industries Inc.

Modular Soldering Station SA-1000



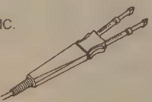
OK Industries' unique modular design allows the operator low cost system upgrades with its Connectorized Handpiece and Removable Temp Module. Changes can be made in seconds. Sold individually or as complete stations. Complete stations are supplied with Power Base, Variable Temp Module, Handpiece and Holder.

Static dissipative construction. Meets MIL-STD-2000, MIL-1686 and WS6536 D/E.

Input Voltage: 115V AC 50/60Hz. **Temp. Range:** 600°F to 800°F. **Temp. Repeatability:** ± 8°F. **AC Source Leakage:** <2mV rms. **Tip to Ground Resistance:** <2Ω. **Power Base Dim.:** 6" x 4" x 9.5". **AC Power Cord:** 115V AC 3-wire U.S. plug.

Description	Digi-Key Part No.	Price	OK Ind. Part No.
Complete Stations			
Micro Iron System, Vari., 115V, 40W	K333-ND	278.06	SA-1401-V
Tweezer Iron System, Vari., 115V, 40W	K334-ND	468.57	SA-1441-V
High Pwr. Macro System, Vari., 115V, 90W	K335-ND	278.06	SA-1901-V
Power Base			
Power Base	K314-ND	145.00	SA-1001
Temperature Modules			
Fixed Temp. Module, 700F	K299-ND	45.00	FTM-1
Tri-Temp. Module, 600F, 700F, 800F	K300-ND	59.16	TTM-1
Variable Temp., Analog, 600F-800F	K301-ND	59.16	VTM-1
Variable Temp., Digital, 600F-800F	K302-ND	176.30	DTM-1
Iron			
High Pwr. Macro Iron, 90W, 28V, RTD Sensor	K295-ND	79.50	SAI-690
Micro Iron, 40W, 28V, RTD Sensor	K296-ND	79.50	SAI-640
NEW! Iron - Replacement Parts NEW!			
Repl. Heat Assembly for K295-ND	K420-ND	40.14	15589S
Repl. Collar, Nut and Sleeve for K295-ND	K421-ND	13.84	15920S
Repl. Heat Assembly for K296-ND	K422-ND	44.00	16226S
Repl. Collar, Nut and Sleeve for K296-ND	K423-ND	14.79	16492A
Holders (Refer to Above)			
SMT Iron Holder	K298-ND	69.81	SAH-3
Soldering Iron Holder	K294-ND	39.64	SAH-1

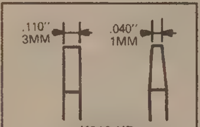
SMT Tweezers Iron



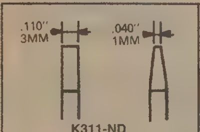
- Tweezer-Action handpiece for reflow of SMC.
- ESD-safe handle and cord.
- Includes S8-11 tip set.
- For use with modular soldering station.

K297-ND 40W Tweezer **225.00**

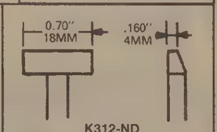
SMT Tweezer Replacement Tips



K310-ND



K311-ND

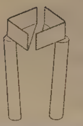


K312-ND

Description	Digi-Key Part No.	Price	OK Ind. Part No.
SMT Tweezer Replcmt. Tip	K310-ND	59.10	S8-11
SMT Tweezer Replcmt. Tip	K311-ND	59.10	S8-16
SMT Tweezer Replcmt. Tip	K312-ND	70.94	S8-70

For use with K297-ND.

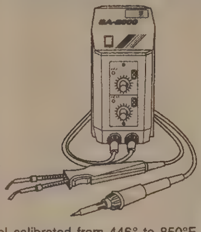
PLCC Tweezer Tips



The new SP-8 series PLCC Tweezer Tips address the Need for low cost PLCC Removal. The simple tweezer action simplifies the removal process to a single step, just squeeze and lift. For use with K297-ND.

Description	Digi-Key Part No.	Price 1	OK Ind. Part No.
28 Pin PLCC	K309-ND	70.99	S8-P28
44 Pin PLCC	K316-ND	76.91	S8-P44
52 Pin PLCC	K317-ND	76.91	S8-P52
68 Pin PLCC	K318-ND	76.91	S8-P68

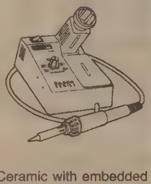
Dual Output Soldering System



Same features as OK's SA-1000 Series only with two handpieces. System comes complete with Power Base, Dual Variable Temp. Control and SAI-640 Handpiece for touch-up or fine soldering and SAI-644 SMT Tweezer® for surface mount removal. Also comes with Dual Handpiece Holder. Front panel calibrated from 446° to 850°F Dual heater indication, "Iron-On" LED's. Meets MIL-STD-2000A and MIL-STD-1686. Static dissipative construction for ESD safe operation. Independent on/off control for each iron. **Input:** 115VAC/60Hz; **Temp. Range:** 446-850°F; **Temp. Repeatability:** ±8°F; **Dim:** 6 x 4 x 9.5"; **Weight:** 10 lbs.

Description	Digi-Key Part No.	Price	OK Ind. Part No.
Dual Output Soldering System	K336-ND	656.70	SA-2841-VV

Variable Soldering Stations

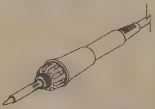


The powerful 70 watt ceramic heating element, combined with its closed loop temperature control results in quick efficient response. The low cost allows the operator to commit the station for one specific component. Closed loop temperature control. Zero voltage heater switching. 600° to 800°F (316° to 427°C). Better than 10°F (5.5°C) temperature repeatability. Less than 2mV rms leakage, 2Ω tip to ground resistance. **Input:** 115V AC, 50/60 Hz. **Iron:** 70W, 115V. **Heater:** Ceramic with embedded RTD. **Cord:** 3 wire, U.S. plug. **Dimensions:** 7 x 4.5 x 5.25". **Shipping Weight:** 2.4 lbs.

K313-ND Powerful 70W Macro Iron **130.16**
K409-ND ***NEW!*** Powerful 70W Macro Iron (ESD Safe Body) **149.19**

Note: To order replacement tips for K313-ND and K409-ND, use macro iron replacement tips (below).

Fixed Temp Soldering Iron



Solder Iron Fixed Temp. 850°F 115V. Grounded tip for ESD Protection.

- Durable, long-life ceramic heating element (35W).
- Quick heating, rapid response.
- Non-burn, silicon power cord (5').

K410-ND NEW! **35.25**

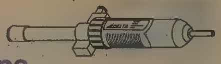
Note: For replacement tips use macro iron replacement tips (below).

Replacement Tips for Irons

Tip Dim.	Description	Digi-Key Part No.	Price	OK Ind. Part No.
Micro Iron Replacement Tips				
.047	Double Flat	K303-ND	6.51	S4-305L
.031	Conical	K304-ND	8.22	S4-203L
.047	Chisel	K305-ND	6.51	S4-105S
.047	Double Flat	K341-ND	6.51	S4-305S
.015	Conical	K342-ND	8.22	S4-201L
.020	Angled	K343-ND	8.22	S4-202B
Macro Iron Replacement Tips				
.020	Conical	K306-ND	8.22	S9-202L
.039	Conical	K307-ND	6.51	S9-204L
.031	Conical	K308-ND	8.22	S9-203S
.047	Double Flat	K344-ND	6.51	S9-305S
.015	Conical	K345-ND	8.22	S9-201L
.118	Chisel	K346-ND	6.51	S9-112L

NEW!

High Vacuum Desolder Pumps



Features durable corrosion resistant plastic construction and corrosion treated springs with uniform reset pressure and cushioned shock reduction. Fitted with replacable teflon tips.

Description	Digi-Key Part No.	Price 1
High-Vac Desoldering Pump with Tip	K412-ND	21.25
Repl. Teflon Tip for K412-ND	K413-ND	3.55
ESD Safe Desoldering Pump with Tip	K414-ND	29.52
Repl. ESD Safe Teflon Tip for K414-ND	K415-ND	5.03

KESTER

Flux-Core Solders

Description	Digi-Key Part No.	Price 1
RA Solder 3.3% Flux "44"		
1lb. Roll of 16 Gauge Solder 63/37 .051"	KE1100-ND	9.15
1lb. Roll of 19 Gauge Solder 63/37 .040"	KE1101-ND	9.67
1lb. Roll of 21 Gauge Solder 63/37 .031"	KE1102-ND	10.10
1lb. Roll of 25 Gauge Solder 63/37 .020"	KE1103-ND	14.13
RMA Solder 2.2% Flux "285"		
1lb. Roll of 21 Gauge Solder 63/37 .031"	KE1200-ND	10.10
1lb. Roll of 25 Gauge Solder 63/37 .020"	KE1201-ND	14.13
No Clean 1.1% Flux "245"		
1lb. Roll of 21 Gauge Solder 63/37 .031"	KE1400-ND	10.10
1lb. Roll of 25 Gauge Solder 63/37 .020"	KE1401-ND	14.13
Water Soluble 3.3% Flux "331"		
1lb. Roll of 21 Gauge Solder 63/37 .031"	KE1300-ND	10.10
1lb. Roll of 25 Gauge Solder 63/37 .020"	KE1301-ND	14.13
Bar Solder		
1lb. Oxide Free Bar Solder 63/37	KE1600-ND	5.95
Boxed Solder		
Pocket Pak Solder 21 Gauge 60/40	KE1801-ND	1.36
Elec. Silver Solder 24 Gauge 1oz. Box	KE1802-ND	2.69

Solder Paste

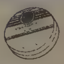
Kester solder paste was developed for applications of surface mount PCB's and components. All pastes are SN63/37Pb with mesh size of -325 +500 (25 to 40 microns) and come in 25gm syringes for hand and automatic application or 500gm jars for screen or stencil printing. **Pastes should be refrigerated to preserve their usable life.**

Note: To ensure customer satisfaction and product integrity, pastes must be shipped overnight or 2nd Day Air only.

Description	Digi-Key Part No.	Price 1
No Clean Paste 25gm Syringe	KE1500-ND	13.26
No Clean Paste 500gm Jar	KE1501-ND	99.96
Water Soluble Paste 25gm Syringe	KE1502-ND	13.26
Water Soluble Paste 500gm Jar	KE1503-ND	99.96
Plunger & Tip for 25gm Syringe	KE1504-ND	2.64
Plunger for 25gm Syringe	KE1505-ND	1.32

Flux - Pens

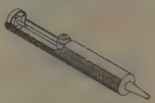
Rosin Paste



A new concept in rework and touch-up soldering. The Flux-pens spring-loaded tip dispenses just the right amount of Flux while preventing the Flux inside from drying out. The rosin paste is ideal for larger rework jobs of electronic assemblies while leaving no corrosive residue. For bench-top applications and touch-up soldering.

Description	Digi-Key Part No.	Price 1
SP44 Activated Rosin Paste Flux 2oz can	KE1700-ND	1.02
SP44 Activated Rosin Paste Flux 1lb. can	KE1701-ND	5.37
Tinning Block for Solder Tip's	KE1800-ND	2.50
Flux Pen - Formula 186 RMA	KE1803-ND	2.96
Flux Pen - Formula 951 No-Clean	KE1804-ND	2.96
Flux Pen - Formula 450 Water Soluble	KE1805-ND	2.96

Weidmüller
Paladin Tools



Desoldering Pump

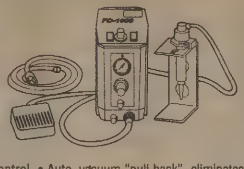
The desoldering tool removes solder with simple push-button operation. A conductive tool for anti-static operation. Replaceable tips available.

PAL1700-ND	Desoldering Pump	**$17.05**
PAL2712-ND	Replacement Tip	**$4.05**

PASTE

Paste Dispensing System

OK Industries Inc.



The FD-1000 is a low cost fluid dispensing system designed for the application of solder pastes and adhesives for SMT Assembly or Re-work. The compact ESD safe housing provides maximum performance with the smallest possible foot print. A solid-state timer with adjustable vacuum "pull back" ensures repeat-able dot sizes & helps eliminate wasted materials. **Each FD-1000 system includes:** FD-1000 dispenser, footswitch, 10cc dispenser adapter, dispenser stand, & DAK-1 accessory kit. **Features:** • Solid-state timer with indexed rotary control • Auto. vacuum "pull back" eliminates tailing • Stand for barrel storage • Unique ESD safe housing • Front panel control of dispense - pressure with gauge • Simplified set-up & operation • Front panel switchable for manual & timed modes

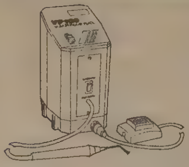
Description	Digi-Key Part No.	Price	OK. Ind. Part No.
Fluid Dispensing System	K347-ND	850.00	FD-1101

Paste Dispensing Tips

Tip Dia.	Description	Digi-Key Part No.	Price	OK Ind. Part No.
.078	Tan (50 pc.)	K348-ND	17.69	22-1139
.063	Gray (50 pc.)	K349-ND	17.69	22-1140
.05	Green (50 pc.)	K350-ND	17.69	22-1066
.038	Pink (50 pc.)	K351-ND	17.69	22-1072
.031	Blue (50 pc.)	K352-ND	17.69	22-1080

PLACE

Vacuum PickUp/ Placement



Handling and placement tool for small parts and components. Complete with vacuum source for fast set-up. Foot switch or finger vacuum activation.

System comes complete with 115VAC Base, Vacuum Pencil, Foot Switch and Nozzle Kit.

Power Supply: 115V AC, 60Hz.

Lifting Capacity: 21≤ (533 mm) Hg

Vacuum: Self-contained diaphragm pump.

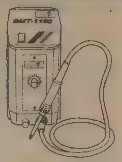
Dimensions: 6≤ x 4≤ x 9.5≤ (153 x 102 x 241 mm).

Weight: 2.5 lbs.

Description	Digi-Key Part No.	Price	OK Ind. Part No.
Vacuum Comp. Pencil	K285-ND	230.73	VP-161

REFLOW

Surface Mount Hot Air Soldering System



The SMT-1161-V is a non-contact hot air soldering system for most SMD's utilizing forced air convection. The SMT-1161-V is designed for low thermal-stress reflow. Primarily a soldering device, the SMT-1161-V can be utilized for SMT component removal also.

System Includes: Base with Pump, Variable Temp Module, Handpiece, Handpiece Holder, 3 Piece Nozzle Kit and Instruction Manual.

Input: 115VAC/60Hz **Temp. Range:** 600° - 800°F

Airflow: 1 to 6 liters/min. **Dimensions:** 5.7 x 4.3 x 8.5

Weight: 8.8 lbs.

Description	Digi-Key Part No.	Price	OK. Ind. Part No.
SMT Hot Air Soldering Sys.	K353-ND	895.00	SMT-1161-V

REWORK

Focused Convection Rework System with Vacuum

OK Industries Inc.

NEW! Demonstration Video
Available Free
Part Number **214002-ND**

Features: The all new FCR-2200 Series is a focused convection SMT rework system with vacuum pick-up. Utilizing a self-contained air source, the FCR-2200 regulates air flow and temperature to rework a wide range of components from discretes to PLCC and QFP. Its unique three-mode operation provides manual or semi-automatic control for component removal or replacement.

The FCR-2200 handpiece has a spring loaded vacuum tube which virtually eliminates mechanical stress when contacting the component. Additionally, the vacuum tube length is adjustable: the operator may extend it for better viewing during placement, retract it to allow the nozzle to "encapsulate" the component during reflow.

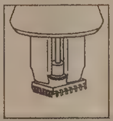
The FCR-2201 can operate in 3 modes of removal:

Manual Mode – Continuous Hot Air or on demand via Foot Switch.

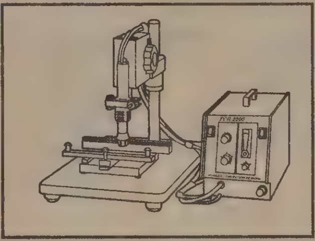
Auto Remove Mode – Sequenced and Timed Hot Air → Hot Air and Vacuum → Hot Air Shut Off → Vacuum Release

Auto Replace Mode – Sequenced and Timed Vacuum → Hot Air → Shut Off

The FCR-2201-WSA System comes complete with: • Base Controller with Pump, Temp, Time and Air Controller • Mode Select/Heater Timer Module • Handpiece with Vacuum, Cord, Connector • Dual Foot Switch for Vacuum and Heater Activation • Handpiece Holder • N-D25 Nozzle • 10 pcs. High Temp Silicon Vacuum Pads, Nozzle Removal Tool and Pad Removal Tool • RTS-A Adjustable Handpiece Stand and Stainless Steel Base Plate • RBH-A Adjustable Board Holder

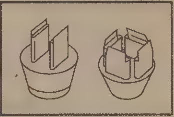


FCR-2201 System same as above except does not contain RTS-A and RBH-A.



Description	Digi-Key Part No.	Price	OK. Ind. Part No.
Deluxe Focused Convection SMT with Rework System	K354-ND	3188.86	FCR-2201-WSA
Focused Convection SMT with Rework System	K355-ND	1850.00	FCR-2201
Replacement Vacuum Pad 3/16" Dia. (10 pcs.)	K411-ND	23.67	18376S-10

Focused Convection Rework System Nozzles

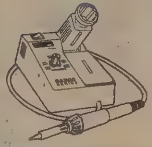


Type of Package	Digi-Key Part No.	1	OK. Ind. Part No.
Discrete	K357-ND	49.00	N-D25
Discrete	K358-ND	72.00	N-D4515
SOIC 8	K359-ND	115.00	N-S8
SOIC 14,16	K360-ND	115.00	N-S16
SOL 24,24J	K361-ND	115.00	N-SL24
SOL 28	K362-ND	115.00	N-SL28
PLCC-20	K363-ND	115.00	N-P20
PLCC-28	K364-ND	115.00	N-P28
PLCC-32	K365-ND	115.00	N-P32
PLCC-44	K366-ND	115.00	N-P44
PLCC-52	K367-ND	115.00	N-P52
PLCC-68	K368-ND	115.00	N-P68
PLCC-84	K369-ND	115.00	N-P84
QFP-44	K370-ND	115.00	N-Q10
QFP-52,80	K371-ND	115.00	N-Q14
QFP-64, 80,100	K372-ND	115.00	N-Q1420
QFP-120, 128, 144, 160	K373-ND	115.00	N-Q28

FUME EXTRACTON

Fume Extract Solder Station

OK Industries Inc.

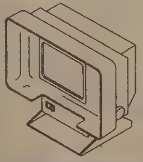


OK Industries' popular SA-571 adapted with a fixed fume extraction adaptor can be used with Fume Extraction Kit. Adaptor irons are used with Modular Solder System (SA-1000) to convert to fume extraction stations.

Description	Digi-Key Part No.	Price
Solder Station		
Complete Solder Station with Fume Extract Iron	K337-ND	165.65
Adapter Irons for SA-1000		
Micro Iron with Fume Extraction Adapter	K338-ND	115.00
High Power Macro Iron with Fume Extraction Adapter	K339-ND	115.00

NEW! Benchtop Fume Absorber

OK Industries Inc.

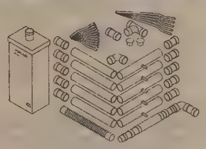


Aerodynamic hood design effectively draws solder fumes away from the work area. Carbon filters traps up to 80% of the flux fumes. Compact size and adjustable for convenient placement near work area. Optional articulating arm with bench mount clamp converts benchtop fume absorber to suspended fume absorber for positioning directly over the work area. An inexpensive alternative to individual fume extraction.

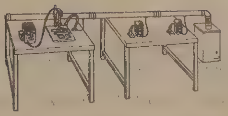
Description	Digi-Key Part No.	Price
Benchtop fume absorber 115V with 3 filters	K416-ND	106.49
Benchtop ESD safe fume absorber 115V w/3 filters	K417-ND	136.07
Articulating arm assembly kit with bench clamp	K418-ND	119.00
Replacement carbon filter set, 3 Pcs.	K419-ND	18.81

Fume Extraction Kit

OK Industries Inc.



K340-ND System



Example of K340-ND installed on bench with associated equipment.

With todays concerns about occupational asthma & personal exposure to flux fumes, OK Industries has launched its purification system which complies with OSHA Standards. Reduce employee sick time, reduce & eliminate occupational asthma, nose, throat & eye irritation.

Designed to run continuously with long filter life, this system complies with OSHA standards & the European COSHH (Control of Substances Hazardous to Health) standards. The air exhausted from the K340-ND is cleaner than the air you breath.

OK's Fume Extraction features include: • 3 Stage Filtration up to 99.997% • Low Noise (50dB) • ESD Safe • Thermal Safety Trip

Kit Includes: 5 Station Fume Extraction Unit complete with Pre-Filter and Hepa/Gas Main Filter, Air Silencer and all Piping and Hoses for 5 Station Fume Extraction.

Input: 115VAC **Ltr/min.:** 160 total, 32 per Tip **Duct Length:** 81ft.

Description	Digi-Key Part No.	Price	OK. Ind. Part No.
5 Station Fume Extraction Unit	K340-ND	1525.00	EP-051K
Filter Replacement Particle (5pcs)	K376-ND	45.00	EP-35PF
Filter Replacement HEPA/GAS	K377-ND	250.00	EP-35HGF

5-Core Solders

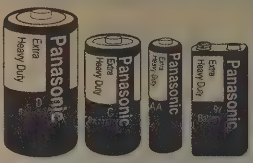
Multicore

Multicores flux cored solder contains 5 separate cores of flux inside of the solder wire. This design helps assure even wetting action and prevents "dry" or "cold" solder joints due to a void in the flux. No-Clean solder reduces or eliminates the need for post soldering cleaning. Water soluble solder has a non-corrosive flux that is soluble when exposed to water, eliminating the need for solvent washing. Dross-X is a solder dross reducing agent that can be applied directly to solder baths and wave soldering machines. Spot-on is a peelable solder masking that withstands the materials and conditions involved in soldering and cleaning without leaving a stain after removal.

Description	Digi-Key Part No.	Price
RA Solder 3.3% Flux 60/40		
1 Lb. Roll of 18 Gauge Solder (.048")	SN6018-ND	13.58
1 Lb. Roll of 20 Gauge Solder (.036")	SN6020-ND	14.36
1 Lb. Roll of 22 Gauge Solder (.028")	SN6022-ND	15.76
100 Ft. Econo Reel 19 gauge (.040")	ER220-ND	6.50
14 Ft. Dispenser Pak 18 gauge (.048")	EZ100-ND	2.39
13 Ft. Dispenser Pak. As above but extra thin (22 gauge, .028"). Specially suited for diodes, transistors, fine wires and piece work.	PC115-ND	1.99
RA Solder 3.3% Flux 63/37		
1 Lb. Roll of 16 Gauge Solder (.063")	SN6316-ND	11.42
1 Lb. Roll of 18 Gauge Solder (.050")	SN6318-ND	11.96
1 Lb. Roll of 20 Gauge Solder (.036")	SN6320-ND	12.62
1 Lb. Roll of 21 Gauge Solder (.032")	SN6321-ND	12.98
1 Lb. Roll of 22 Gauge Solder (.028")	SN6322-ND	13.80
1 Lb. Roll of 24 Gauge Solder (.022")	SN6324-ND	17.24

Description	Digi-Key Part No.	Price
No-Clean Solder 1.1% Flux 63/37		
1 Lb. Roll of 16 Gauge Solder (.063")	SN63B16-ND	12.28
1 Lb. Roll of 18 Gauge Solder (.050")	SN63B18-ND	12.64
1 Lb. Roll of 22 Gauge Solder (.028")	SN63B22-ND	14.74
1 Lb. Roll of 24 Gauge Solder (.022")	SN63B24-ND	18.36
.5 Lb. Roll of 28 Gauge Solder (.015")	SN63B28-ND	14.82
1 Lb. Roll of 19 Gauge Solder (1.5% flux)	SN63C19-ND	13.18
1 Lb. Roll of 21 Gauge Solder (1.5% flux)	SN63C21-ND	13.88
Water Soluble Solder 3.3% Flux		
1 Lb. Roll of 21 Gauge Solder 63/37 (.031")	SN63X21-ND	12.98
1 Lb. Roll of 21 Gauge Solder 60/40 (.031")	SN60X21-ND	12.58
Lead-Free Solder RA Flux		
.5 Lb. Roll of 22 Gauge Solder (.028")	SN9622-ND	33.16
Solder Accessories		
Dross Reducer, 1 qt. Dross-X	DROSS-X-ND	19.02
Tinner/Cleaner for Solder Tip	TTC-1-ND	6.16
Solder Mask Peelable 250mL	SPOT-ON-ND	5.90

Panasonic. Extra Heavy Duty Carbon Zinc Batteries



FEATURES: • Unsurpassed Leakage Resistance for a Longer Service Life • Discharge Characteristics Suited for All Applications • Excellent Storage Life

Panasonic Extra Heavy Duty battery is composed of: manganese dioxide for the positive-activating substance, zinc for the negative-activating substance, and an aqueous solution of neutral salts such as zinc chloride and ammonium chloride for the electrolyte.

APPLICATIONS: • Transistor radios, tape recorders, portable TVs, interphones, transceivers, electronic calculators, clocks and watches, communications equipment, measuring instruments and various other electronic products • Flashlights, pen lights and various other lighting devices • 8mm cameras, camera flashes and strobes and other photographic products • Gas and oil equipment, toys, etc.

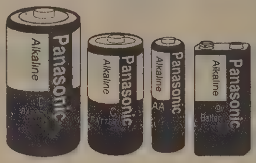
Also available in tabbed version of D, C, and AA cell batteries; denoted by "T" suffix in Digi-Key part number.

Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.

Size	(V)	Dimensions (In.) Dia.	Height	Weight* (Oz.)	Capacity (to 0.9V/Cell)	Digi-Key Part No.	Pricing Each	Pkg	Carton	Panasonic Part No.
D	1.5	1.339	2.421	3.74	700 hrs. (100Ω cont.)	P101-ND	.98	19.68/24	212.54/288	UM-1NX
C	1.5	1.024	1.969	1.87	310 hrs. (100Ω cont.)	P102-ND	.70	13.92/24	208.80/480	UM-2NX
AA	1.5	0.571	1.969	0.67	110 hrs. (100Ω cont.)	P103-ND	.46	22.80/60	171.00/600	UM-3NX
AAA	1.5	0.413	1.75	0.34	39 hrs. (100Ω cont.)	P265-ND	.33	13.00/50	345.80/2000	R03BPA/BK
N	1.5	0.472	1.19	0.23	30 hrs. (100Ω cont.)	P266-ND	.35	6.72/24	372.40/2000	UM-5NX
9V	9	1.91x1.04x0.69		1.34	2.5 hrs. (100Ω cont. to 5.4V)	P104-ND	1.58	362.88/288	567.00/600	006PNX
Lantern ‡	6	2-11/16" x 2-11/16" x 4-1/16"		20.0	Heavy duty type battery	P206-ND	3.73	40.23/12	40.23/12	W4FDPA
D	Tabbed Version					P101T-ND	1.27	25.44/24	274.75/288	UM-1NX
C	Tabbed Version					P102T-ND	.98	19.68/24	295.20/480	UM-2NX
AA	Tabbed Version					P103T-ND	.74	37.20/60	279.00/600	UM-3NX

* See "How To Order" for note on shipping charges on prepaid orders. ‡ Spring top type.

Panasonic. Alkaline Batteries



FEATURES:

- **Large Current and Large Capacity for an Excellent Performance**
- **Stable Voltage and Current**
- **Unsurpassed Resistance to Leakage**
- **Excellent Storage Life**

The cylindrical alkaline battery is composed of: manganese dioxide for the positive-activating substance, zinc powder for the negative-activating substance, and caustic alkali for the electrolyte.

APPLICATIONS: MADE IN U.S.A.

99% MERCURY FREE

- Headphone stereo, radio-cassette recorders, strobes, cameras, electronic calculators, 8 mm cameras, electric shavers, tape recorders, high-power flashlights, toys and other cordless products

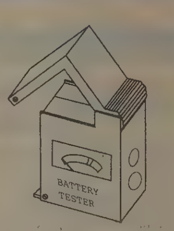
Also available in tabbed version of D, C, and AA cell batteries; denoted by "T" suffix in Digi-Key part number.

Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.

Size	(V)	Dimensions (In.) Dia.	Height	Weight* (Oz.)	Capacity (to 0.9V/Cell)	Rated Drain (mA)	Digi-Key Part No.	Pricing Each	Pkg	Carton	Panasonic Part No.
D	1.5	1.346	2.345	4.76	1200 hrs. (100Ω cont.)	320	P105-ND	1.83	24.40/20	219.60/200	AM1X
C	1.5	1.031	1.909	2.29	380 hrs. (100Ω cont.)	300	P106-ND	1.38	18.40/20	165.60/200	AM2X
AA	1.5	0.571	1.988	0.85	170 hrs. (100Ω cont.)	130	P107-ND	.66	17.60/40	198.00/600	AM3X
AAA	1.5	0.413	1.673	0.42	65 hrs. (100Ω cont.)	25	P146-ND†	.81	27.00/50	202.50/500	AM4X
N	1.5	0.460	1.102	0.32	48 hrs. (100Ω cont.)	25	P147-ND†	1.41	22.56/24	423.00/600	AM5X
9V	9	1.93x1.04x0.69		1.66	6 hrs. (100Ω cont. to 5.4V)		P145-ND	2.88	46.08/24	497.66/288	6AM6X
D	Tabbed Version						P105T-ND	2.19	29.20/20	262.80/200	AM1X
C	Tabbed Version						P106T-ND	1.74	23.20/20	208.80/200	AM2X
AA	Tabbed Version						P107T-ND	1.02	27.20/40	306.00/600	AM3X

* See "How To Order" for note on shipping charges on prepaid orders. † Made in Japan.

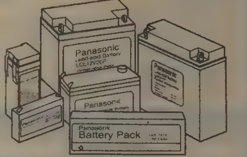
Battery Tester



Tests D, C, AA, AAA, N and 9-Volt and button cell batteries under load — a true test of terminal voltage!

CEC-2-ND..................**$8.95**

Panasonic. Lead-Acid Batteries

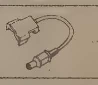
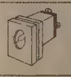


GENERAL FEATURES: ***"DO NOT LEAK!!"***

High Quality & High Reliability: The LCR battery has stable and reliable capacity. 100% tested on line for voltage, capacity, and seals. And all vents are 100% visually inspected during the final assembly process. **High Power Density:** These batteries save installation space, while providing full and reliable power for the equipment, and many have been designed for rapid recharge, or for high power output. **Leakproof Design:** The LCR battery uses an absorbed electrolyte system. The LCR batteries have exceptional leak resistance, **and can be used in any position. Long Service Life; Flat or Cyclic:** The LCR battery has long life in float or cyclic service. **Maintenance-Free Operation:** There is no need to check the specific gravity of the electrolyte or to add water during the service life. Totally sealed, and needs only charging for maintenance. **No Corrosive Gas Generation:** There is no corrosive gas generation during normal use. **Exceptional Deep Discharge Recovery:** LCR batteries have exceptional deep discharge recovery and charge acceptance, even after deep or prolonged discharge. **DOT & IATA Approval:** The LCR batteries are considered as safe as dry cells, and have been approved for shipment by air by both DOT and IATA. **U.L. Component Recognition:** U.L. Component Recognition under UL924, Section 38, for Emergency Lights and Power Supplier (not UPS), requires that the battery safely vent when overcharged, and tested under mineral oil. It further requires that the equipment and battery be submitted together for formal UL approval. **(UL Component Recognition does NOT remove this requirement for complete package testing).** The manufacturer suggests peak charging all sealed lead acid batteries before use and intermittently during storage.

Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.

CROSS REFERENCE ABBREVIATIONS: EP=Eagle-Picher; GU=Globe-Union; YU=Yuasa; PS=Power Sonic; PA=Panasonic; QU=Quasar; GE=General Electric; MA=Magnavox; CA=Canon; SY=Sylvania; PH=Philco; JC=JC Penney; DC=Jonson Controls (Dynasty); HP=Hitachi

(V)	Capacity 20h Rate (Ah)	Dimensions (In.) L	W	H	Wgt.* (lbs.)	Digi-Key Part No.	Pricing 1	10	Carton	Panasonic Part No.	Panasonic Replacement Battery Cross Reference (see above for manufacturer abbreviations)
6	1.3	3.82	0.94	1.97	0.66	P128-ND	10.98	97.60	370.88/40	LC-R061R3PU	YU: NP1.2-6; PS: PS-612; DC: JC612; HP: HP1.2-6
6	2.4	2.60	1.30	3.88	1.15	P262-ND	16.36	145.40	314.06/24	LC-R062R4PU	—
6	3.2	2.60	1.30	4.92	1.46	P129-ND	15.86	141.00	321.48/24	LC-R063R2PU	—
6	3.4	5.28	1.34	2.36	1.21	P166-ND	18.79	167.00	380.76/24	LC-R063R4PU	EP: CF6V2.6; GU: GC626; YU: NP3-6; PS: PS-626; DC: JC628; HP: HP3-6
6	4.0	2.76	1.89	4.02	1.83	P168-ND	13.70	121.80	277.70/24	LCR-6V4BP	EP: CF6V4; YU: NP4-6; PS: PS-640; DC: JC640; HP: HP4-6C
6	6.5	5.95	1.34	3.70	2.54	P169-ND	16.79	—	179.04/12	LCR6V6.5BP	EP: CFM6V6.5; GU: GC645; YU: NP6-6; PS: PS-660; DC: JC665; HP: HP6-6
6	7.2	5.95	1.34	3.70	2.78	P074-ND	17.60	—	187.68/12	LCR6V7.2P	YU: NP7-6
6	10.0	5.95	1.97	3.70	3.86	P170-ND	21.51	—	229.44/12	LCR6V10BP	EP: CFM6V8.0; YU: NP10-6; PS: PS-6100; DC: JC6100; HP: HP10-6
6	10.0	5.95	1.97	3.70	3.86	P269-ND†	21.51	—	229.44/12	LCR6V10BP-1	—
6	12.0	5.95	1.97	3.70	4.30	P075-ND	22.57	—	240.72/12	LCR6V12P	DC: GC6120
12	1.3	3.82	1.87	1.97	1.30	P264-ND	20.81	185.00	351.50/20	LC-R121R3PU	PS: PS-1212; HP: HP1.2-12
12	2.2	6.97	1.34	2.36	1.54	P171-ND	32.56	289.40	659.83/24	LC-R122R2PU	EP: CF12V1.5; GU: GC1215; YU. NP1.9-12; PS: PS-1219; DC: JC1219; HP: HP2.2-12P
12	3.4	5.28	2.72	2.36	2.43	P172-ND	38.21	—	407.52/12	LC-R123R4PU	EP: CF12V2.6S1; YU: NP2.6-12; PS: PS-1230; HP: HP3-12
12	4.0	3.54	2.76	4.02	3.84	P076-ND	28.35	—	302.40/12	LCR12V4BP	DC: JC1240; PS: PS-1242; HP: HP4-12
12	5.0	3.54	2.76	4.02	4.25	P077-ND	29.77	—	317.52/12	LCR12V5P	—
12	6.5	5.95	2.54	3.70	4.85	P173-ND	30.24	—	322.56/12	LCR12V6.5BP	EP: CFM12V6; GU: GC1245; YU: NP6-12; PS: PS-1265; DC: JC1260; HP: HP6.5-12
12	7.2	5.95	2.54	3.70	5.45	P078-ND	31.55	280.40	—	LCR12V7.2P	YU: NP7-12; HP: HP7-12
12	17	7.13	3.00	6.58	13.70	P174-ND	73.24	—	781.20/12	LCR12V17CP	EP: CFM12V18; YU: NP15-12; PS: PS-12150; DC: JC12150; HP: HP15-12
12	20	7.28	4.92	6.50	16.51	P175-ND	84.35	749.80	—	LCL12V20P	—
12	24	6.50	4.92	6.89	19.20	P176-ND	92.14	819.00	—	LC-L1224PU	EP: CFM12V25; GU: GC12230; YU: NP24-12B; PS: PS-12240; DC: JC12250; HP: HP24-12
12	33	7.70	5.12	7.09	24.20	P259-ND	101.25	900.00	—	LCL12V33AP	DC: UPS31; PS: PS-12330
12	38	7.76	6.50	6.89	31.30	P177-ND	139.39	1239.00	—	LC-L1238PU	YU: NP38-12; DC: GC12400; PS: PS-12400; HP: HP38-12
VCR/Camcorder Batteries											
12	2.0•	7.90	0.98	2.43	1.54	P178-ND#	59.22	—	631.68/12	LC-S122BU	PA: LCS-2012P; QU: VE-550UE; GE: ICVA115; MA: AR8395BK01; SY: 8C2154; PH: SC2154; JC: 686-2925
12	2.3•	7.17	0.94	2.43	1.40	P179-ND#	33.64	—	358.80/12	LC-SA122R3CU	PA: LCS-2012AP, LCS-2012AVBNC, PV-BP80; QU: VE-551XE, VE-255; GE: ICVA125; MA: AR8378BK01; CA: SY: V80039BK01; PH: V80039BK01; JC: 686-2922
12	2.0•	5.65	.93	2.55	1.64	P263-ND	37.13	—	396.00/12	LC-SD122BU	None
Terminal Clip for P178 and P179						P260-ND	4.39	39.00	1296.75/500	VJA0180	**P260**  **P261** 
Mating Connector for Clip (P260)						P261-ND	2.70	24.00	1512.00/1M	LCR-RCP-1	

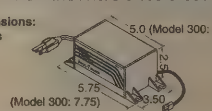
* See "How To Order" for note on shipping charges on prepaid orders. # Pressure contact terminals. † Has .250 terminals. • Capacity rate 10 hrs.

PATCO

Battery Charger /Maintainer

INTELITENDER MODELS 150 & 300

Dimensions: inches



The InteliTender brings the battery to full optimum charge. Then, under the control of its computer, monitors the battery's voltage, supplying only what is needed to maintain the ideal charge. Model 300 charges 2 batteries.

Volt	Amp	Digi-Key Part No.	Price
Battery Chargers			
6	.75	PATC-02-ND*	69.93
6	1.5	PATC-01-ND†	69.93
12	.75	PATC-04-ND*	69.93
12	1.5	PATC-03-ND†	69.93
12 x 2	1.5 x 2	PATC-08-ND† ***NEW!***	124.88
Cable (Must Order Separately)			
Battery Hook-up, Spring Clamp........		PATC-07-ND	7.49
Motorcycle Hook-up, Ring Lugs...........		PATC-06-ND	5.00
Marine Hook-up, Ring Lugs...........		PATC-05-ND	5.00

* Recommended for 2.0 to 3.4 Ah batteries.
† Recommended for 4.0 Ah & above batteries.

Panasonic

Lithium Batteries

Panasonic
LITHIUM
BATTERY
BR-C
3V
Panasonic
LITHIUM
BATTERY
BR-A
3V
Panasonic
LITHIUM
BATTERY
BR-2/3A
3V
Panasonic
BATTERY
BR-2/3A
3V

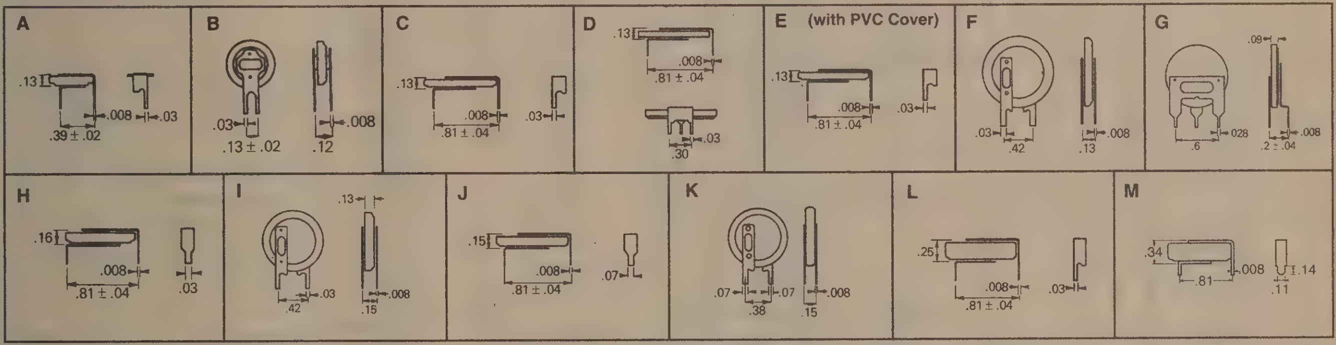
The main features of lithium batteries are as follows: **High Voltage:** Nominal voltage is 3V, which is nearly double that of other batteries which use the aqueous electrolyte system, such as manganese dry batteries, and silver-oxide batteries. **High energy density:** Overwhelmingly high energy density, as compared with conventional batteries and other lithium batteries. The energy density is 5 ~ 10 times higher than that of manganese dry batteries. **Long Service and Shelf Life:** Since Matsushita lithium batteries are composed of chemically and thermally stable material, self-discharge is extremely small. Deterioration when stored at room temperatures is ca. 0.5% annually – worry about deterioration is unnecessary. **Stable Flat Discharge Voltage:** Since conductive carbon is continuously formed during discharge, internal impedance does not increase until the end of discharge, thus stabilizing discharge voltage. **Excellent Temperature Characteristics:** Organic solvent ensures a low electrolyte freezing point so that the batteries can be used in a wide temperature range. (-40°C ~ +85°C is standard). **BR Types versus CR Types:** BR, or (CF) n/Li, batteries provide a more stable voltage particularly during the last half of discharge, while CR, or Mn02/Li, batteries provide a higher voltage during the first half. CR batteries also can provide a higher current capability than BR batteries. In storage, BR batteries perform better at high temperatures. These characteristics must be taken into consideration when selecting a battery for a particular application. **UL Approval:** Panasonic Lithium batteries are UL recognized. UL File No. MH12210. **DOT Exemption:** Panasonic lithium cells and multiple cell batteries are authorized for transportation, in commerce, by U.S. shipping exemption DOT-E7052. **Disposal Information:** Panasonic lithium cells are not an EPA listed hazardous waste, but may be considered a "characteristic" hazardous waste. Lithium metal, the anode component of the cells, is considered by the U.S. EPA to be hazardous when disposed because it is reactive with water. However, a cell which contains a small quantity of lithium metal is not necessarily a hazardous waste. Disposal regulations and policies are different in each State and are subject to frequent changes. Contact your local jurisdiction for specific advice on disposal.

Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.

Diagram	Type	(V)	Capacity (mAh)	Dimensions (In.) Dia.	Height	Weight (Oz.)	Drain Max. (mA)	Drain Standard (mA)	Digi-Key Part No	Pricing 1	10	Pkg.	Carton	Panasonic Part No.
Camera and Computer Type														
–	Replacement Pack	6	1200	0.77 x 1.34 x 1.42		1.09	250	2.5	P204-ND	14.20	127.80	1704.00/150	3834.00/450	BR-P2
–	Replacement Pack	6	1300	0.77 x 1.34 x 1.42		1.30	250	5.0	P205-ND	16.73	—	180.63/12	3853.44/288	CR-P2
–	Pack w/Leads	6	1200	0.99 x 1.54 x 1.62		1.59	250	2.5	P203-ND	18.85	169.65	754.00/50	1131.00/100	BR-E3C3BCA
–	Replacement Cyl.	3	1300	0.67	1.36	0.60	250	5.0	P154-ND	11.30	—	108.48/12	2343.17/288	CR123A
–	Replacement Pack	6	1300	0.67 x 1.34 x 1.77		1.31	250	5.0	P073-ND	14.49	128.80	2138.08/200	5409.60/600	2CR5M
Standard Type														
–	C	3	5000	1.02	1.97	1.66	300	150	P167-ND	18.45	166.05	1476.00/100	2214.00/200	BR-CSSP
–	C w/Tabs	3	5000	1.02	1.97	1.66	300	150	P144-ND•	18.80	169.20	1504.00/100	2256.00/200	BR-CT2SP
–	A	3	1800	0.67	1.79	0.64	250	2.5	P267-ND	11.30	101.70	904.00/100	6011.60/1000	BR-A
–	A w/ Tabs	3	1800	0.67	1.79	0.64	250	2.5	P267T-ND•	11.60	104.40	928.00/100	6171.20/1000	BR-A-T
–	2/3 A	3	1200	0.67	1.32	0.48	250	2.5	P133-ND	6.95	62.55	111.20/20	3336.00/800	BR-2/3A
–	2/3 A w/Tabs	3	1200	0.67	1.32	0.48	250	2.5	P201-ND•	7.28	65.48	582.00/100	3870.30/1000	BR-2/3AT-2SP
–	2/3 A w/2 PCB Pins	3	1200	0.67	1.32	0.48	250	2.5	P226-ND•	7.28	65.48	582.00/100	3870.30/1000	BR-2/3AE5SP
–	2/3 A w/3 PCB Pins	3	1200	0.67	1.32	0.48	250	2.5	P270-ND•	7.28	65.48	582.00/100	3870.30/1000	BR-2/3AE2SP
–	1/2 A	3	650	0.67	0.91	0.34	70	5.0	P134-ND	6.42	58.85	107.00/20	3424.00/800	BR-1/2A
–	1/2 A 2/Tabs	3	650	0.67	0.91	0.34	70	5.0	P134T-ND•	6.78	62.15	113.00/20	3616.00/800	BR-1/2A-T
–	2/3 AA	3	650	0.57	1.32	0.34	80	2.0	P268-ND	16.18	145.58	1294.00/100	7764.00/800	BR-2/3AA
–	2/3 AA w/Tabs	3	650	0.57	1.32	0.34	80	2.0	P268T-ND•	16.48	148.28	1318.00/100	7908.00/800	BR-2/3AA-T
Bobbin Technology Type														
–	Cylinder	3	1750	0.66	1.32	0.60	8	1.0	P149-ND	8.48	76.28	678.00/100	4508.70/1000	CR17335SPE
–	Cylinder. w/Tabs	3	1750	0.66	1.32	0.60	8	1.0	P149T-ND	8.78	78.98	702.00/100	4668.30/1000	CR17335SPE-T
Standard Coin Type														
–	Coin	3	25	0.49	0.06	0.02	5	0.1	P182-ND	1.78	15.98	568.00/400	3621.00/4000	BR1216
–	Coin	3	48	0.49	0.10	0.03	8	0.1	P183-ND	1.68	15.08	536.00/400	3417.00/4000	BR1225
–	Coin	3	48	0.63	0.06	0.04	8	0.1	P184-ND	1.83	16.43	292.00/200	1941.80/2000	BR1616
–	Coin	3	75	0.78	0.06	0.05	10	0.1	P137-ND	1.83	16.43	292.00/200	1941.80/2000	BR2016
–	Coin	3	100	0.78	0.08	0.06	10	0.2	P185-ND	1.83	16.43	292.00/200	1941.80/2000	BR2020
–	Coin	3	110	0.91	0.08	0.09	10	0.2	P136-ND	1.90	17.10	304.00/200	2021.60/2000	BR2320
–	Coin	3	165	0.91	0.10	0.11	10	0.2	P135-ND	1.83	16.43	292.00/200	1941.80/2000	BR2325
–	Coin	3	190	0.78	0.13	0.11	10	0.2	P186-ND	1.93	17.33	308.00/200	2048.20/2000	BR2032
–	Coin	3	255	0.91	0.12	0.11	10	0.3	P187-ND	2.28	20.48	364.00/200	2420.60/2000	BR2330
–	Coin	3	90	0.79	0.06	0.06	10	0.1	P138-ND	.88	7.88	140.00/200	931.00/2000	CR2016
–	Coin	3	150	0.78	0.10	0.09	15	0.2	P188-ND	1.38	12.38	220.00/200	1463.00/2000	CR2025
–	Coin	3	220	0.78	0.13	0.11	15	0.2	P189-ND	.88	7.88	140.00/200	931.00/2000	CR2032
–	Coin	3	265	0.91	0.12	0.14	15	0.2	P111-ND	2.13	19.13	340.00/200	2261.00/2000	CR2330
–	Coin	3	560	0.91	0.21	0.21	15	0.2	P117-ND	2.63	23.63	210.00/100	1396.50/1000	CR2354
–	Coin	3	1000	0.97	0.30	0.37	10	0.2	P120-ND	5.90	53.10	472.00/100	3138.80/1000	CR2477
–	Coin	3	500	1.18	0.13	0.25	15	0.2	P121-ND	3.33	29.93	532.00/200	3537.80/2000	CR3032
PCB Terminal – Coin Type														
A	Coin	3	48	0.50	0.13	0.06	8	0.1	P191-ND	2.53	22.73	242.40/120	1611.96/1200	BR1225-1HC
B	Coin	3	48	0.50	0.10	0.06	8	0.1	P192-ND	2.53	22.73	404.00/200	2686.60/2000	BR1225-1VC
C	Coin	3	165	0.91	0.11	0.11	10	0.2	P142-ND	2.53	22.73	121.20/60	909.00/600	BR2325-1HB
D	Coin	3	165	0.90	0.10	0.11	10	0.2	P193-ND	2.53	22.73	80.80/40	606.00/400	BR2325-1HG
E	Coin	3	165	0.90	0.10	0.11	10	0.2	P202-ND	2.53	22.73	121.20/60	1370.17/1020	BR2325-1HC
F	Coin	3	165	0.91	0.11	0.11	10	0.2	P194-ND	2.53	22.73	202.00/100	1343.30/1000	BR2325-1VC
G	Coin	3	165	0.91	0.10	0.11	10	0.2	P195-ND	2.53	22.73	121.20/60	909.00/600	BR2325-1VG
H	Coin	3	190	0.83	0.13	0.09	10	0.2	P196-ND	2.63	23.63	126.00/60	945.00/600	BR2032-1HE
I	Coin	3	190	0.79	0.13	0.11	10	0.2	P197-ND	2.63	23.63	252.00/120	1675.80/1200	BR2032-1VB
J	Coin	3	255	0.94	0.12	0.11	10	0.3	P198-ND	2.95	26.55	141.60/60	1062.00/600	BR2330-1HE
K	Coin	3	255	0.91	0.13	0.10	10	0.3	P199-ND	2.95	26.55	236.00/100	1569.40/1000	BR2330-1VC
L	Coin	6	165	0.94	0.22	0.20	10	0.2	P143-ND	5.10	45.90	163.20/40	1224.00/400	BR2325-2HC
M	Coin	3	1000	0.97	0.30	0.37	10	0.2	P126-ND	6.58	59.18	526.00/100	3497.90/1000	CR2477-1HF
Pin Type														
–	Pin	3	25	0.17	1.02	0.02	4	0.5	P140-ND	3.60	32.40	864.00/300	5508.00/3000	BR425
–	Pin	3	50	0.17	1.41	0.03	6	1.0	P139-ND	3.60	32.40	864.00/300	5508.00/3000	BR435

* See "How To Order" for note on shipping charges on prepaid orders. • Tabbed version.

PCB Terminal Type



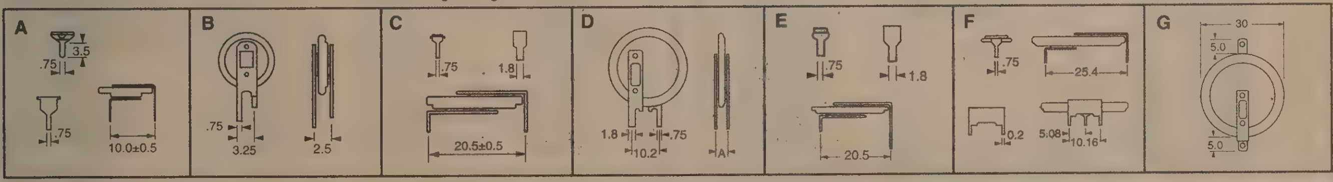
Vanadium Pentoxide Lithium Rechargeable Batteries

Features: • One high-voltage battery to serve your back up needs. This single, compactly designed, cost-effective 3V battery does the work of three 1.2V Ni-Cd or two capacitors. • Months of continuous use as a backup. The VL3032 has a nominal electrical capacity of 100mAh which translates into 10,000 hours with a microprocessor load of 10 μA.

Applications: • **Memory Backup:** Facsimiles, ECRs, Telephones, Typewriters, Sequencers, VTRs, Video cameras, Personal computers, Memory cards, Tuners.

Diagram	Type	(V)	Capacity (mAh)	Dimensions (mm) Dia.	Height	A	Weight (Oz.)	Drain Max. (μA)	Charge Current*	Digi-Key Part No	Pricing 1	10	Pkg.	Carton	Panasonic Part No.
A	Coin	3	7	12.5	2.0	—	.02	< 20	<0.5 mA	P079-ND	5.38	48.38	516.00/120	1935.00/600	VL1220-1HF
B	Coin	3	7	12.5	2.0	—	.02	< 20	<0.5 mA	P080-ND	5.38	48.38	1075.00/250	1612.50/500	VL1220-1VC
C	Coin	3	20	20.0	2.0	—	.08	< 70	<1.5 mA	P081-ND	5.80	52.20	278.40/60	1879.20/540	VL2020-1HF
D	Coin	3	20	20.0	2.0	2.7	.08	< 70	<1.5 mA	P082-ND	5.80	52.20	556.80/120	2088.00/600	VL2020-1VC
E	Coin	3	30	23.0	2.0	—	.10	< 100	<2.0 mA	P083-ND	7.23	65.03	346.80/60	2340.90/540	VL2320-1HF
D	Coin	3	30	23.0	2.0	2.7	.10	< 100	<2.0 mA	P084-ND	7.23	65.03	578.00/100	2167.50/500	VL2320-1VC
E	Coin	3	50	23.0	3.0	—	.13	< 100	<2.0 mA	P085-ND	8.95	80.55	429.60/60	2899.80/540	VL2330-1HF
D	Coin	3	50	23.0	3.0	3.7	.13	< 100	<2.0 mA	P086-ND	8.95	80.55	716.00/100	2685.00/500	VL2330-1VC
F	Coin	3	100	30.0	3.2	—	.22	< 200	<4.0 mA	P087-ND	11.30	101.70	904.00/100	3390.00/500	VL3032-1GUF
G	Coin	3	100	30.0	3.2	—	.22	< 200	<4.0 mA	P088-ND	11.40	102.60	912.00/100	3420.00/500	VL3032-1F2

* Charge Voltage = 3.4 ± 0.15V



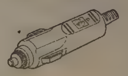
Panasonic® Nickel Cadmium Batteries

The Panasonic nickel-cadmium battery is a rechargeable sealed nickel-cadmium alkaline cell. ***FEATURES:*** • Long Life • Excellent Discharge Characteristics • Long Shelf Life • High-Rate Charging • Wide Temperature Range • Reliable, Self-Resealing Vent • Sealed, Strong, Leakproof Construction. ***APPLICATIONS: For Cyclic Use:*** • Consumer Applications • Office Equipment • Tools • Photography • Toys & Hobby ***For Trickle or Float Charge Use:*** • Emergency Devices • Memory Back-up. **SPECIAL PURPOSE BATTERIES: Rapid-charge "R" Type:** The "R" type cell has a specially improved negative plate with increased gas absorption characteristics. It can be subjected to uncontrolled charging at the 1C rate & rapid-charge in 1 to 1.5 hours is possible. High-temperature "H" Type: By using a polypropylene separator, the "H" type cell can withstand a temp. of 65°C(149°F) during use. When charging is conducted at a low charging current of C/20 to C/30 in a high-temp. ambient, the "H" type cell has a sharply improved capacity compared to a standard cell, due to special electrolyte. High-capacity "E" Type: The extra capacity cells combine a high-capacity density positive plate with a high-density paste negative plate. These cells have 20~30% more capacity than equivalent standard cells. Super High Capacity & Rapid Charge "S" Type: Super high capacity & rapid charge "S" type batteries are ideal for today's high capacity needs. They feature increased capacity & rapid charging w/in approx. 1 hr.. The high-density positive base material of foam nickel is combined with the pasted negative plate to produce a capacity approximately 40% greater than that of the rapid-charge "R" type battery of the same size. High Rate Discharge & Rapid Charge "R/P" Type: This rapid charge, high rate discharge type has been developed through the integration of all Panasonic battery technology. It employs unique plates featuring unsurpassed gas absorption characteristics & a current-collecting system to provide charging in just 1 to 1.5 hours. The internal resistance is also greatly reduced for improved voltage characteristics during high rate discharge at approximately 10CmA. ***Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.***

CROSS REFERENCE ABBREVIATIONS: SF = SAFT USA (France); VA = VARTA Germany; ER = Ever-Ready; SA = SANYO Japan; TO = Toshiba; DY = Dynacharge

Size	(V)	Capacity C/5 (mAh)	Dimensions (In.) Dia.	Height	Weight (Oz.)	Std. Chg @ 15hrs (mA)	Quick Charge (mA)	(hrs.)	Digi-Key Part No	Pricing 1	10	Pkg.	Carton	Panasonic Part No.	Panasonic Replacement Battery Cross Reference (see above for manufacture abbreviations)
Standard Type															
N	1.2	150	0.45	1.16	0.28	15	38	6.0	P110-ND	2.86	25.74	457.60/200	1825.82/1200	P-15N	ER: CH150; SA: N-150N; DY: NN150
AAA	1.2	220	0.39	1.73	0.35	22	66	5.0	P100-ND	3.47	31.07	520.20/200	3459.33/1800	P-22AAA	TO: T-18AAA; DY: NCAAA
AA	1.2	500	0.55	1.95	0.78	50	150	5.0	P116-ND	2.61	23.45	83.36/40	1250.40/800	P-50AA	SA:N-500AF,N-500AA;TO:T-50AA;DY:NCAA
AA	1.2	500	0.55	1.88	0.78	50	150	5.0	P227-ND•	2.61	23.45	83.36/40	1250.40/800	P-50AA/FT	SF:500SCB(VR0.5); VA:500RS; ER:NCC50, CH15;
2/3SC	1.2	600	0.89	1.02	1.02	60	150	6.0	P118-ND•	5.17	46.49	619.80/150	1859.40/600	P-60SC/FT	SF: 625C; SA: N-600SCF, N-600SC
2/3C	1.2	1000	1.00	1.20	1.60	100	333	4.5	P238-ND	7.26	65.36	290.50/50	1307.25/300	P-100C	—
C	1.2	2200	1.00	1.94	2.65	220	730	4.5	P163-ND	7.84	70.58	125.48/20	2258.64/480	P-220C	SA: KR-2000C; TO: T-180C; DY: NC1800
C	1.2	2400	1.00	1.92	2.55	240	1500	2.4	P108-ND•	8.92	80.26	560.91/85	1364.38/255	P-240C/FT	
D	1.2	4000	1.27	2.36	4.80	400	—	—	P124-ND	13.13	118.19	1050.60/100	1050.60/100	P-400D	SF: 4.0SC (VR4); VA: RSH4; ER: NCC350, CH4; SA: N-4000D; TO: T-400D; DY: ND4000
9 Volt	8.4	120	1.93 x 1.04 x 0.69		1.54	12	—	—	P148-ND	10.63	—	114.75/12	114.75/12	P-9SPA/1B	—
High Temperature "H" Type															
1/3AA	1.2	110	0.55	0.65	0.23	11	—	—	P109-ND•	2.46	22.14	236.16/120	3011.04/2400	P-11AAH/FT	ER: NCC24
AA	1.2	500	0.55	1.95	0.78	50	—	—	P161-ND	2.68	24.12	85.76/40	1286.40/800	P-50AAH	SA: KR-A4H
SC	1.2	1200	0.89	1.67	1.69	120	—	—	P091-ND•	5.51	49.61	441.00/100	1653.75/500	P-120SCH/FT	—
C	1.2	1800	1.00	1.94	2.65	180	—	—	P122-ND•	7.92	76.01	142.52/20	1520.16/240	P-180CH/FT	SA: KR-CH
C	1.2	2300	1.00	1.95	2.75	230	—	—	P090-ND•	8.49	76.43	815.28/120	3057.30/600	P-230CH/FT	—
D	1.2	4000	1.27	2.36	4.84	400	—	—	P258-ND	13.13	118.19	118.19/10	1050.60/100	P-400DH	—
High Capacity "E" Type															
SC	1.2	1500	0.89	1.67	1.70	150	500	4.5	P156-ND•	4.74	42.64	379.00/100	1137.00/400	P-150SCE/FT	—
D	1.2	4400	1.27	2.36	4.94	440	—	—	P158-ND	15.23	137.09	137.09/10	1218.60/100	P-440DE	ER: NCC400
High Rate Discharge and Rapid Charge "R/P" Type															
4/5SC	1.2	1200	0.89	1.30	1.38	120	1000	1.6	P232-ND•	5.16	46.46	136.29/30	1858.50/600	P-120SCRJ/FT	—
CSC	1.2	1300	0.89	1.63	1.70	130	1300	1.5	P098-ND•	3.76	33.65	281.70/100	939.00/400	P-130SCRC/FT	—
SC	1.2	1200	0.89	1.67	1.70	120	1200	1.5	P240-ND•	5.26	47.36	421.00/100	1263.00/400	P-120SCRP/FT	—
SC	1.2	1300	0.89	1.67	1.70	130	1300	1.5	P159-ND•	3.91	35.21	313.00/100	939.00/400	P-130SCR/FT	ER:CH1.2;SA:N-1200SC;DY:NSC1200
SC	1.2	1400	0.89	1.67	1.70	140	1400	1.5	P233-ND•	4.04	36.34	323.00/100	969.00/400	P-140SCR/FT	—
Rapid Charge "R" Type															
2/3AA	1.2	300	0.55	1.09	0.63	30	300	1.5	P234-ND•	2.74	24.66	438.40/200	2915.36/2000	P-30AAR/FT	—
AA	1.2	600	0.55	1.95	0.78	60	600	1.5	P272-ND	2.68	24.08	85.60/40	1284.00/800	P-60AAR	—
AA	1.2	600	0.55	1.88	0.78	60	600	1.5	P229-ND•	2.80	25.16	89.44/40	1341.60/800	P-60AAR/FT	—
2/3Af	1.2	450	0.65	1.10	0.63	45	450	1.5	P150-ND•	4.58	41.18	183.00/50	2196.00/800	P-45AR/FT	—
4/5Af	1.2	700	0.65	1.67	0.95	70	700	1.5	P152-ND•	5.09	45.77	203.40/50	2440.80/800	P-70AR/FT	—
2/3SC	1.2	600	0.89	1.02	0.95	60	600	1.5	P181-ND•	4.97	44.69	476.64/120	1787.40/600	P-60SCR/FT	—
SC	1.2	1800	0.89	1.67	1.73	180	1800	1.5	P089-ND•	6.04	54.34	483.00/100	1811.25/500	P-180SCR/FT	—
C	1.2	2800	1.00	1.92	2.80	280	2800	1.5	P190-ND•	10.27	92.41	164.28/20	1724.94/240	P-280CR/FT	—
Super High Capacity and Rapid Charge "S" Type															
AA	1.2	700	0.55	1.88	0.74	70	700	1.5	P236-ND•	4.11	36.95	131.36/40	1970.40/800	P-70AAS/FT	—
AA	1.2	800	0.55	1.88	0.74	80	800	1.5	P097-ND•	4.14	37.22	165.40/50	289.45/100	P-80AAS/FT	—
AA	1.2	900	0.55	1.95	0.78	90	900	1.5	P092-ND•	4.86	43.70	155.36/40	1514.76/520	P-90AAS/FT	—
5/4AA	1.2	1000	0.55	2.54	1.02	110	1100	1.5	P160-ND•	5.74	51.66	229.60/50	2066.40/600	P-100AAS/FT	—
5/4AA	1.2	1200	0.55	2.54	1.09	120	1200	1.5	P093-ND•	6.79	61.11	271.60/50	2037.00/500	P-120AAS/FT	—
2/3Af	1.2	600	0.65	1.10	0.63	60	600	1.5	P235-ND•	4.41	39.65	105.72/30	1902.96/720	P-60AS/FT	—
4/5Af	1.2	1100	0.65	1.67	0.88	110	1100	1.5	P239-ND•	6.01	54.09	144.24/30	2596.32/720	P-110AS/FT	—
4/5Af	1.2	1200	0.65	1.67	0.92	120	1200	1.5	P094-ND•	6.01	54.09	240.40/50	1803.00/500	P-120AS/FT	—
Af	1.2	1400	0.65	1.94	1.16	140	1400	1.5	P095-ND•	6.02	54.16	240.70/50	1805.25/500	P-140AS/FT	—
SC	1.2	1800	0.89	1.67	1.65	180	1500	1.6	P237-ND•	7.59	68.29	607.00/100	1821.00/400	P-180SCS/FT	—
5/4SC	1.2	2300	0.89	1.93	2.24	230	2000	1.6	P096-ND•	10.38	93.42	996.48/120	3736.80/600	P-230SCS/FT	—
Standard Type (Solder Tabbed)															
N	Tabbed Version of above								P110T-ND	3.16	28.44	505.60/200	—	P-15N	
AAA	Tabbed Version of above								P100T-ND	3.91	35.21	626.00/200	—	P-22AAA	
AA	Tabbed Version of above								P227T-ND	2.91	26.15	92.96/40	—	P-50AA/FT	
2/3SC	Tabbed Version of above								P118T-ND	5.47	49.19	655.80/150	—	P-60SC/FT	
2/3C	Tabbed Version of above								P238T-ND	7.56	68.06	302.50/50	—	P-100C	
C	Tabbed Version of above								P163T-ND	8.14	73.28	130.28/20	—	P-220C	
C	Tabbed Version of above								P108T-ND	9.22	82.96	626.79/85	—	P-240C/FT	
D	Tabbed Version of above								P124T-ND	13.43	120.89	1074.60/100	—	P-400D	
High Temperature "H" Type (Solder Tabbed)															
1/3AA	Tabbed Version of above								P109T-ND	2.76	24.84	264.96/120	—	P-11AAH/FT	
AA	Tabbed Version of above								P161T-ND	2.98	26.82	238.40/100	—	P-50AAH	
SC	Tabbed Version of above								P091T-ND	5.81	52.31	465.00/100	—	P-120SCH/FT	
C	Tabbed Version of above								P122T-ND	8.22	73.96	657.40/100	—	P-180CH/FT	
C	Tabbed Version of above								P090T-ND	8.79	79.13	844.08/120	—	P-230CH/FT	
D	Tabbed Version of above								P258T-ND	13.43	120.89	1074.60/100	—	P-400DH	
High Capacity "E" Type (Solder Tabbed)															
SC	Tabbed Version of above								P156T-ND	5.04	45.34	403.00/100	—	P-150SCE/FT	
D	Tabbed Version of above								P158T-ND	15.53	139.79	1242.60/100	—	P-400DE	
High Rate Discharge and Rapid Charge "R/P" Type (Solder Tabbed)															
4/5SC	Tabbed Version of above								P232T-ND	5.46	49.16	655.50/150	—	P-120SCRJ/FT	
CSC	Tabbed Version of above								P098T-ND	4.21	37.91	337.00/100	—	P-130SCRC/FT	
SC	Tabbed Version of above								P240T-ND	5.56	50.06	445.00/100	—	P-120SCRP/FT	
SC	Tabbed Version of above								P159T-ND	4.21	37.91	337.00/100	—	P-130SCR/FT	
SC	Tabbed Version of above								P233T-ND	4.34	39.04	173.50/50	—	P-140SCR/FT	
Rapid Charge "R" Type (Solder Tabbed)															
2/3AA	Tabbed Version of above								P234T-ND	3.04	27.36	486.40/200	—	P-30AAR/FT	
AA	Tabbed Version of above								P229T-ND	3.10	27.86	99.04/40	—	P-60AAR/FT	
2/3Af	Tabbed Version of above								P150T-ND	4.88	43.88	195.00/50	—	P-45AR/FT	
4/5Af	Tabbed Version of above								P152T-ND	5.39	48.47	215.40/50	—	P-70AR/FT	
2/3SC	Tabbed Version of above								P181T-ND	5.27	47.39	505.44/120	—	P-60SCR/FT	
SC	Tabbed Version of above								P089T-ND	6.34	57.04	507.00/100	—	P-180SCR/FT	
C	Tabbed Version of above								P190T-ND	10.57	95.11	169.08/20	—	P-280CR/FT	
Super High Capacity and Rapid Charge "S" Type (Solder Tabbed)															
AA	Tabbed Version of above								P236T-ND	4.41	39.65	140.96/40	—	P-70AAS/FT	
AA	Tabbed Version of above								P097T-ND	4.44	39.92	141.92/40	—	P-80AAS/FT	
AA	Tabbed Version of above								P092T-ND	5.16	46.40	164.96/40	—	P-90AAS/FT	
5/4AA	Tabbed Version of above								P160T-ND	6.04	54.36	483.20/100	—	P-100AAS/FT	
5/4AA	Tabbed Version of above								P093T-ND	7.09	63.81	283.60/50	—	P-120AAS/FT	
2/3Af	Tabbed Version of above								P235T-ND	4.71	42.35	188.20/50	—	P-60AS/FT	
4/5Af	Tabbed Version of above								P239T-ND	6.31	56.79	252.40/50	—	P-110AS/FT	
4/5Af	Tabbed Version of above								P094T-ND	6.31	56.79	252.40/50	—	P-120AS/FT	
Af	Tabbed Version of above								P095T-ND	6.32	56.86	252.70/50	—	P-140AS/FT	
SC	Tabbed Version of above								P237T-ND	7.89	70.99	631.00/100	—	P-180SCS/FT	
5/4SC	Tabbed Version of above								P096T-ND	10.68	96.12	1025.28/120	—	P-230SCS/FT	

• Non-extending positive terminals. * See "How To Order" for note on shipping charges on prepaid orders.



Auto Power Plug

SPECIFICATIONS:

- Holder: High Impact ABS.
- Center Contact: Brass, nickel-plated.
- Sliding contacts: Phos. bronze, nickel-plated.
- Wire Strain Relief: PVC.
- LED: Red, 3mm.
- Fuse: 250 Volt, 3 A. • Size: 3AG.

APP-001-ND Black **$2.48**
APP-002-ND Gray **$2.48**
APP-003-ND ***NEW!*** Black with no LED ... **$2.44**

Panasonic.

6-Hour Nickel Cadmium Battery Charger

FEATURES:

- True full charge in just 6 hours (9V in 15 hours).
- Quickly resupplies up to 4 rechargeable nickel-cadmium batteries to 100% power!
- UL approved. With anti-reversal polarity protection system.
- Simultaneous charging of any pair of nickel-cadmium batteries: D, C, AA, AAA, or single 9VNo special adaptor needed for AAA!
- Not for use with flat top batteries indicated by /FT.

P292-ND (4 unit)........................ **$18.73**

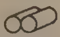
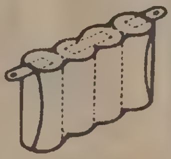
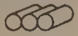
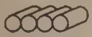
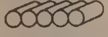
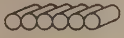
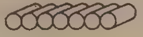
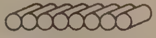
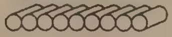
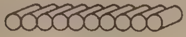
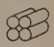
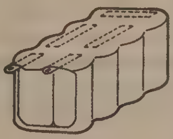
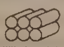
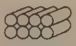
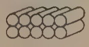
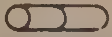
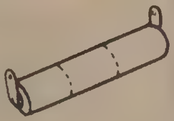
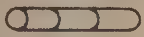
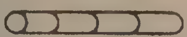
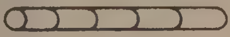
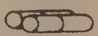
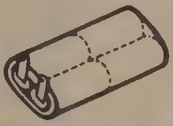
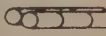
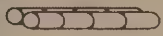
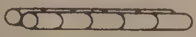
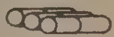
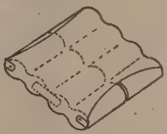
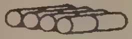
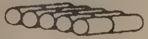
P293-ND Same charger as above except this one handles 8 batteries!................ **$33.73**

Battery Packs w/ Panasonic. Batteries

For Cordless Phones, Memory Backup, Power Tools, Radio Controlled and Other Endless Applications

All battery packs are made using our high quality Panasonic cells. Shown are standard configurations. If you have a special need or a configuration that you do not see, give us a call for further information. Packs are available in nearly all sizes of Nickel-Cadmium, Lithium, and Alkaline cylinder batteries.

Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.

Style	Volts	Cells	Configurations	Diagram
F021	2.4	2		
F031	3.6	3		
F041	4.8	4		
F051	6.0	5		
F061	7.2	6		
F071	8.4	7		
F081	9.6	8		
F091	10.8	9		
F101	12.0	10		
F022	4.8	4		
F023	7.2	6		
F024	9.6	8		
F025	12.0	10		
L021	2.4	2		
L031	3.6	3		
L041	4.8	4		
L051	6.0	5		
L022	4.8	4		
L032	7.2	6		
L042	9.6	8		
L052	12.0	10		
L023	7.2	6		
L024	9.6	8		
L025	12.0	10		

HOW TO ORDER:

P ☐ ☐ ☐ – ☐ ☐ ☐ ☐ – ND

Select Digi-Key Part No. of any Cylinder Type Battery

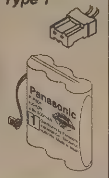
Select Style of Battery Pack From Chart

Call for pricing on any standard or custom battery pack

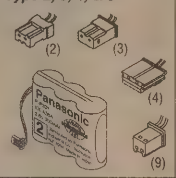
Panasonic.

Cordless Telephone Replacement Battery Packs

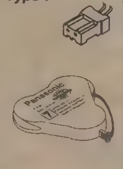
Type 1



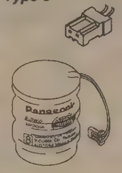
Type 2, 3, 4, & 9



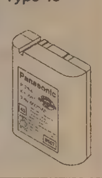
Type 7



Type 8



Type 43



Pan. Type	(V)	Cap. C/5 (mAh)	Dimensions (in.) HxLxT	Weight (oz.)	Digi-Key Part No.	Pricing 1	Panasonic Part No.
1	3.6	600	1.88 x 1.65 x 0.55	2.37	P072-ND	10.46	P-P501
2	3.6	300	1.09 x 1.65 x 0.55	1.47	P071-ND	10.46	P-P301
3	3.6	300	1.09 x 1.65 x 0.55	1.47	P070-ND	10.46	P-P302
4	3.6	300	1.09 x 1.65 x 0.55	1.47	P069-ND	10.46	P-P303
7	3.6	280	0.40 x 1.92 x 1.80	1.70	P068-ND	9.00	P-P801
8	3.6	280	1.10 x 0.98 x 0.98	1.54	P067-ND	9.00	P-P802
9	3.6	300	1.09 x 1.65 x 0.55	1.47	P066-ND	10.46	P-P304
43	3.6	600	2.16 x 1.77 x 0.66	2.69	P065-ND	22.48	P-P543

TELEPHONE MODEL CROSS REFERENCE CHART

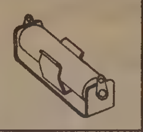
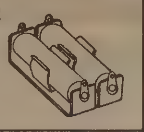
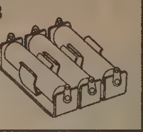
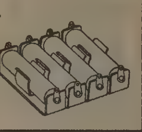
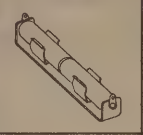
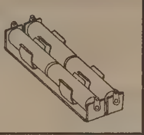
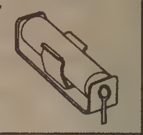
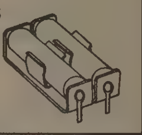
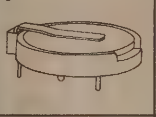
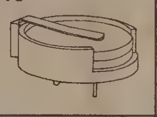
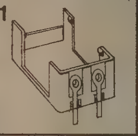
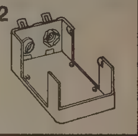
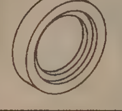
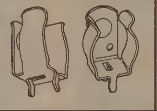
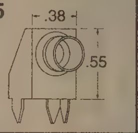
Phone Model #	Pan. Type #
AT&T	
HT 3400	#4
HT 4100	#4
HT 4200	#4
HT 4210	#4
HT 4400	#4
HT 4410	#4
HT 5200	#4
HT 5300	#4
HT 5310	#4
HT 5320	#4
HT 5500	#4
MERLIN MLC5	#4
450	#4
500	#4
600	#4
700	#4
3000	#4
3400	#4
4000(A)	#4
4100	#4
4110	#4
4200	#4
4210	#4
4300	#4
4305	#4
4310	#4
4315	#4
4320	#4
4400	#4
4410	#4
4500	#4
4600	#4
4605	#4
4615	#4
4690	#4
5200	#4
5210	#4
5300	#4
5310	#4
5320	#4
5352	#4
5400	#4
5405	#4
5450	#4
5455	#4
5460	#4
5470	#4
5480	#4
5490	#4
5500	#4
5510	#4
5600	#4
5650	#4
Bell South	
Southwind - Models	#9
YCL 7701	#4
YCL 7702	#4
YCL 7703	#4
6000	#8
Cobra	
AN-8525	#3
AN-8526	#3
CP-110	#1
CP-310	#1
CP-320	#1
CP-355	#1
CP-481	#3
CP-482	#3
CP-486	#3
CP-487	#3
CP-488	#3
CP-489	#3
CP-492	#3
CP-701	#3
CP-702	#3
CP-705	#3
CP-711	#3
CP-712	#3
Cobra (cont.)	
CP-714	#3
CP-250 S	#1
CP-260 S	#1
CP-310 S	#1
CP-355 S	#1
CP-464 S	#3
CP-468 S	#8
CP-469 S	#3
CP-470 S	#3
CP-471 S	#3
CP-472 S	#3
CP-473 S	#3
CP-474 S	#3
CP-475 S	#3
CP-483 S	#4
CP-484 S	#4
CP-100 SA	#1
CP-110 SA	#1
CP-115 SA	#1
CP-120 SA	#1
CP-130 SA	#1
CP-140 SA	#1
CP-320 S(A)	#1
CSPA	#1
100 SA	#1
110 S	#1
115 A	#1
120 SA	#1
130 SA	#1
140 SA	#1
205 SA	#1
Code-A-Phone	
3150	#3
3260	#3
7010	#3
7050	#3
7210	#3
General Electric	
EA41X681	#3
2-9510	#3
2-9512	#3
2-9514	#3
2-9515	#3
2-9519	#3
2-9522	#3
2-9525	#3
2-9530	#4
2-9615	#4
2-9625	#3
2-9630	#3
2-9645	#4
2-9665	#3
2-9675	#3
2-9821	#3
41X681	#3
5-2126	#3
5-2132	#3
5-2189	#3
5-2308	#3
5-2300	#3
5-2304	#3
5-2310	#3
5-2311	#3
5-3304	#3
GTE	
3150	#3
N. Western Bell	
Excursion	#1
Excursion 3100	#3
Excursion - 32011	#1
255	#1
3000	#8
3210C	#3
3620S	#8
6000	#8
33000	#8
N. Western Bell (cont.)	
33010	#8
33080	#8
33090	#8
36000	#8
Panasonic	
KX-T3610	#2
KX-T3620	#2
KX-T3640	#2
KX-T3705	#2
KX-T3710 (B)	#2
KX-T3720 (B)	#2
KX-T3725 (B)	#2
KX-T3730	#2
KX-T3800	#2
KX-T3805	#2
KX-T3807	#2
KX-T3815	#1
KX-T3822	#2
KX-T3823	#2
KX-T3824	#2
KX-T3825	#1
KX-T3832	#2
KX-T3835	#1
KX-T3842	#1
KX-T3845	#1
KX-T3848 (B)	#2
KX-T3850 (B)	#2
KX-T3855 (B)	#2
KX-T3860 (W)	#2
KX-T3880	#1
KX-T3900	#1
KX-T3910 (B)	#2
KX-T3920 (B)	#2
KX-T3930	#2
KX-T3932	#2
KX-T3935 (W)	#2
KX-T3940 (W)	#2
KX-T3950 (W)	#2
KX-T3960 (B)	#2
KX-T3965	#2
KX-T3980 (B)	#2
KX-T4200	#2
KX-T4300 (B)	#2
KX-T4330 (B)	#2
KX-T4350	#2
KX-T4370 (B)	#2
KX-T4400 (B)	#2
KX-T9500	#43
KX-T9500C	#43
KX-T9509	#43
KX-T9520	#43
KX-T9550	#43
Radio Shack	
CS-228	#2
CS-2006	#8
CS-2010	#8
ET-393	#8
ET-394	#8
ET-414	#8
43-544	#8
43-554	#8
43-559	#8
43-564	#8
Sanyo	
CAS130	#3
CAS160	#3
CAS170	#3
CAS1200	#3
CAS1500	#3
CLT3300A	#3
CLT3600A	#3
CLT4300	#3
CLT4600	#3
Sears	
34953	#4
34955	#4
Sony	
BPT-10	#8
SPP-50	#8
SPP-60	#8
SPP-20	#2
SPP-57	#2
SPP-80	#8
SPP-90	#8
SPP-510	#8
SPP-A20	#2
SPP-A40	#2
SPP-A60	#2
SPP-D15	#2
SSP-50	#8
S. Western Bell	
FF-650	#1
FF-655	#1
FF-660	#3
FF-670	#3
FF-675	#1
FF-695	#3
FF-700	#1
FF-705	#3
FF-740	#1
FF-750	#1
FF-1100	#1
FF-1150	#1
FF-1175	#1
FF-1185	#3
FF-1700	#1
FF-1750	#1
FF-1755	#1
Toshiba	
FT-6000	#8
FT-6002	#2
FT-6003/BK	#2
FT-6100	#8
FT-6200	#8
FT-6203	#2
FT-6300	#8
FT-6303	#2
FT-6310	#8
FT-6400	#8
FT-6400W	#2
FT-6503	#2
FT-6603	#2
Uniden	
AM468V	#2
B-422	#8
B-3810	#1
B-4101	#1
BA-87	#8
BA-570	#8
CT301	#2
EX-155	#7
EX-200	#7
EX-250	#8
EX-255	#1
EX-300	#7
EX-350	#8
EX-400	#7
EX-442	#7
EX-500	#7
EX-777	#8
EX-2100	#1
EX-3101	#1
EX-3102	#1
EX-3800	#1
EX-4100	#1
EX-4102	#1
EX-4800	#1
XC265	#2
XC310	#2
XC315	#2
XC320	#2
XC330	#2
XC340	#2
XC365	#2

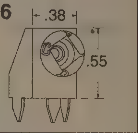
KEYSTONE ELECTRONICS CORP Battery Holders

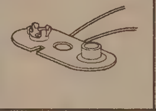
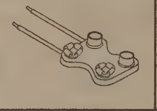
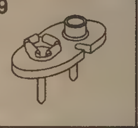
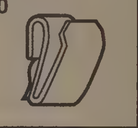
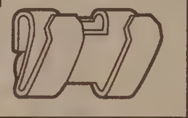
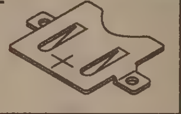
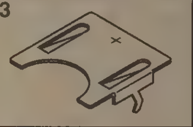
Fig.	No. of Cells	Digi-Key Part No.	Pricing		
			1	10	100
"AA" "PC" Battery Clip					
14	1	92K-ND●	.45/2	1.68	11.22
"AAA" Snap-In Battery Clips					
14	—	82K-ND●	.22/2	1.01	9.31
9 Volt "PC" Battery Clips (on board battery mount)					
15	Male	593K-ND	.23	2.01	16.39
16	Female	594K-ND	.27	2.42	19.74
9 Volt Battery Straps					
17	Single	72K-ND	.73	6.51	53.13
18	Dual	227K-ND	1.73	15.40	125.70
24mm Coin Cell Lithium "PC" Holders					
9	1	105K-ND	.67	6.36	55.58
10	2	1025K-ND	.88	7.73	61.12
20mm Coin Cell Lithium "PC" Holders					
9	1	106K-ND	.67	6.36	55.58
10	2	1026K-ND	.88	7.73	61.12
23mm Coin Cell Lithium "PC" Holders					
9	1	107K-ND	.67	6.36	55.58
10	2	1027K-ND	.88	7.73	61.12
12mm Coin Cell Lithium "PC" Holders					
9	1	500K-ND	1.06	9.65	86.86
16mm Coin Cell Lithium "PC" Holders					
9	1	502KE-ND	.77	6.95	64.08
9 Volt Holders					
11	1	1294K-ND	.76	7.26	63.41
12	1	1295K-ND	.74	7.00	61.17
Insulated Polarizing Washers – 59 (Red), 60 (Black)					
13	—	59K-ND	—	.43	3.54
13	—	60K-ND	—	.43	3.54
"N" Cell Holders*					
1	1	154K-ND	.86	8.13	71.05
2	2	155K-ND	1.77	16.77	146.50
3	3	156K-ND	3.68	34.96	305.44
"AAA" Cell Holders*					
1	1	137K-ND	1.04	9.91	86.57
2	2	138K-ND	1.83	17.40	152.06
3	3	169K-ND	2.70	25.69	224.43
4	4	170K-ND	3.70	35.15	307.10
"AA" Cell Holders*					
1	1	139K-ND	.68	6.42	56.11
2	2	140K-ND	1.36	12.95	113.13
3	3	171K-ND	2.17	20.60	179.94
4	4	182K-ND	3.08	29.23	255.39
5	2	189K-ND	1.08	10.27	89.72
6	4	192K-ND	2.09	19.83	173.22
7	1	2222K-ND	.85	8.07	70.47
8	2	2223K-ND	1.45	13.78	120.35
"C" Cell Holders*†					
1	1	173K-ND	.83	7.89	68.89
2	2	174K-ND*	1.45	13.73	119.94
3	3	187K-ND	3.00	28.46	248.67
5	2	185K-ND	1.27	12.07	105.49
6	4	196K-ND	2.36	22.37	195.47
7	1	2224K-ND	.87	8.25	72.04
8	2	2225K-ND*	1.55	14.74	128.82
"D" Cell Holders*†					
1	1	175K-ND	.96	9.13	79.76
2	2	176K-ND*	1.69	16.02	139.94
3	3	190K-ND	3.72	35.34	308.76
5	2	186K-ND	1.45	13.73	119.94
6	4	200K-ND	2.64	25.08	219.12
7	1	2226K-ND	1.20	11.41	99.68
8	2	2227K-ND*	1.90	18.04	157.62
Vertical "9V" PC Connector					
19	—	968K-ND	.75	6.84	61.58
Single "AA" cell clip					
20	—	209K-ND●	.26/2	.99	7.33
Single "AA" cell clip					
21	—	210K-ND●	.41/2	1.66	12.23
"AAA" Snap-On Contacts					
20	—	204K-ND●	.18/2	.79	7.33
21	—	202K-ND●	.29/2	1.33	12.23

Fig.	Size	Digi-Key Part No.	Pricing		
			2	10	100
Surface Mount Coin Cell Retainer Contacts					
22	12mm	3000K-ND●	.40	1.82	16.77
22	20mm	3002K-ND●	.40	1.82	16.77
22	23mm	3004K-ND●	.42	1.91	17.60
22	24mm	3006K-ND●	.43	1.95	18.01
Thru Hole Mount Coin Cell Retainer Contacts					
23	12mm	3001K-ND●	.40	1.82	16.77
23	20mm	3003K-ND●	.41	1.86	17.18
23	23mm	3005K-ND●	.42	1.91	17.60
23	24mm	3007K-ND●	.43	1.95	18.01

* Cell Holders are Aluminum. † "C" and "D" cell holders are dual clips only. ● Figs. 14, 20, 21, 22 & 23 sold by the pair.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15


16


17

18

19

20

21

22

23


"Budget Balancers" Battery Holders

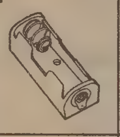
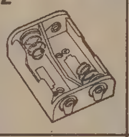
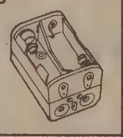
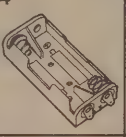
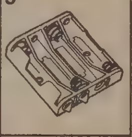
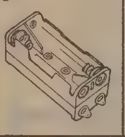
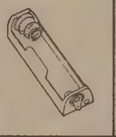
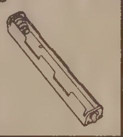
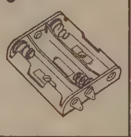
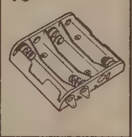
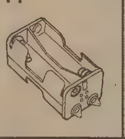
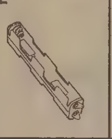
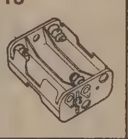
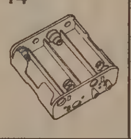
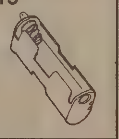
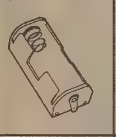
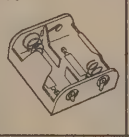
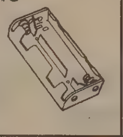
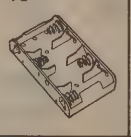
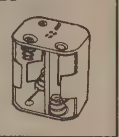
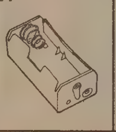
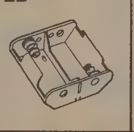
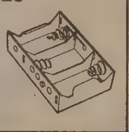
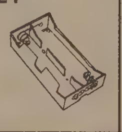
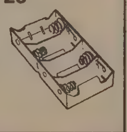
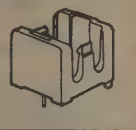
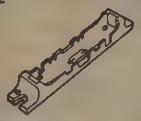
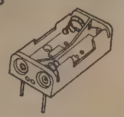
1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25


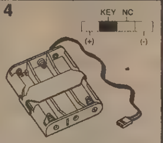
Fig.	No. of Cells	Description	Digi-Key Part No.	Pricing		
				1	10	100
"N" Cell Holders						
1	1	Solder Tabs	BHNL-ND	.60	5.40	50.00
2	2	Solder Tabs	BH2NL-ND	.64	5.76	52.97
3	4	Solder Tabs	BH4NL-ND	1.06	9.54	88.00
"AAA" Cell Holders						
4	2	Solder Tabs	BC2AAAL-ND	.64	5.76	52.97
5	4	Solder Tabs	BC4AAAL-ND	1.60	14.40	133.00
6	4	Solder Tabs	BH24AAAL-ND	1.06	9.54	88.00
4	2	6" Wire Leads, Stripped-Tinned 3/16"	BC2AAAW-ND	.74	6.66	61.98
5	4	6" Wire Leads, Stripped-Tinned 3/16"	BC4AAAW-ND	1.66	14.94	138.00
6	4	6" Wire Leads, Stripped-Tinned 3/16"	BH24AAAW-ND	1.10	9.90	92.00
"AA" Cell Holders						
7	1	Solder Tabs	BCAAL-ND	.56	5.04	46.99
8	2	Solder Tabs	BC12AAL-ND	.62	5.58	52.00
15	2	Solder Tabs	BC22AAL-ND	.60	5.40	50.00
9	3	Solder Tabs	BC3AAL-ND	1.00	9.00	83.00
10	4	Solder Tabs	BC4AAL-ND	1.06	9.54	88.00
11	4	Solder Tabs	BH24AAL-ND	.92	8.28	76.99
12	4	Solder Tabs	BH14AAL-ND	.76	6.84	62.98
13	6	Solder Tabs	BH26AAL-ND	1.32	11.88	110.00
14	8	Solder Tabs	BH48AAL-ND	1.60	14.40	133.00
15	2	6" Wire Leads, Stripped-Tinned 3/16"	BC22AAW-ND	.64	5.76	52.97
9	3	6" Wire Leads, Stripped-Tinned 3/16"	BC3AAW-ND	1.06	9.54	88.00
10	4	6" Wire Leads, Stripped-Tinned 3/16"	BC4AAW-ND	1.10	9.90	92.00
11	4	6" Wire Leads, Stripped-Tinned 3/16"	BH24AAW-ND	1.00	9.00	82.99
12	4	6" Wire Leads, Stripped-Tinned 3/16"	BH14AAW-ND	.82	7.38	68.00
13	6	6" Wire Leads, Stripped-Tinned 3/16"	BH26AAW-ND	1.38	12.42	114.96
14	8	6" Wire Leads, Stripped-Tinned 3/16"	BH48AAW-ND	1.66	14.94	138.00
"C" Cell Holders						
16	1	Solder Tabs	BHCL-ND	.70	6.30	58.00
17	2	Solder Tabs	BH2CL-ND	1.36	12.24	112.95
18	4	Solder Tabs	BH24CL-ND	1.52	13.68	126.95
19	4	Solder Tabs	BH4CL-ND	1.82	16.38	152.00
20	4	Solder Tabs	BH22CL-ND	1.94	17.46	162.00
"D" Cell Holders						
21	1	Solder Tabs	BHDL-ND	.76	6.84	62.98
22	2	Solder Tabs	BH2DL-ND	1.52	13.68	126.95
23	3	Solder Tabs	BH3DL-ND	1.90	17.10	158.00
24	4	Solder Tabs	BH24DL-ND	1.90	17.10	158.00
25	4	Solder Tabs	BH4DL-ND	2.36	21.24	196.98

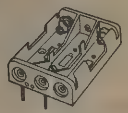
Memory Protection Devices

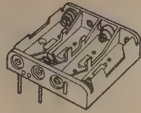

1

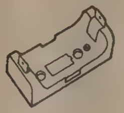

2

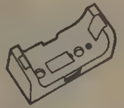

3

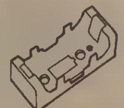

4

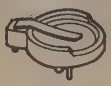

5

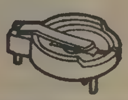

6

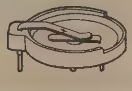

7

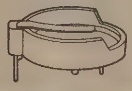

8

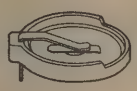

9

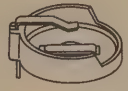

10

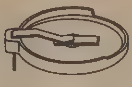

11

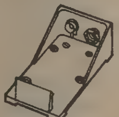

12

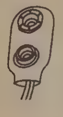

13

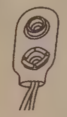

14

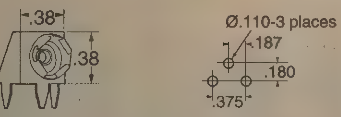

15

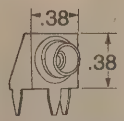

16

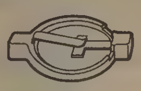

17

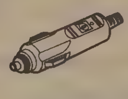

18

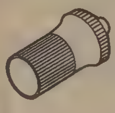

19

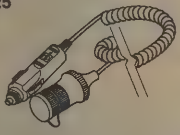

20

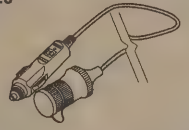

21

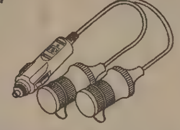

22

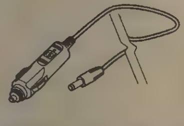

23

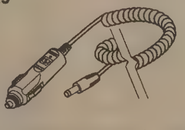

24

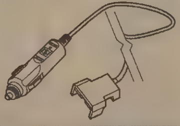

25

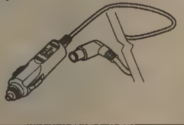

26

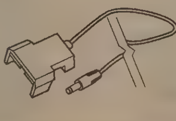

27

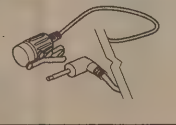

28


29


30


31


32


33

Battery Holders

Fig. No.	No. of Cells	Description	Digi-Key Part No.	Pricing 1	10	100
		"1/3N" Cell Holders				
1	1	PC Mount, Solder Legs	BH1/3N-ND	.82	7.38	62.00
		"N" Cell Holders				
2	2	PC Mount, Solder Legs	BH2N-ND	1.89	17.00	155.54
		"AAA" Cell Holders				
3	2	PC Mount, Solder Legs	BH2AAA-PC-ND	1.52	13.68	113.96
5	3	PC Mount, Solder Legs	BH3AAA-PC-ND	2.56	23.04	191.92
3	2	6″ Wire Leads, Stripped-Tinned 3/16″	BH2AAA-W-ND	1.52	13.68	113.96
5	3	6″ Wire Leads, Stripped-Tinned 3/16″	BH3AAA-W-ND	2.56	23.04	191.92
6	4	6″ Wire Leads, Stripped-Tinned 3/16″	BH4AAA-W-ND	2.78	25.02	209.00
		"AA" Cell Holders				
8	1	PC Mount, Solder Legs	BHAA-ND	2.00	18.02	150.66
3	2	PC Mount, Solder Legs	BH2AA-PC-ND	1.60	14.40	119.98
5	3	PC Mount, Solder Legs	BH3AA-PC-ND	2.74	24.66	205.91
6	4	PC Mount, Solder Legs	BH4AA-PC-ND	2.94	26.47	220.98
3	2	6″ Wire Leads, Stripped-Tinned 3/16″	BH2AA-W-ND	1.60	14.40	119.98
5	3	6″ Wire Leads, Stripped-Tinned 3/16″	BH3AA-W-ND	2.74	24.66	205.91
6	4	6″ Wire Leads, Stripped-Tinned 3/16″	BH4AA-W-ND	2.94	26.47	220.98
		Computer Clock Battery Replacement / "AA" Cell Holder				
4	3	9″ Wire Leads w/ conn, velcro pads included	BH3AA-211-ND	4.02	36.18	356.67
		"1/2AA" Cell Holders				
8	1	PC Mount, Solder Legs	BH1/2AA-ND	1.60	14.37	120.26
7	1	Fast-On Tabs	BH1/2AA-T-ND	1.96	17.61	167.71
		"2/3A" Cell Holders				
8	1	PC Mount, Solder Legs	BH2/3A-ND	1.79	16.94	161.70
—	1	Cover for PC Mount Holder	BH2/3AC-ND	.50	4.50	38.00
7	1	Fast-On Tabs	BH2/3A-T-ND	1.96	17.61	167.71
		"C" Cell Holders				
9	1	PC Mount, Solder Legs	BHC-ND	2.09	18.85	181.89
9	1	Fast-On Tabs	BHC-T-ND	2.35	21.12	206.64
		Coin Cell Holders — 12mm Cell Diameter				
10	1	PC Mt., Solder Legs, 2-2.5mm Cell Height	BH500-ND	1.18	10.62	89.00
		Coin Cell Holders — 16mm Cell Diameter				
11	1	PC Mt., Solder Legs, 1.6-3.2mm Cell Height	BH600-ND	1.18	10.62	88.97
22	1	SMT, Temp. range -40°C to +245°C	BH600SM-ND	1.25	11.25	94.00
		Coin Cell Holders — 20mm Cell Diameter				
12	1	PC Mt., Solder Legs, 1.6-3.2mm Cell Height	BH800-ND	1.18	10.62	88.97
13	2	PC Mt, Solder legs 2.5-3.2mm Cell Height	BH800S-ND	.79	7.10	70.00
22	1	SMT -60° to 282°C 1.6mm Cell Height	BH2016SM-ND	.86	7.78	76.67
22	1	SMT -60° to 282°C 2-3.5mm Cell Height	BH2032SM-ND	.86	7.78	76.67
		Coin Cell Holders — 23mm Cell Diameter				
12	1	PC Mt., Solder Legs, 2-3.2mm Cell Height	BH906-ND	1.18	10.62	88.97
13	2	PC Mt., Solder Legs, 2.5mm Cell Height	BH906S-ND	1.25	11.25	94.00
12	2	Temp. range -40°C to +245°C	BH906HITE-ND	1.24	11.16	95.00
22	1	SMT, Temp. range -60°C to +282°C	BH2330SM-ND	1.29	11.61	99.00
		Coin Cell Holders — 24-25mm Cell Diameter				
14	1	PC Mt., Solder Legs, 2-3mm Cell Height	BH1000-ND	1.25	11.25	94.00
15	1	PC Mt., Solder Legs, 7.7mm Cell Height	BH1000-G-ND	1.35	12.50	105.00
15	2	PC Mt., Solder Legs, 2-3mm Cell Height	BH1000-S-ND	1.29	11.96	99.00
		Coin Cell Holders — 30mm Cell Diameter				
16	1	PC Mt., Solder Legs, 3.2mm Cell Height	BH3000-ND	1.35	12.50	105.00
		9-Volt Cell Holders				
17	1	PC Mt., Solder Legs	BH9V-PC-ND	1.25	11.27	94.96
17	1	6″ Lead Wires	BH9V-W-ND	.94	8.45	83.34
18	1	6″ Battery Snap Cable	BS6I-ND	.30	2.70	24.99
18	1	12″ Battery Snap Cable	BS12I-ND	.31	2.79	26.00
19	1	6″ Heavy Duty Battery Snap Cable	BS6I-HD-ND	.33	3.06	28.00
19	1	12″ Heavy Duty Battery Snap Cable	BS12I-HD-ND	.35	3.15	30.00
		Printed Circuit Snap-Ons (off board battery mount)				
20	—	9 Volt Female Snap-on	BSPCF-ND	.25	2.25	15.00
21	—	9 Volt Male Snap-on	BSPCM-ND	.22	1.98	13.00

Cigarette Lighter Sockets

- 21 mm (Inside Diameter) • Auto Plugs: (Fuse 3AG Style)
- The length of cord shown in each item is measured from the welding point.

Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	100
	Auto Power Plug				
23	ABS fused auto plug with LED, black	APP-001-ND	2.48	22.32	220.00
23	ABS fused auto plug with LED, gray	APP-002-ND	2.48	22.32	220.00
23	ABS fused auto plug w/ no LED, Black	APP-003-ND	2.44	21.98	216.67
	Cigarette Assemblies				
24	Cigarette Inline Socket, Plastic	ZA2010-ND	1.13	10.14	100.00
	Red Rubber Cap for Sockets	ZA2081-ND	.56	5.07	50.00
25	12' Coil Cord Assembly w/ 5A Fused Plug	ZA5070-ND	6.48	58.33	575.01
26	12' 18AWG Cord Assembly, w/ 10A Fused Plug	ZA5071-ND	6.48	58.33	575.01
27	8" 18AWG Cord Assembly, w/ 10A Fused Plug	ZA5072-ND	6.20	55.80	550.01
28	6' 18AWG Cord, 2.1 x 5.5mm DC Plug w/ 5A Fused Plug	ZA5073-ND	3.85	34.66	341.74
29	12' Cord, 2.1 x 5.5mm DC Plug, w/ 5A Fused Plug	ZA5074-ND	6.11	54.95	541.68
30	1', UL2468 Cord, Lead Acid Clip, w/ 2A Fused Plug	ZA5076-ND	4.32	38.89	383.34
31	6' Cord, 2.1 x 5.5mm Rt. Angle DC Plug w/ 3A Fused Plug	ZA5077-ND	3.85	34.66	341.67
32	8", UL2468 Cord, Lead Acid Clip, 2.1 x 5.5mm DC Plug	ZA5350-ND	2.35	21.14	208.34
32	8", UL2468 Cord, Lead Acid Clip, No Connector	ZA5350-B-ND	1.88	16.91	166.67
33	8' Cable, Microphone for Car Phone, w/ DC Plug 3.5mm	ZC5330-ND	6.48	58.33	575.01

SOLAREX Solar Cell Modules

Fig. 1

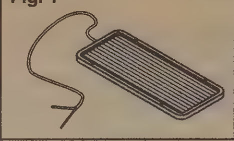


Fig. 2

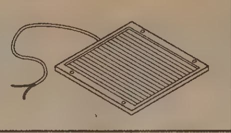


Fig. 3

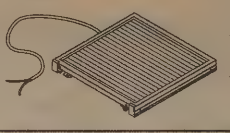
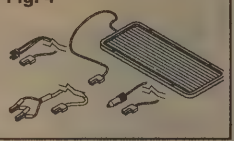


Fig. 4



SA Series Amorphous Silicon Module

The SA-Series solar-electric modules use the most advanced of the photovoltaic technologies — thin films of semiconductive and conductive materials deposited on glass — to transform light energy to electricity. Its proven encapsulation system and durable Lexan™ frame ensure long outdoor life, high reliability, and quick, easy installation. Typical commercial applications of these modules include operation of remote telemetry units, security sensors, and signals. It is also well-suited to various small electrical jobs around the home, farm, boat or RV, such as charging marine or vehicle batteries, powering radios and portable communications equipment, and operating other low voltage devices. Power output is via a stress-relieved two-conductor cable which extends from the edge of the module. The cable's two #18 AWG leads are insulated with PVC, and the cable jacket is PVC.

MSA Series Thin Film Silicon Module

The MSA-Series solar-electric modules use the most advanced of the photovoltaic technologies — thin films of semiconductive and conductive materials deposited on glass — to transform light energy to electricity. Its proven encapsulation system and durable multi-mount frame ensure long outdoor life, high reliability, and quick, easy installation. Typical commercial applications of this module include operation of electric fencers, infrared sensors, and signals. It is also well-suited to various small electrical jobs around the home, farm, boat or RV, such as maintaining charge on marine or vehicle batteries; powering fans, lights and portable communications equipment, and operating other low voltage devices. Power output is via a stress-relieved two-conductor cable which extends from the edge of the module. The cable's two #18 AWG leads are insulated with PVC, and the cable jacket is PVC.

BatteryMate I & II

The BatteryMate I™ is designed for automotive-type batteries. This compact, light-weight solar panel fits easily onto a vehicle's dash and plugs into its cigarette lighter. Two to four hours a day of sun offsets normal battery stand losses and parasitic drain from accessories. BatteryMate I™ is a complete package with charging LED: just plug it in and let the sun shine in on your vehicle's battery!

BatteryMate II™ — This slightly larger module is designed for RV and marine-type batteries. It can be hooked up directly to the battery or plugged into a cigarette lighter. BatteryMate II™ is a complete package ready for installation on dash, boat cover, or ready for permanent installation on vehicle.

BatteryMate I™ comes with male cigarette lighter plug.

BatteryMate II™ includes cables for 3 hook-up possibilities.

Fig. No.	Guaranteed Min. Peak Power (Watt)	Typical Electrical Characteristics (1) Current at Design Operating Point (Iop)	Voltage at Design Operating Point (Vop)	Minimum Characteristics at STC (2) Voltage at Max. Power (Vmp)	Current at Max. Power (Imp)	Open-Circuit Voltage (Voc)	Short-Circuit Current (Isc)	Dimensions (In.) L x W x D	Weight (lbs)	Digi-Key Part No.	Pricing 1	Solarex Part No.
1	1	100mA	15V	17.5V	80mA	23V	110mA	4.9 x 13 x 0.4	0.9	10232-ND	42.95	SA-1
1	2	300mA	7.5V	8.8V	290mA	11.5V	360mA	6.8 x 13.8 x 0.5	1.3	10233-ND	49.95	SA-2/6V
1	2	150mA	15V	17.5V	145mA	23V	160mA	6.8 x 13.8 x 0.5	1.3	10234-ND	69.95	SA-2/12V
2	5	330mA	15V	17.5V	290mA	23V	380mA	13.6 x 13.6 x 0.8	3.2	10235-ND	79.95	SA-5
3	5	330mA	15V	17.5V	290mA	23V	340mA	13.4 x 12.3 x 0.9	2.4	10236-ND	89.95	MSA-5/12V
3	10	660mA	15V	17.5V	580mA	23V	680mA	26.5 x 12.3 x 0.9	4.8	10237-ND	124.95	MSA-10/12V
4	1	100mA	15V	17.5V	80mA	23V	110mA	4.9 x 13 x 0.4	1.8	10238-ND	49.95	BATTERYMATE I
4	2	150mA	15V	17.5V	145mA	23V	160mA	6.8 x 13.8 x 0.5	2.2	10239-ND	69.95	BATTERYMATE II

Notes: 1. These are the characteristics in full sun at ambient temperature of 20°C.

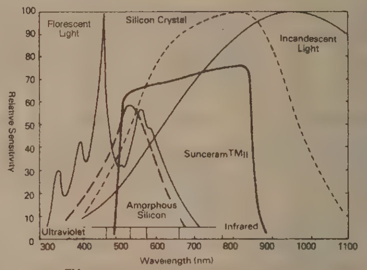
2. Minimum initial characteristics are based on measurements made at Standard Test Conditions (STC), which are: • Illumination of 1kW/m^2 (1 sun) at spectral distribution of AM 1.5 • Cell temperature of 25°C

Panasonic. Solar Cells Sunceram™II

Panasonic has developed a solar cell so sensitive that the light from a single match is all it needs to power a hand-held electronic calculator. This remarkable cell, called the Sunceram™II, is turning heads the world over. It's the world's first practical printed compound solar cell. And it's exceptionally sensitive - under indoor light, especially incandescent light, the Sunceram™II has an output 5 times higher than the conventional amorphous solar cells found in common pocket calculators. The Sunceram™II is the result of Panasonic's breakthrough research on photovoltaic materials, those substances that transform light into energy. Behind the Sunceram™II's extraordinary efficiency lies a revolutionary process in which the photovoltaic materials and electrodes are printed and sintered onto a glass substrate. Besides achieving an unprecedented level of sensitivity, this process is the first to allow mass production.

APPLICATIONS:
• **Office equipment:** Calculators, thermometers, IC cards, memory card. • **Consumer applications:** Battery chargers, outdoor clocks, indoor clocks, shavers, portable power sources for other electrical equipment VTRs (VCRs), liquid crystal TVs, and tape recorders). • **Communication and telephone equipment:** Radios, remote controllers, cordless and portable telephones, transceivers.• **Toys and hobbies:** Model motor driving.

Digi-Key is not approved by any state or federal agency as an authorized supplier of product for medical, life support or life sustaining devices or systems.



Sunceram^{TM}II spectral sensitivity characteristics and emission spectrum of various light sources

Indoor Use

Dimensions (mm) t = 1.4mm	Operating Voltage Vp(V)	Fluor. Lamp 200(lux) Operating Current Ip(μA) Typ.	Incan. Lamp 40(lux) Operating Current Ip(μA) Typ.	Digi-Key Part No.	Pricing 1	10	Panasonic Part No.
55.0 x 11.0	1.3	14.5	17.0	P276-ND	1.16	10.50	BP-5511C4SE
53.0 x 13.8	1.3	18.0	21.0	P275-ND	1.29	11.75	BP-5313C4SE
55.0 x 13.5	1.55	14.0	16.5	P280-ND	1.38	12.50	BP-5513C5SE
45.0 x 15.0	1.6	12.5	15.0	P247-ND	1.43	13.00	BP-4515C5SE
48.5 x 52.5	2.8	28.0	34.0	P249-ND	11.39	103.50	BP-4852C9S

Outdoor Use

NOTE: Outdoor Solar Cells should be completely sealed from moisture

Dimensions (mm) t = 1.4mm	Light Source: AM = 1.5: 100mW/cm2 Operating Voltage Vp(V)	Operating Current Ip(mA) Typ.	Open Circuit Voltage Voc (V) (min.)	Digi-Key Part No.	Pricing 1	10	Panasonic Part No.
24.0 x 22.0	2.1	6.6	4.15	P284-ND	1.51	13.75	BP-2422D6S
162.5 x 41.0	16.0	19.1	26.0	P289-ND	15.43	140.25	BP-1604ENS

* Indicates Minimum.

Panasonic. Magnetic Card Readers

Manual Swipe Card Readers: • Compact and light-weight designs • New high-performance head mechanism • **Applications:** • Credit Authorization Terminals • Credit Card Telephones • POS Terminals • Time and Attendance Terminals • Banking Terminals (ATM/CD) • **Power Supply Voltage:** 5 VDC • **Operating Temperature/Humidity:** -20 ~ 60°C/10 ~ 90%RH • **Head Life:** PCR 100 - 300K Passes, PCR102 - 500K Passes.

Manual Insertion Card Readers: High precision, High reliability • **Applications:** • Credit Card Telephones • Cost Control for Facsimiles and Copiers • Security Control Systems • Time & Attendance Terminals. • **Power Supply Voltage:** 5 VDC • **Operating Temperature/Humidity:** -20 ~ 60°C/10 ~ 90%RH • **Head Life:** PCR105 - 300K Passes, PCR106 & PCR107 - 500K Passes.

Fig. 1

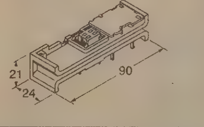


Fig. 2

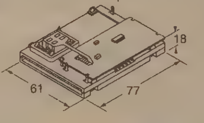


Fig. 3

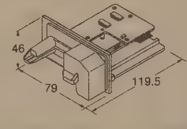
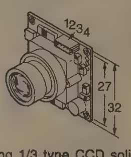


Fig. No.	Card Standard	Current	Card Feed Speed	Card Reading Direction	Digi-Key Part No.	Price 1	10	100	Panasonic Part No.
1	IS02	3mA	8 ~ 150 cm/sec.	Swipe	PCR100-ND	25.10	237.99	1930.00	ZU-M1121S1
1	IS01/IS02	6mA	10 ~ 150 cm/sec.	Swipe	PCR102-ND	64.04	569.43	4721.10	ZU-M1242S1
2	IS02	10mA	10 ~ 120 cm/sec.	Insertion	PCR105-ND	34.50	335.00	3239.99	ZU-M2121S11
3	IS02	15mA	10 ~ 120 cm/sec.	Ejection	PCR106-ND	63.75	553.50	4700.00	ZU-1852MAL
3	IS01/IS02	15mA	10 ~ 100 cm/sec.	Ejection	PCR107-ND	104.50	940.50	8360.42	ZU-1870MA5T5
Cable for Single Track Swipe Reader 200mm (Use w/ PCR100)					PCR101-ND	1.94	—	—	ZUHM106A200
Cable for Double Track Swipe Reader 200mm (Use w/ PCR102)					PCR103-ND	2.81	—	—	ZUHM109A200
Cover for Single/Double Manual Swipe Reader (Use w/ PCR100, PCR102)					PCR104-ND	2.81	—	—	U110M041

Panasonic. B/W CCD Camera



1 - GND 2 - Video out
3 - GND 4 - DC Power (DC 9.0 ± 1.0V)
* Cable included w/ camera

The BS7258 is B/W CCD video camera module using 1/3 type CCD solid image sensor. Provided with the following features and functions, it can be optimally incorporated into various equipment. • Ultra compact and light-weight, 32 x 32 x 24 mm. • 380 TV lines horizontal resolution. • Electronic iris function • Provided with small standard lens. (L-type) • Sensitive to Infrared.

General Ratings: • **TV system:** EIA • **Image sensor:** Interline transfer system 1/3 type CCD image sensor • **No. of pixels:** 512(H) x 492(V) • **Scanning System:** 2 : 1 interlace • **Sync. system:** Internal sync. • **Sync. frequency:** Horizontal : 15.734kHz, Vertical : 59.9Hz • **Resolution:** Horizontal : 380 TV lines typ., Vertical : 350 TV lines typ. • **S/N ratio:** 46dB typ. (Dark, AGC OFF) • **Standard Illumination:** 50 lux • **Min. Illumination:** 0.3 lux • **r compensation:** 0.45 typ. • **Video signal output:** Composite video signal : 1.0 Vp-p / 75Ω • **AGC:** ≥ + 12dB • **ALC:** Electronic iris (Linear control : 1/60 ~ 1/15000 sec.) • **Supply voltage:** DC 9.0 ± 1.0V • **Current consumption:** 120mA typ. • **Operating temperature range:** -10 ~ 70°C(Board environmental temp.) • **Storage temperature range:** -20 ~ 80°C • **Operating humidity range:** ≤80% • **Lens:** f = 3.8mm/F = 2.0mm standard lens • **Viewing Angle:** 89.6° • **Dimension:** 32mm x 32mm

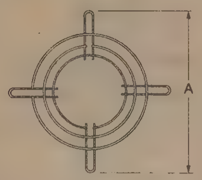
Description	Digi-Key Part No.	Pricing 1	Panasonic Part No.
Camera Module	P9500-ND	199.95	BS7259L

Fan Accessories

Fig.	Description	Fits Fan Size (mm)	Center Dim. (mm)	No. of Rings	Material	Digi-Key Part No.	Price Each 1	25	50
	Finger Guards								
1	Finger Guard	120 Sq.	57 open	3	Metal	CR178-ND	1.81	1.56	1.43
1	Finger Guard	176 Sq.	99 open	3	Metal	CR179-ND	6.32	5.44	5.00
1	Finger Guard	80 Sq.	50 open	3	Metal	CR180-ND	1.51	1.30	1.19
1	Finger Guard	254 Dia.	102 open	5	Metal	CR182-ND	5.91	5.09	4.68
—	Mounting Clips for Guard CR485-ND	—	—	—	—	CR184-ND	.56	.49	.45
2	Finger Guard	150 Dia.	74 solid	6	Metal	CR206-ND	3.76	2.87	2.60
2	Finger Guard	171.5 Dia.	74 solid	5 3/4	Metal	CR196-ND	3.80	2.90	2.63
3	Finger Guard	127 Dia.	14 open	9	Metal	CR200-ND	2.48	2.02	1.80
4	Finger Guard	120 Sq.	25 solid	6	Plastic	CR201-ND	.99	.76	.69
5	Finger Guard	80 Sq.	32 solid	3	Plastic	CR204-ND	.99	.76	.69
6	Finger Guard	120 Sq.	46 solid	5	Plastic	CR205-ND	2.44	1.86	1.69
7	Finger Guard	120 Sq.	33 solid	7	Metal	CR210-ND	2.84	2.16	1.96
8	Finger Guard	92 Sq.	14 open	6	Metal	CR220-ND	1.60	1.30	1.16
8	Finger Guard	60 Sq.	14 open	4	Metal	CR221-ND	2.69	2.32	2.13
8	Finger Guard	254 Dia.	76.2 solid	9	Metal	CR223-ND	5.29	4.04	3.66
8	Finger Guard	120 Dia.	17.5 open	8	Metal	CR224-ND	1.34	1.03	.93
8	Finger Guard	80 Dia.	17.4 open	5	Metal	CR229-ND	1.03	.79	.72
8	Finger Guard	40 Dia.	15.875 open	2	Metal	CR230-ND	1.28	.98	.89
9	Finger Guard	60 Sq.	5 solid	3	Plastic	CR225-ND	1.07	.82	.74
10	Finger Guard	80 Sq.	15 solid	3	Plastic	CR226-ND	1.09	.84	.76
10	Finger Guard	92 Sq.	31.5 solid	4	Plastic	CR227-ND	1.16	.88	.80
10	Finger Guard	120 Sq.	25 solid	6	Plastic	CR228-ND	1.45	1.11	1.01

Fig.	Description	Fits Fan Size (mm)	Digi-Key Part No.	Price Each 1	25	50
	Filters					
—	Filter Mounting Clips	Whisper and Muffin	CR163-ND	.90	.78	.72
—	Filter Assembly	119 and 120 Square	CR209-ND	16.11	12.28	11.13
10	Filter Guard Assembly (30 PPI)	80 Square	CR212-ND	2.66	2.17	1.93
10	Filter Guard Assembly (45 PPI)	80 Square	CR214-ND	2.66	2.17	1.93
—	Replacement Filter Element (30 PPI) - Pkg. of 5	80 Square	CR213-ND	2.30	1.87	1.67
—	Replacement Filter Element (45PPI) - Pkg. of 5	80 Square	CR215-ND	2.30	1.87	1.67
—	Replacement Filter	483X177	CR168-ND	15.16	13.05	11.99
10	Filter Guard Assembly (30 PPI)	119 and 120 Square	CR216-ND	3.14	2.56	2.28
10	Filter Guard Assembly (45 PPI)		CR218-ND	3.30	2.69	2.40
—	Replacement Filter Element (30 PPI) - Pkg. of 5		CR217-ND	2.80	2.28	2.03
—	Replacement Filter Element (45 PPI) - Pkg. of 5		CR219-ND	2.80	2.28	2.03
11	Filter/Screen (Washable)	80 Diameter	CR233-ND	3.63	2.77	2.51
11	Filter/Screen (Washable)	92 Diameter	CR234-ND	4.63	3.09	2.80
11	Filter/Screen (Washable)	120 Diameter	CR235-ND	4.49	3.43	3.11
	Grilles					
—	Grille (Spiral)	119 and 120 Square	CR177-ND	4.30	3.70	3.40
—	Screen Guard		CR193-ND	2.98	2.28	2.06
	Clips					
—	#6-32 Flush Mounting Clip	Major, Patriot, Whisper, Muffin, Major DC, Patriot DC	CR187-ND	.17	.15	.14
—	#6-32 Standoff Mounting Clip		CR188-ND	.28	.25	.23
—	#6-32 Mounting Clip	All XL Models	CR192-ND	.15	.12	.11
	Plug Cord Sets					
—	Straight On Plug and Cord — 24"	All AC Fans Except Whisper, Muffin, Feather, MBxxxx	CR197-ND	1.58	1.20	1.09
—	Straight On Plug and Cord — 36"		CR198-ND	2.84	2.16	1.96
—	Straight On Plug and Cord — 50"		CR199-ND	3.05	2.32	2.11
—	Straight On Plug and Cord — 72"		CR203-ND	4.31	3.28	2.98
—	Straight On Plug and Cord — 80"		CR231-ND	3.24	2.58	2.32
—	Right Angle T-style Plug and Cord — 24"	All AC Fans Except Feather and MBxxxx	CR170-ND	1.44	1.24	1.14
—	Right Angle T-style Plug and Cord — 36"		CR175-ND	2.04	1.76	1.62
—	Right Angle T-style Plug and Cord — 50"		CR174-ND	2.37	2.04	1.87
—	Right Angle T-style Plug and Cord — 60"		CR173-ND	2.58	2.22	2.04
—	Right Angle T-style Plug and Cord — 72"		CR172-ND	3.16	2.72	2.50
—	Right Angle T-style Plug and Cord — 96"		CR194-ND	3.76	2.87	2.60
—	Right Angle T-style Plug and Cord — 80"		CR232-ND	3.24	2.58	2.32
—	Polarized Right Angle Plug and Cord — 24"	DC Fans, Sprite, Muffin, Muffin XL, Whisper XL	CR211-ND	2.10	1.60	1.45

Fig. 1



Part No.	"A"
CR178-ND	6.19
CR179-ND	8.74
CR180-ND	4.31
CR182-ND	10.13

Fig. 2

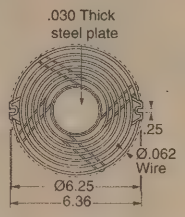


Fig. 3 ***NEW!***

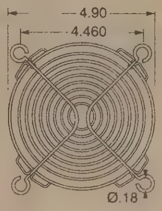


Fig. 4

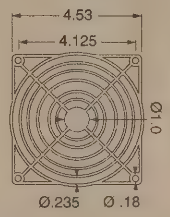


Fig. 5

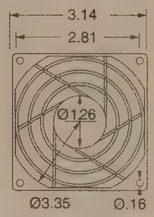


Fig. 6

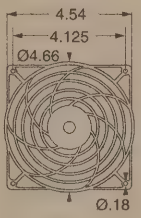


Fig. 7

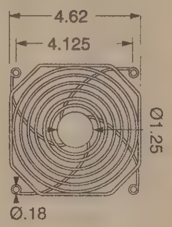
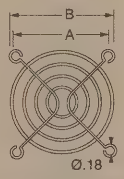


Fig. 8



Part No.	"A"	"B"
CR220-ND	3.25	3.52
CR221-ND	1.97	2.09

Fig. 9

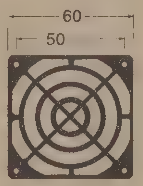
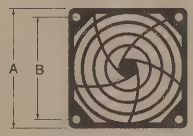
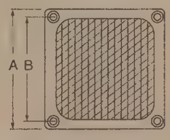


Fig. 10



Part No.	"A"	"B"
CR226	80.01	71.37
CR227	91.95	82.42
CR228	118.11	104.77

Fig. 11



Part No.	"A"	"B"
CR233	83.82	71.37
CR234	91.95	82 42
CR235	118.87	104.77

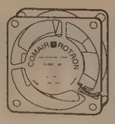
COMAIR⊞ROTRON

DC Brushless and AC Fans

DC Fans - Motor: Brushless electronic commutation provided by dependable solid-state circuitry. 100% dielectric tested at 600 VAC/1 sec./500 microamps max. leakage. Electronic locked rotor protection. Polarity protected.

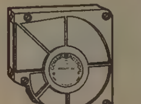
AC Fans - Motor: Two-pole shaded pole induction motor. All 50/60Hz, impedance or thermally protected. 100% dielectric tested at 1800 VAC/1 sec./500 microamps max. leakage.

TPV Fans - Motor: Voltage regulated, programmable, thermally speed controlled brushless DC fans for completely reliable cooling. Current limiting circuits.


CR001-CR074
CR093-CR130
CR140-CR141
CR262-CR274

CR083
CR135-CR139
CR144-CR147
CR275-CR277

CR075
CR134-CR135


CR085-CR086
CR148-CR149

Model(s)	Venturi	Propeller
Flight Series	PBT with glass, black, meeting UL94V-0	PBT, black, meeting UL94V-0
Sprint DC, Muffin DC	Glass filled nylon, black meeting UL94V-0	Injection molded polypropylene, black, meeting UL94V-0
Sprite DC, Whisper XL DC, Muffin XL DC, Spinnaker, Sprite, Whisper XL, Muffin XL	One-piece die-cast zinc alloy, painted black	Flame retardant polypropylene, black, meeting UL 94V-0
Major DC, Major, Patriot, Patriot DC, Caravel, Galaxy	One-piece die-cast aluminum, painted black	Polycarbonate, black, meeting UL94V-0
Biscuit, Biscuit DC Whisper, Muffin	Mineral-filled nylon, black, meeting UL94V-0 Flame retardant, black, phenoliz	Polypropylene, black, DC-UL94V-0, AC-UL94V-2 Flame retardant polypropylene, black
Feather	Injection molded, polycarbonate, black	Polycarbonate, black, meeting UL94V-0
Tarzan	Flame retardant, black, polycarbonate	Flame retardant pheonolicthermoset, black

Model	Connection Type	Bearing	Voltage Nom.	Voltage Range	Running Watts	Running Current	RPM	CFM	(mm) Dimensions	Life(F) Expectancy	Comments (See Below)	Digi-Key Part No.	Price Each 1	Price Each 25	Comair Model No.	Finger Guards	Pricing
Brushless DC Fans																	
Flight II 60 Series	Lead Wires	Ball	12	6-14	1.7	142mA	5000	18	60X25	60,000 hrs. @ 25°C	1,2,3	CR001-ND	22.04	17.48	FS12B3	CR221-ND	2.69
	Lead Wires	Ball	24	12-28	1.9	80mA	5000	18	60X25	60,000 hrs. @ 25°C	1,2,3	CR002-ND	22.04	17.48	FS24B3	CR221-ND	2.69
	Lead Wires	Ball	12	6-14	1.0	80mA	3500	12	60X25	60,000 hrs. @ 40°C	1,2,3	CR003-ND	22.04	17.48	FS12H3	CR221-ND	2.69
	Lead Wires	Ball	24	12-28	1.3	55mA	3500	12	60X25	60,000 hrs. @ 25°C	1,2,3	CR004-ND	22.04	17.48	FS24H3	CR221-ND	2.69
Flight II 80 Series	Lead Wires	Ball	12	6-14	1.9	160mA	3600	37	80X25	60,000 hrs. @ 25°C	1,2,3	CR005-ND	23.49	18.63	FE12B3	CR180-ND	1.51
	Lead Wires	Ball	24	12-28	2.2	90mA	3600	37	80X25	60,000 hrs. @ 25°C	1,2,3	CR006-ND	23.49	18.63	FE24B3	CR180-ND	1.51
	Lead Wires	Ball	12	6-14	1.1	90mA	2700	27	80X25	60,000 hrs. @ 25°C	1,2,3	CR007-ND	23.49	18.63	FE12H3	CR180-ND	1.51
	Lead Wires	Ball	24	12-28	1.7	60mA	2700	27	80X25	60,000 hrs. @ 25°C	1,2,3	CR008-ND	23.49	18.63	FE24H3	CR180-ND	1.51
Sprint	Lead Wires	Sleeve	12	6-14	3.4	280mA	3400	33	80X32	55,000 hrs. @ 40°C	1,2,3,7	CR009-ND	15.73	13.55	ST12A3	CR180-ND	1.51
	Lead Wires	Sleeve	24	12-28	3.3	140mA	3400	33	80X32	55,000 hrs. @ 40°C	1,2,3,7	CR012-ND	15.73	13.55	ST24A3	CR180-ND	1.51
	Lead Wires	Sleeve	12	6-14	1.4	120mA	2500	24	80X32	55,000 hrs. @ 40°C	1,2,3,7	CR010-ND	15.73	13.55	ST12G3	CR180-ND	1.51
	Lead Wires	Ball	12	6-14	3.4	280mA	3400	33	80X32	78,000 hrs. @ 40°C	1,2,3,7	CR014-ND	17.87	15.40	ST12B3	CR180-ND	1.51
	Lead Wires	Ball	24	12-28	3.3	140mA	3400	33	80X32	78,000 hrs. @ 40°C	1,2,3,7	CR017-ND	17.87	15.40	ST24B3	CR180-ND	1.51
Sprite	Lead Wires	Ball	12	6-14	3.1	260mA	3500	35	80X42	80,000 hrs. @ 40°C	1,2,6,9	CR019-ND	24.03	20.94	SD12B1	CR180-ND	1.51
	Terminal	Ball	12	6-14	3.1	260mA	3500	35	80X42	80,000 hrs. @ 40°C	1,2,6,9	CR027-ND	25.66	22.36	SD12B2	CR180-ND	1.51
	Terminal	Ball	24	12-28	3.1	130mA	3500	35	80X42	80,000 hrs. @ 40°C	1,2,6,9	CR028-ND	25.66	22.36	SD24B2	CR180-ND	1.51
	Lead Wires	Ball	24	12/28	3.1	130mA	3500	35	79.8X41.8	83,000 hrs. @ 40°C	1,2,6,9	CR020-ND	24.03	20.94	SD24B1	CR180-ND	1.51
	Lead Wires	Ball	48	24/56	3.1	65mA	3500	35	79.8X41.8	83,000 hrs. @ 40°C	1,2,6,9	CR021-ND	24.03	20.94	SD48B1	CR180-ND	1.51
	Terminal	Ball	48	24/56	3.1	65mA	3500	35	79.8X41.8	83,000 hrs. @ 40°C	1,2,6,9	CR236-ND	29.32	24.19	SD48B2	CR180-ND	1.51
Flight II 90	Lead Wires	Ball	12	6-14	2.6	220mA	2800	45	92X25	60,000 hrs. @ 25°C	1,2,3	CR034-ND	24.66	19.55	FN12B3	CR220-ND	1.60
	Lead Wires	Ball	12	6-14	1.6	130mA	2350	37	92X25	60,000 hrs. @ 25°C	1,2,3	CR036-ND	24.66	19.55	FN12C3	CR220-ND	1.60
	Lead Wires	Ball	24	12/28	2.6	110mA	2800	45	92.0X25.4	60,000 hrs. @ 25°C	1,2,3	CR237-ND	17.00	14.03	FN24B3	CR220-ND	1.60
	Lead Wires	Ball	24	12/28	1.7	70mA	2350	37	92.0X25.4	60,000 hrs. @ 25°C	1,2,3	CR238-ND	17.00	14.03	FN24C3	CR220-ND	1.60
Flight II 120 Series	Lead Wires	Ball	12	6-14	4.3	360mA	2950	86	120X25	60,000 hrs. @ 25°C	1,2,3	CR038-ND	28.14	22.31	FT12B3	CR210-ND	2.84
	Lead Wires	Ball	24	12-28	4.3	180mA	2950	86	120X25	60,000 hrs. @ 25°C	1,2,3	CR039-ND	28.14	22.31	FT24B3	CR210-ND	2.84
	Lead Wires	Ball	12	6-14	1.6	130mA	2000	61	120X25	60,000 hrs. @ 25°C	1,2,3	CR040-ND	28.14	22.31	FT12M3	CR210-ND	2.84
	Lead Wires	Ball	24	12-28	1.9	80mA	2000	61	120X25	60,000 hrs. @ 25°C	1,2,3	CR041-ND	28.14	22.31	FT24M3	CR210-ND	2.84
Muffin	Lead Wires	Sleeve	12	6-14	7.9	660mA	3700	102	120X32	50,000 hrs. @ 40°C	1,2,7	CR042-ND	17.32	14.92	MC12A3	CR210-ND	2.84
	Lead Wires	Sleeve	24	12-28	6.7	280mA	3700	102	120X32	50,000 hrs. @ 40°C	1,2,7	CR046-ND	17.32	14.92	MC24A3	CR210-ND	2.84
	Lead Wires	Sleeve	12	6-14	3.8	320mA	2850	80	120X32	50,000 hrs. @ 40°C	1,2,7	CR044-ND	17.32	14.92	MC12G3	CR210-ND	2.84
	Lead Wires	Sleeve	12	6-14	2.2	180mA	2150	58	120X32	50,000 hrs. @ 40°C	1,2,7	CR043-ND	17.32	14.92	MC12E3	CR210-ND	2.84
	Lead Wires	Sleeve	24	12-28	2.1	85mA	2150	58	120X32	50,000 hrs. @ 40°C	1,2,7	CR047-ND	17.32	14.92	MC24E3	CR210-ND	2.84
	Lead Wires	Ball	12	6-14	7.9	660mA	3700	102	120X32	75,000 hrs. @ 40°C	1,2,7	CR051-ND	19.66	16.93	MC12B3	CR210-ND	2.84
	Lead Wires	Ball	24	12-28	6.7	280mA	3700	102	120X32	75,000 hrs. @ 40°C	1,2,7	CR055-ND	19.66	16.93	MC24B3	CR210-ND	2.84
	Lead Wires	Sleeve	5	4.5/6.0	5	1000mA	3250	91	120X32	78,000 hrs. @ 40°C	1,2,7	CR239-ND	25.90	21.37	MC05J3	CR210-ND	2.84
	Lead Wires	Ball	48	22/56	9.6	200mA	3700	102	120X32	78,000 hrs. @ 40°C	1,2,7	CR240-ND	21.84	18.02	MC48B3	CR210-ND	2.84
	Lead Wires	Ball	24	12/28	4	170mA	2850	80	120X32	78,000 hrs. @ 40°C	1,2,7	CR241-ND	21.84	18.02	MC24H3	CR210-ND	2.84
Muffin XL	Lead Wires	Ball	24	12-28	6.0	250mA	3100	110	119X39	83,000 hrs. @ 40°C	1,2,6,9,A	CR070-ND	41.41	37.59	MD24B1	CR210-ND	2.84
	Terminal	Ball	12	6-14	6.0	500mA	3100	110	119X39	83,000 hrs. @ 40°C	1,2,6,9,A	CR072-ND	41.41	37.59	MD12B2	CR210-ND	2.84
	Terminal	Ball	24	12-28	6.0	250mA	3100	110	119X39	83,000 hrs. @ 40°C	1,2,6,9,A	CR073-ND	41.41	37.59	MD24B2	CR210-ND	2.84
	Terminal	Ball	48	24-56	6.0	125mA	3100	110	119X39	83,000 hrs. @ 40°C	1,2,6,9,A	CR074-ND	41.41	37.59	MD48B2	CR210-ND	2.84
	Lead Wires	Ball	12	6/14	6	500mA	3100	110	119.1X39.1	83,000 hrs. @ 40°C	1,2,6,9,A	CR069-ND	41.40	37.59	MD12B1	CR210-ND	2.84
	Lead Wires	Ball	48	24/56	6	125mA	3100	110	119.1X39.1	83,000 hrs. @ 40°C	1,2,6,9,A	CR071-ND	43.58	35.96	MD48B1	CR210-ND	2.84
Whisper XL	Lead Wire	Ball	12	6-14	2.4	200mA	2230	75	119.1X39.1	83,000 hrs. @ 40°C	1,2,6	CR262-ND	42.02	34.67	WD12C3	CR210-ND	2.84
	Lead Wire	Ball	24	12-28	2.4	100mA	2230	75	119.1x39.1	83,000 hrs. @ 40°C	1,2,6	CR263-ND	42.02	34.67	WD24C3	CR210-ND	2.84
	Lead Wire	Ball	12	6-14	1.2	100mA	1635	55	119.1X39.1	83,000 hrs. @ 40°C	1,2,6	CR264-ND	42.02	34.67	WD12M3	CR210-ND	2.84
	Lead Wire	Ball	24	12-28	1.2	52mA	1635	55	119.1X39.1	83,000 hrs. @ 40°C	1,2,6	CR265-ND	42.02	34.67	WD24M3	CR210-ND	2.84
Patriot Quiet	Terminal	Ball	24	12/28	20.3	850mA	3500	235	171.5X50.8	62,000 hrs. @ 50°C	1,2,3,A	CR242-ND	64.68	53.37	PQ24B4	CR206-ND	3.76
	Terminal	Ball	48	24/56	20.1	420mA	3500	235	171.5X50.8	62,000 hrs. @ 50°C	1,2,3,A	CR243-ND	63.86	52.69	PQ48B4	CR206-ND	3.76
	Terminal	Ball	12	6/14	14.6	1215mA	3000	200	171.5X50.8	62,000 hrs. @ 50°C	1,2,3,A	CR244-ND	65.10	53.71	PQ12C4	CR206-ND	3.76
	Terminal	Ball	48	24/56	13.7	290mA	3150	210	171.5X50.8	62,000 hrs. @ 50°C	1,2,3,A	CR246-ND	64.06	52.85	PQ48C4	CR206-ND	3.76

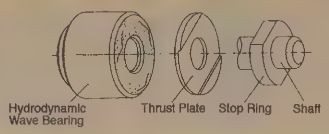
Model	Connection Type	Bearing	Voltage		Running		RPM	CFM	(mm) Dimensions	Life(F) Expectancy	Comments (See Below)	Digi-Key Part No.	Price Each		Comair Model No.	Finger	
			Nom.	Range	Watts	Current							1	25		Guards	Pricing
Biscuit	Lead Wires	Sleeve	12	9-14	11	900mA	3050	25	120X31	50,000 hrs. @ 40°C	1,2,7	CR085-ND	30.31	26.21	BD12A3	CR210-ND	2.84
	Lead Wires	Sleeve	24	18-28	11	480mA	3050	25	120X31	50,000 hrs. @ 40°C	1,2,7	CR086-ND	30.31	26.21	BD24A3	CR210-ND	2.84
	Lead Wires	Ball	12	6/14	11	900mA	3050	25	120.7X31.0	78,000 hrs. @ 40°C	1,2,7	CR247-ND	36.92	30.46	BD12B3	CR210-ND	2.84
	Lead Wires	Ball	24	12/28	11	480mA	3050	25	120.7X31.0	78,000 hrs. @ 40°C	1,2,7	CR248-ND	36.92	30.46	BD24B3	CR210-ND	2.84
Galaxy	Terminal	Ball	12	6-14	15	1250mA	3250	150	127X38.1	82,500 hrs.@ 50°C	1,2,H	CR266-ND	49.50	40.84	GL12B4	CR200-ND	2.48
	Terminal	Ball	24	12-28	15	625mA	3250	150	127X38.1	82,500 hrs. @ 50°C	1,2,H	CR267-ND	49.50	40.84	GL24B4	CR200-ND	2.48
	Terminal	Ball	48	24-56	15	310mA	3250	150	127X38.1	82,000 hrs. @ 50°C	1,2,H	CR268-ND	49.50	40.84	GL48B4	CR200-ND	2.48
Spinnaker	Lead Wires	Ball	24	12/28	30	1300mA	2500	60	161.8X40.6	62,000 hrs. @ 50°C	—	CR249-ND	65.00	53.63	SPD24B1	—	—
ThermaPro-V (TPV)																	
Muffin TPV	Lead Wire	Sleeve	12	6-14	2.8	230mA	1700	47	120.0X32.0	83,000 hrs. @ 40°C	1,2,F,I	CR269-ND	32.76	27.03	MC12T3H	CR210-ND	2.84
	Lead Wire	Sleeve	24	12-28	3.1	130mA	1800	50	120.0X32.0	83,000 hrs. @ 40°C	1,2,F,I	CR270-ND	32.76	27.03	MC24T3H	CR210-ND	2.84
	Lead Wire	Sleeve	48	24-56	4.3	90mA	200	56	120.0X32.0	83,000 hrs. @ 40°C	1,2,F,I	CR271-ND	32.76	27.03	MC48T3H	CR210-ND	2.84
Sprint TPV	Lead Wire	Sleeve	12	6-14	2.9	240mA	2100	20	80X32.0	55,000 hrs. @ 40°C	1,2,F,I	CR272-ND	29.54	24.38	ST12T3H	CR180-ND	1.51
	Lead Wire	Sleeve	24	12-28	2.3	95mA	2100	20	80X32.0	55,000 hrs. @ 40°C	1,2,F,I	CR273-ND	29.54	24.38	ST24T3H	CR180-ND	1.51
	Lead Wire	Sleeve	48	24-56	2.9	60mA	2100	20	80X32.0	55,000 hrs. @ 40°C	1,2,F,I	CR274-ND	29.54	24.38	ST48T3H	CR180-ND	1.51
Patriot TPV	Terminal	Ball	12	6-14	11	900mA	1700	113	171.5diaX50.8	62,000 hrs. @ 50°C	1,2,G,I	CR275-ND	73.42	60.58	PD12T2H	CR206-ND	3.76
	Terminal	Ball	24	12-28	9	390mA	1700	113	171.5diaX50.8	62,000 hrs. @ 50°C	1,2,G,I	CR276-ND	72.18	59.55	PD24T2H	CR206-ND	3.76
	Terminal	Ball	48	24-56	10	210mA	1700	113	171.5diaX50.8	62,000 hrs. @ 50°C	1,2,G,I	CR277-ND	72.18	59.55	PD48T2H	CR206-ND	3.76
AC Fans																	
Sprite	Lead Wires	Sleeve	115	—	7/6	.08/.07A	2200/2600	23/27	80X42	55,000 hrs. @ 40°C	1,2,4	CR093-ND	26.20	21.62	SU2E1	CR180-ND	1.51
	Terminal	Sleeve	115	—	13/11	.19/.15A	2750/3250	28/34	80X42	55,000 hrs. @ 40°C	1,2,4	CR097-ND	25.68	21.19	SU2A5	CR180-ND	1.51
	Lead Wires	Sleeve	115	—	13/11	.19/.15A	2750/3250	28/34	80X42	55,000 hrs. @ 40°C	1,2,4	CR091-ND	24.12	19.90	SU2A1	CR180-ND	1.51
	Lead Wires	Ball	115	—	13/11	.19/.15A	2750/3250	28/34	80X42	73,000 hrs. @ 40°C	1,2,4	CR103-ND	35.88	29.61	SU2B1	CR180-ND	1.51
	Terminal	Ball	115	—	13/11	.19/.15A	2750/3250	28/34	80X42	73,000 hrs. @ 40°C	1,2,4	CR105-ND	36.92	30.46	SU2B5	CR180-ND	1.51
	Lead Wires	Sleeve	115	—	7/6	.07/.06A	1700/1950	15/18	80X42	55,000 hrs. @ 40°C	1,2,4,B	CR108-ND	25.38	20.94	SU2C7	CR180-ND	1.51
	Lead Wires	Sleeve	—	220/230	14/13	.09/.08A	2750/3250	28/34	79.8X41.8	55,000 hrs. @ 40°C	1,2,4,B	CR250-ND	25.16	20.76	SU3A1	CR180-ND	1.51
	Lead Wires	Sleeve	115	—	7/6	.07/.06A	1750/1900	17/20	79.8X41.8	55,000 hrs. @ 40°C	1,2,4,B	CR251-ND	25.38	20.94	SU2C1	CR180-ND	1.51
	Terminal	Sleeve	—	220/230	14/13	.09/.08A	2750/3250	28/34	79.8X41.8	55,000 hrs. @ 40°C	1,2,4,B	CR252-ND	26.32	21.72	SU3A5	CR180-ND	1.51
	Terminal	Sleeve	115	—	7/6	.07/.06A	1750/1900	17/20	79.8X41.8	55,000 hrs. @ 40°C	1,2,4,B	CR253-ND	26.62	21.97	SU2C5	CR180-ND	1.51
	Terminal	Sleeve	115	—	7/6	.08/.07A	2200/2600	23/27	79.8X41.8	55,000 hrs. @ 40°C	1,2,4,B	CR254-ND	27.56	22.74	SU2E5	CR180-ND	1.51
	Lead Wires	Ball	—	220/230	14/13	.09/.08A	2750/3250	28/34	79.8X41.8	55,000 hrs. @ 40°C	1,2,4,B	CR255-ND	36.82	30.38	SU3B1	CR180-ND	1.51
Whisper	Terminal	Sleeve	115	—	7/7	.07/.06A	1640/1660	55/57	120X38	55,000 hrs. @ 40°C	1,2	CR113-ND	24.96	20.60	WR2A1	CR210-ND	2.84
	Terminal	Sleeve	115	—	11/10	.12/.11A	2100/2400	70/80	120X38	55,000 hrs. @ 40°C	1,2	CR114-ND	26.20	21.62	WR2H1	CR210-ND	2.84
	Terminal	Sleeve	—	220/230	12/12	.07/.07A	1590/2000	53/62	119.6X38.1	55,000 hrs. @ 40°C	1,2	CR116-ND	27.46	22.66	WR3A1	CR210-ND	2.84
Whisper XL	Terminal	Sleeve	115	—	6/6	.07/.06A	1450/1500	48/50	119X39	55,000 hrs. @ 40°C	1,2,4,A	CR117-ND	27.14	22.40	WX2A1	CR210-ND	2.84
	Terminal	Sleeve	115	—	10/9	.11/.10A	1900/2000	65/70	119X39	55,000 hrs. @ 40°C	1,2,4,A	CR119-ND	26.62	21.97	WX2M1	CR210-ND	2.84
	Terminal	Sleeve	115	—	15/13	.19/.15A	2200/2500	70/83	119X39	55,000 hrs. @ 40°C	1,2,4,A	CR118-ND	26.42	21.80	WX2H1	CR210-ND	2.84
	Terminal	Sleeve	—	220/230	14/13	.10/.09A	2200/2500	70/83	119.13X39.12	55,000 hrs. @ 40°C	1,2,4,A	CR256-ND	27.36	22.58	WX3H1	CR210-ND	2.84
Muffin	Terminal	Sleeve	115	—	15/14	.19/.16A	2650/3100	88/105	120X38	55,000 hrs. @ 40°C	1,2	CR122-ND	23.60	19.47	MU2A1	CR210-ND	2.84
	Terminal	Ball	115	—	15/14	.19/.16A	2650/3100	88/105	120X38	85,000 hrs. @ 40°C	1,2	CR124-ND	35.88	29.61	MU2B1	CR210-ND	2.84
	Terminal	Sleeve	—	220/230	15/14	.10/.09A	2650/3100	88/105	120X38	55,000 hrs. @ 40°C	1,2	CR123-ND	24.24	20.00	MU3A1	CR210-ND	2.84
	Terminal	Ball	—	220/230	15/14	.10/.09A	2650/3100	88/105	120X38	85,000 hrs. @ 40°C	1,2	CR125-ND	36.50	30.12	MU3B1	CR210-ND	2.84
Muffin XL	Terminal	Sleeve	115	—	17/15	.20/.18A	2700/3100	92/108	119X39	55,000 hrs. @ 40°C	1,2,4,A,B	CR128-ND	24.86	20.51	MX2A1	CR210-ND	2.84
	Terminal	Ball	115	—	17/15	.20/.18A	2700/3100	92/108	119X39	83,000 hrs. @ 40°C	1,2,4,A,B	CR132-ND	37.76	31.16	MX2B1	CR210-ND	2.84
	Terminal	Sleeve	115	—	17/15	.20/.18A	2700/3100	98/115	119X39	55,000 hrs. @ 40°C	1,2,4,A	CR126-ND	24.86	20.51	MX2A3	CR210-ND	2.84
	Terminal	Ball	115	—	17/15	.20/.18A	2700/3100	98/115	119X39	83,000 hrs. @ 40°C	1,2,4,A	CR130-ND	37.76	31.16	MX2B3	CR210-ND	2.84
	Terminal	Sleeve	—	220/230	17/16	.10/.09A	2700/3100	98/115	119.13X39.12	55,000 hrs. @ 40°C	1,2,4,A	CR257-ND	25.68	21.19	MX3A3	CR210-ND	2.84
	Terminal	Ball	—	220/230	17/16	.10/.09A	2700/3100	98/115	119.13X39.12	55,000 hrs. @ 40°C	1,2,4,A	CR258-ND	38.38	31.67	MX3B3	CR210-ND	2.84
Major	Terminal	Ball	115	—	30/31	.27/.26A	2850/3350	200/235	172X150X51	5 yrs. @ 25°C	1,2,5,A	CR134-ND	56.13	45.05	MR2B3	—	—
	Terminal	Ball	—	220/230	26/30	.13/.14A	2850/3350	200/235	172X150X51	5 yrs. @ 25°C	1,2,5,A	CR135-ND	58.11	46.64	MR77B3	—	—
Patriot	Terminal	Ball	115	—	30/31	.27/.26A	2850/3350	200/235	172X51	5 yrs. @ 25°C	1,2,5,A	CR136-ND	56.13	45.05	PT2B3	CR206-ND	3.76
	Terminal	Ball	—	220/230	26/30	.13/.14A	2850/3350	200/235	171.5X50.8	53,000 hrs. @ 40°C	1,2,5,A	CR137-ND	61.16	50.46	PT77B3	CR206-ND	3.76
Feather	Terminal	Ball	115	—	21/20	.24/.20A	2700/3200	200/245	179X63	48,000 hrs. @ 30°C	1,2,A	CR138-ND	82.81	68.64	FF113	—	—
	Terminal	Ball	—	220/230	19/20	.09/.09A	2700/3200	200/245	178.5X62.7	48,000 hrs. @ 30°C	1,2,A	CR139-ND	95.26	78.59	FF213	—	—
Tarzan	Terminal	Ball	115	—	90/85	1.4/1.2A	2820/3350	280/340	176X112	25,000 hrs. @ 40°C	1,2	CR140-ND	75.81	63.90	TN3A2	—	—
	Terminal	Ball	—	220/230	82/85	.65/.60A	2820/3350	280/340	176X112	25,000 hrs. @ 40°C	1,2	CR141-ND	77.27	65.13	TN3A3	—	—
	Leadwire	Ball	115	—	90/85	1.4/1.2A	2820/3350	280/340	175.5X111.8	25,000 hrs. @ 40°C	1,2	CR259-ND	84.66	69.85	TN3C2	—	—
	Leadwire	Ball	—	220/230	82/85	.65/.60A	2820/3350	280/340	175.5X111.8	25,000 hrs. @ 40°C	1,2	CR260-ND	88.20	72.77	TN3C3	—	—
Caravel	Lead Wires	Ball	115	—	67/61	1.0/.88A	1400/1650	455/550	254X89	54,000 hrs. @ 40°C	1,2,A	CR144-ND	54.69	44.54	CL2L2	CR182-ND	5.91
	Terminal	Ball	115	—	67/61	1.0/.88A	1400/1650	455/550	254X89	54,000 hrs. @ 40°C	1,2,A	CR145-ND	56.51	46.02	CL2T2	CR182-ND	5.91
	Terminal	Ball	—	220/230	60/60	.47/.43A	1400/1650	455/550	254X89	54,000 hrs. @ 40°C	1,2,A	CR147-ND	57.79	47.06	CL3T2	CR182-ND	5.91
Biscuit	Terminal	Sleeve	115	—	17/16	.19/.17A	2500/2700	20/22	120X40	55,000 hrs. @ 40°C	1,2	CR148-ND	32.96	26.78	BT2A1	—	2.84
	Terminal	Sleeve	—	220/230	15/14	.09/.08A	2500/2700	20/22	120X40	55,000 hrs. @ 40°C	1,2	CR149-ND	33.70	27.39	BT3A1	—	2.84
	72" Cable/Plug	Sleeve	115	—	54/44	.06/.54A	2700/3100	250/300	482.6X205.2X44	55,000 hrs. @ 40°C	1,2,5,D	CR261-ND	194.88	160.78	MB100AC	—	—

1. UL yellow card recognized — file No. E31293.
2. CSA certified — file No. LR52898.
3. Meets EMI standards per FCC part 15, subpart J of Docket 20780, Class A or B radiated and conducted emissions. Meets EMI standards per VDE specification 0871/6.78 for category A and B requirements.
4. VDE Marks license No.1126.
5. VDE Marks license No. 1354.
6. TUV approved to IEC 950, VDE 0730; License R9071193.
7. TUV approved to IEC 950,VDE 0730; License R97229.
8. TUV approved to IEC 950, VDE 0730; License R97152 and R97188.
9. Per MIL STD 461, Meets EMI standards per FCC part 15, subpart J of Docket 20780, Class A or B radiated and conducted emissions. Meets EMI standards per VDE specification 0871/6.78 for category A and B requirements.

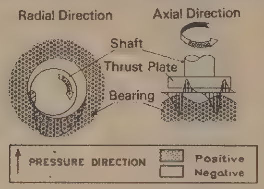
A. Features Feathered Edge for lower noise.
B Reverse Flow.
C. Features the performance of three Muffin fans.
D. Features the performance of two Major fans
E. Given only as a reference and does not constitute a guarantee of any fashion.
F. TUV approved to IEC 950, VDE 0730, Licence R97229.
G. TUV approved to IEC 950, VDE0730, Licenses R97152 and R97188.
H. TUV approval pending.
I. Current Limited

Panasonic INDUSTRIAL COMPANY

Hydro-Wave Bearing Technology Fans



Bearing Structure & Pressure Distribution



Panaflo's unique hydro-wave bearing (HWB) addresses the traditional weakness of sleeve bearings...axial friction. By utilizing our unique HWB system, the thrust plate "floats" on a circulating film of oil greatly reducing the axial friction and the bearings deterioration. You will note the HWB pattern on the bearing virtually elimiates contact with the thrust plate which is depicted above.

Panaflow (DC Brushless Fan) Life Data

A) Overview

The bearing system incorporated into DC Brushless axial fans is the primary factor that determines a fans life expectancy. Other electronic components used in DC Brushless fans typically have failure rates that are less than 10^ (more than 1,000,000 hours MTTF) and hence, comparatively speaking, are much less significant when calculating a fans life expectancy. In the case of ball bearing fans, life expectancies are typically specified according to the life expectancy of the ball bearing as provided by the ball bearing manufacturer.

B) Theory

Established theory[1] states that a sintered sleeve bearing will begin to deteriorate rapidly when the oil used to lubricate the bearing has been reduced to 50% of the intended oil. When less than 50% of the oil remains, friction and hence temperature begin to increase rapidly which in turn accelerates the evaporation and oxidation of the bearing. Within a short time thereafter, as the percentage of oil continues to decrease, the bearing will slow down and then lock up, hence preventing the fan from rotating and providing the intended airflow and cooling. Panasonic's Hydrowave bearing, with our patented method of recirculating the bearing oil, enables the life of the fan to be greatly extended.

Life Expectancy Based Upon Actual Life Testing

Figures 1 and 2 summarize the L10 and MTTF life testing based upon fans that have been in operation for over 18,000 hours at various temperatures. Although there have been no actual fan failures, precise measurement of oil consumption at regular intervals enables us to accurately predict when the remaining oil will drop below the critical 50% level.

Fig. 1 L10 Life Expectancy of FBA06A Type Hydrowave Fans

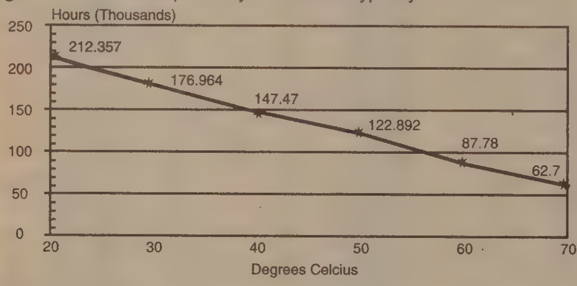
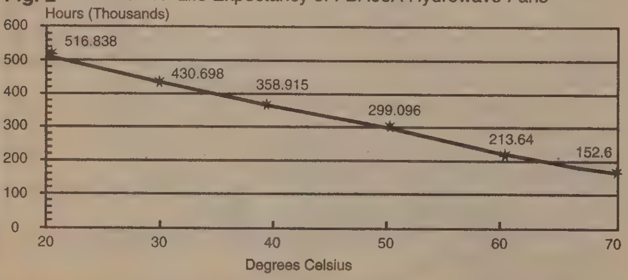


Fig. 2 MTTF Life Expectancy of FBA06A Hydrowave Fans



C) Background of Life Expectancy Calculations

The L10 and MTTF are typically obtained from the Weible Distribution Curve[2] based upon cumulative failures and the time of a failure. In the case of zero defects, or extremely few defects, the following exponential distribution procedures are applied to obtain L10 and MTTF data:

Step 1 — Establish the measuring points and surrounding conditions of the life test. Measurement points: Initial 2,000 hours, 3,000 hours, 5,000 hours, 10,000 hours and 18,000 hours.

Temperature: 70 Celsius Samples: N>3 at each point

Step 2 — The fans motors will be disassembled at each point with the remaining oil measured. The minimum and maximum slope of the oil's consumption are then determined by the following method.

Consumption of oil formula Y = aX + b
Yi: Oil remaining at predetermined point by %
Xi: Hours in operation at Yi

$$a = \frac{\sum_{i}(Xi - \bar{X})(Yi - \bar{Y})}{\sum_{i}(Xi - \bar{X})^2} \qquad b = \bar{Y}\frac{\sum_{i}(Xi - \bar{X})(Yi - \bar{Y})}{\sum_{i}(Xi - \bar{X})^2} * \bar{X}$$

$$\bar{X} = \frac{1}{n}\sum_{i} Xi \qquad \bar{Y} = \frac{1}{n}\sum_{i} Yi$$

Step 3 — The points that the line intersects 60% (note: we based our calculations at 60% rather than 50% to ensure the reliability of our conclusions) oil remaining is the point of reference that allows the following conclusions to be made. The point that the line intersects the maximum slope equals the point of 100% reliability (no defects) while the point of intersection of the minimum slope equals the point of 100% calculated failures.

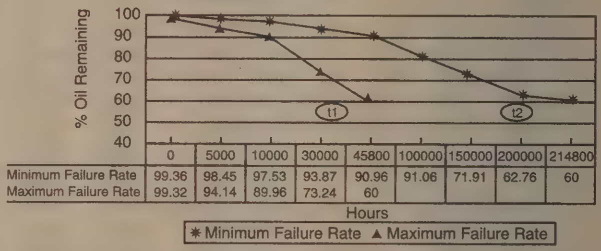
Step 4 — We know that in the worst case[2] the failure rate will be exponential. This conclusion is appropriate when product life is recognized as the length of a products ability to achieve a given specification. The L10 and MTTF are then calculated as below and applying the distribution failure rate to t1 and t2.

L10 (reliability 90.0%) = t1 + (t2 - t1) x 0.1 (hours)
MTTF (reliability 36.8%) = t1 + (t2 - t1) x 0.632 (hours)

Therefore,

L10 (reliability 90.0%) = t1 + (t2 - t1) x 0.1 (hours)
L10 (reliability 90.0%) = 45,800 + (214,800 - 45,800) x 0.1 (hours)
= 62,700 hours at 70°C
MTTF (reliability 36.8%) = t1 + (t2 - t1) x 0.632 (hours)
MTTF (reliability 36.8%) = 45,800 + (214,800 - 45,800) x 0.632 (hours)
= 152,600 hours at 70°C

% Oil Remaining at 70°C.



	0	5000	10000	30000	45800	100000	150000	200000	214800
Minimum Failure Rate	99.36	98.45	97.53	93.87	90.96	91.06	71.91	62.76	60
Maximum Failure Rate	99.32	94.14	89.96	73.24	60				

D) Life Expectancy Adjustment for Each Temperature

The L10 and MTTF temperature adjustments are based upon the Arrhenius Model[3] pertaining to a bearing's life.

T = temperature L = life $Ln(L) \infty \frac{1}{T}$

The temperature coefficient is calculated at 1.4 per 10°C when T is ≥ 50°C and 1.2 per 10°C when T is <50°C.

E) Summary

We have calculated our life expectancy data based upon the above methodology from our actual fan testing rather than the raw ball bearing data traditionally used by fan manufacturers. The procedures and conclusions are based upon fans that have now been on test for over 18,000 hours without experiencing defects. Further updates will be possible as more data is compiled, however, the preceding numbers are expected to see little change and in all likelihood the changes will be for the better based upon the conservative nature of these calculations.

Footnotes:

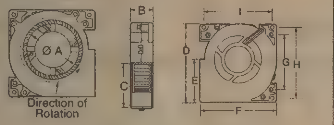
1. "Shouketsu Kikai Buhin Sono Sekkei to Seizou" (Sintered Components Design and Manufacturing) by Professor Teruhisa Watanabe of Waseda University, Japan
2. "Shinraisei Kougaku Nyuumon" (Reliability Engineering Manual) by Doctor Hiroshi Shiomi of the Science University of Tokyo Japan
3. "Shinraisei Kougaku Nyuumon" (Reliability Engineering Manual) by Doctor Kenji Kitagawa of the Ministry of International Trade and Industry, Electro Technical Laboratory, Japan

Panasonic® DC Fans

Scirocco Fans:

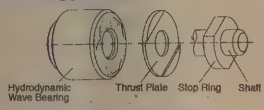
Blowers With Hydro-Wave Bearing Technology

Operating Temp: -10 to 60°C. **Storage Temp:** -40 to 75°C. **Bearing System:** HWB

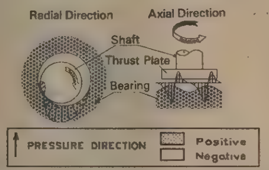


Model Type	Dimensions(mm) A	B	C	D	E	F	G	H	I
FAL-6F	65.8	28.1	55.7	111.4	60.7	107.1	76	99	97
FAL-5F	50	28	37	76	41	76	47	68	68

FBA Series Hydro-Wave Bearing Technology Fans

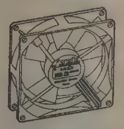


Bearing Structure & Pressure Distribution



Panaflo's unique hydro-wave bearing (HWB) addresses the traditional weakness of sleeve bearings...axial friction. By utilizing our unique HWB system, the thrust plate "floats" on a circulating film of oil greatly reducing the axial friction and the bearings deterioration. You will note the HWB pattern on the bearing virtually elimiates contact with the thrust plate which is depicted above.

FBK Series



- Brushless DC Motor.
- Low RF and Audible Sound.
- Adjustable Speed.
- High Efficiency.
- Long Life.

General Specifications:

Operating Temperature: –10°C to +70°C.

Bearing System: Ball bearing.

Insulation Resistance: 10MΩmin. DC 250V between frame and + lead wire.

Dielectric Strength: AC 500V 1 minute less than 5mA between frame and + lead wire.

- Plastic housing and blade material are: FBH-Series: PBT, UL 94V-0 rating; FBK-Series: PET, UL 94V-0 rating.
- Noise is measured at rated voltage in free air in Semi-Anechoic Chamber of Background Noise 18 dB max.
- Panasonic will guarantee the life time as 40,000 hours with 100% confidence at 25°C continuous operation.

Operating Voltage (VDC) Nom.	Range	Current (mA)	Input Power (W)	Air Flow (m3/min/CFM)	Static Pressure (mmQa/inchAq)	Acoustic Noise	Digi-Key Part No.	Price per Piece 1	5	10	50	Panasonic Part No.
Scirocco Fans												
12	7-13.8	500	6.00	0.65/22.97	18/0.71	45	P9754-ND	32.75	28.17	21.84	20.16	FAL6F12LH
12	7-13.8	280	3.36	0.53/18.73	11.2/0.44	40	P9755-ND	32.75	28.17	21.84	20.16	FAL6F12LL
24	14-27.6	295	7.08	0.67/23.7	19.7/0.78	45	P9763-ND	36.35	31.27	24.24	22.38	FAL6F24LH
24	14-27.6	155	3.72	0.53/18.7	11.5/0.45	40	P9764-ND	36.35	31.27	24.24	22.38	FAL6F24LL
12	7-13.8	210	2.52	0.3/10.60	10.5/0.41	35	P9756-ND	30.13	25.91	20.09	18.54	FAL5F12LH
12	7-13.8	145	1.74	0.25/8.83	6.1/0.24	29	P9757-ND	30.13	25.91	20.09	18.54	FAL5F12LL
24	14-27.6	150	3.5	0.26/9.18	7.2/0.28	40	P9765-ND	33.44	28.76	22.30	20.58	FAL5F24LH
24	14-27.6	100	2.4	0.20/7.06	4.1/0.16	37.5	P9766-ND	33.44	28.76	22.30	20.58	FAL5F24LL

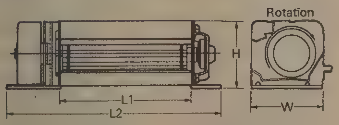
Operating Voltage (VDC) Nom.	Range	Dim. (m.m.) Sq.xThk.	Input Power (W)	Air Flow (CFM)	Air Pressure (mmH$_2$O)	Noise (dB-A)	Digi-Key Part No.	Price per Piece 1	5	10	Panasonic Part No.	Finger Guards	Price
FBA Series Hydro-Wave Bearing (HWB) Fans													
12	7-13.8	60 x 15	1.04	12.0	2.77	23.5	P9724-ND	12.50	10.75	8.34	FBA06T12L	CR221-ND	2.69
12	7-13.8	60 x 15	1.78	16.6	4.75	32.0	P9725-ND	12.50	10.75	8.34	FBA06T12H	CR221-ND	2.69
24	14-27.6	60 x 15	1.34	12.0	2.77	23.5	P9726-ND	12.50	10.75	8.34	FBA06T24L	CR221-ND	2.69
24	14-27.6	60 x 15	1.99	16.6	4.75	32.0	P9727-ND	12.50	10.75	8.34	FBA06T24H	CR221-ND	2.69
12	7-13.8	60 x 25.5	1.32	12.0	3.1	24.0	P9728-ND	11.88	10.22	7.92	FBA06A12L1A	CR221-ND	2.69
12	7-13.8	60 x 25.5	2.04	16.6	5.21	32.0	P9729-ND	11.88	10.22	7.92	FBA06A12H1A	CR221-ND	2.69
12	7-13.8	60 x 25	3.24	19.7	4.7	42.0	P9758-ND	13.83	11.89	9.22	FBA06A12U1A	CR221-ND	2.69
24	14-27.6	60 x 25.5	1.68	12.0	3.1	24.0	P9730-ND	11.88	10.22	7.92	FBA06A24L1A	CR221-ND	2.69
24	14-27.6	60 x 25.5	2.52	16.6	5.21	32.0	P9731-ND	11.88	10.22	7.92	FBA06A24H1A	CR221-ND	2.69
12	7-13.8	80 x 15	0.94	21.9	1.55	21.5	P9732-ND	12.50	10.75	8.34	FBA08T12L	CR180-ND	1.51
12	7-13.8	80 x 15	2.40	33.6	3.2	33.5	P9733-ND	12.50	10.75	8.34	FBA08T12H	CR180-ND	1.51
24	14-27.6	80 x 15	1.13	21.9	1.55	21.5	P9734-ND	12.50	10.75	8.34	FBA08T24L	CR180-ND	1.51
24	14-27.6	80 x 15	2.64	33.6	3.2	33.5	P9735-ND	12.50	10.75	8.34	FBA08T24H	CR180-ND	1.51
12	7-13.8	80 x 25.5	0.84	24.0	1.57	21.0	P9736-ND	11.88	10.22	7.92	FBA08A12L1A	CR180-ND	1.51
12	7-13.8	80 x 25.5	1.50	32.1	2.51	28.0	P9737-ND	11.88	10.22	7.92	FBA08A12M1A	CR180-ND	1.51
12	7-13.8	80 x 25.5	2.10	39.6	3.78	32.0	P9738-ND	11.88	10.22	7.92	FBA08A12H1A	CR180-ND	1.51
12	7-13.8	80 x 25	4.32	46.9	3.8	44.0	P9759-ND	13.83	11.89	9.22	FBA08A12U1A	CR180-ND	1.51
24	14-27.6	80 x 25.5	1.32	24.0	1.57	21.0	P9739-ND	11.88	10.22	7.92	FBA08A24L1A	CR180-ND	1.51
24	14-27.6	80 x 25.5	1.80	32.1	2.51	28.0	P9740-ND	11.88	10.22	7.92	FBA08A24M1A	CR180-ND	1.51
24	14-27.6	80 x 25.5	2.52	39.6	3.78	32.0	P9741-ND	11.88	10.22	7.92	FBA08A24H1A	CR180-ND	1.51
12	7-13.8	92 x 25.5	1.32	42.7	2.3	27.0	P9742-ND	11.88	10.22	7.92	FBA09A12L1A	CR220-ND	1.60
12	7-13.8	92 x 25.5	1.80	48.0	3.0	30.0	P9743-ND	11.88	10.22	7.92	FBA09A12M1A	CR220-ND	1.60
12	7-13.8	92 x 25.5	2.70	56.9	3.98	35.0	P9744-ND	11.88	10.22	7.92	FBA09A12H1A	CR220-ND	1.60
12	7-13.8	92 x 25	6.60	65.6	4.6	47.0	P9760-ND	13.83	11.89	9.22	FBA09A12U1A	CR220-ND	1.60
24	14-27.6	92 x 25.5	1.92	42.7	2.3	27.0	P9745-ND	11.88	10.22	7.92	FBA09A24L1A	CR220-ND	1.60
24	14-27.6	92 x 25.5	2.64	48.0	3.0	30.0	P9746-ND	11.88	10.22	7.92	FBA09A24M1A	CR220-ND	1.60
24	14-27.6	92 x 25.5	3.36	56.9	3.98	35.0	P9747-ND	11.88	10.22	7.92	FBA09A24H1A	CR220-ND	1.60
12	7-13.8	120 x 38	2.16	68.9	3.3	30.0	P9748-ND	21.13	18.17	14.09	FBA12G12L1A	CR210-ND	2.84
12	7-13.8	120 x 38	4.08	86.5	4.8	35.5	P9749-ND	21.13	18.17	14.09	FBA12G12M1A	CR210-ND	2.84
12	7-13.8	120 x 38	5.52	103.8	6.8	41.5	P9750-ND	21.13	18.17	14.09	FBA12G12H1A	CR210-ND	2.84
12	7-13.8	120 x 38	7.8	114.7	6.2	50.0	P9761-ND	24.45	21.03	16.30	FBA12G12U1A	CR210-ND	2.84
24	10-27.6	120 x 38	2.64	68.9	3.3	30.0	P9751-ND	21.13	18.17	14.09	FBA12G24L1A	CR210-ND	2.84
24	10-27.6	120 x 38	3.84	86.5	4.8	35.5	P9752-ND	21.13	18.17	14.09	FBA12G24M1A	CR210-ND	2.84
24	10-27.6	120 x 38	5.52	103.8	6.8	41.5	P9753-ND	21.13	18.17	14.09	FBA12G24H1A	CR210-ND	2.84
FBK Series Fans													
5	4.5-6	40 x 20	0.65	3.9	2.5	24.0	P9700-ND	17.50	15.05	11.67	FBK04F05L	—	—
5	4.5-6	40 x 20	1.50	6.7	6.6	33.0	P9701-ND	17.50	15.05	11.67	FBK04F05H	—	—
12	7-13.8	40 x 20	0.96	3.9	2.5	23.0	P9702-ND	17.50	15.05	11.67	FBK04F12L	—	—
12	7-13.8	40 x 20	2.40	6.7	6.6	32.0	P9703-ND	17.50	15.05	11.67	FBK04F12H	—	—
12	7-13.8	40 x 20	2.06	9.2	11.5	43.0	P9723-ND	17.50	15.05	11.67	FBK04F12U	—	—
24	14-27.6	40 x 20	2.20	6.7	6.6	33.0	P9704-ND	17.50	15.05	11.67	FBK04F24H	—	—
24	14-27.6	40 x 20	3.84	9.7	7.5	23.5	P9762-ND	17.50	15.05	11.67	FBK04F24U	—	—
FBK Series Fans (*Not Recommended for New Design)													
24	14-27.6	80 x 25	0.80	22.6	1.8	23.0	P9992-ND*	9.64	9.43	9.07	FBK08A24L	CR180-ND	1.51
24	14-27.6	92 x 25	1.47	41.0	3.3	31.0	P9708-ND*	9.98	9.75	9.38	FBK09A24M	CR220-ND	1.60
24	10-27.6	80 x 25	1.20	20.50	1.9	22.0	P9972-ND*	12.64	12.35	11.88	FBH08A24L	CR180-ND	1.51
24	10-27.6	120 x 38	3.40	84.81	5.3	38.0	P9976-ND*	18.29	17.88	17.19	FBH12G24M	CR210-ND	2.84

A1948-ND Connector Housing For Hydro-Wave Fans........31 each 2.06/10 10.29/100 **175778-3**

A1949-ND Crimp Contacts For Connector Housing AWG 22-26........38/10 2.30/100 **175102-1**

A1997-ND Tool, Crimp, MTA-100........1256.86 each **914571-1**

Panasonic®
Cross Flow Fans



Model Type	Dimensions (mm) L$_1$	L$_2$	H	W
FCB-34**AA**□□	77.98	134.11	44.96	50.04
FCB-34**AB**□□	117.09	173.48	44.96	50.04
FCB-34**AC**□□	155.96	212.09	44.96	50.04
FCB-34**AD**□□	195.07	250.95	44.96	50.04
FCB-34**AE**□□	233.93	290.07	44.96	50.04
FCB-34**AF**□□	273.05	328.93	44.96	50.04

Since the introduction of DC Brushless Axial Flow fans, such as our "Panaflo" series, a wide variety of other cooling styles and requirements have become necessary. In response to these new requirements, Panasonic has developed a new "Crossflo" fan series using the benefits of new engineering achievement.

Design:
• **Motor:** DC Brushless 2 phase half wave drive • **Bearing:** Sleeve with Molded monobody housing • **Blade:** Molded, 1.30" (33mm) dia., 1.57" (39.9mm) long multiple blades • **Mounting:** L-Shaped Molded Bracket • **Lead Wires:** UL 1007, AWG 26

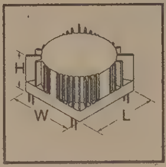
Operating Voltage (VDC) Nominal	Range	Input Power (W)	Air Flow (CFM)	Air Pressure (mmH$_2$O)	Noise (dB-A)	Digi-Key Part No.	Price per Piece 1	5	10	Panasonic Part No.
12	10.2-13.8	1.95	10.6	1.3	37.0	P9711-ND	26.50	22.79	17.67	FCB34AA12
24	20.4-27.6	2.60	10.6	1.5	38.2	P9712-ND	26.50	22.79	17.67	FCB34AA24
12	10.2-13.8	4.08	21.6	3.0	42.0	P9721-ND	27.25	23.44	18.17	FCB34AB12
24	20.4-27.6	3.94	22.7	2.4	42.0	P9722-ND	27.25	23.44	18.17	FCB34AB24
12	10.2-13.8	4.50	28.3	2.0	43.0	P9713-ND	28.05	24.13	18.70	FCB34AC12
24	20.4-27.6	4.70	28.3	1.9	42.0	P9714-ND	28.05	24.13	18.70	FCB34AC24
12	10.2-13.8	4.50	35.3	2.1	42.0	P9715-ND	28.75	24.73	19.17	FCB34AD12
24	20.4-27.6	5.00	35.3	2.1	41.2	P9716-ND	28.75	24.73	19.17	FCB34AD24
12	10.2-13.8	4.50	38.9	2.2	42.0	P9717-ND	29.50	25.37	19.67	FCB34AE12
24	20.4-27.6	5.50	38.9	2.2	41.3	P9718-ND	29.50	25.37	19.67	FCB34AE24
12	10.2-13.8	5.00	42.4	2.2	43.0	P9719-ND	30.25	26.02	20.17	FCB34AF12
24	20.4-27.6	6.00	42.4	2.2	41.8	P9720-ND	30.25	26.02	20.17	FCB34AF24

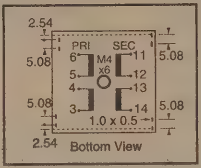
Toroidal Transformer

PC Mount, Low Profile 115/230V, 50/60 Hz Dual Primary

Low Magnetic strayfield emissions, higher efficiency, reduced "standby" current, reduced weight, fully en-capsulated durable body formation.

Primary-secondary test voltage 4.0 KV (VDE) 0550). Primaries and secondaries for parallel or series hookup. Ambient operating tem-perature +60°C maximum. Insulation Class A (105°C).





Power VA	Dimensions L x W x H mm	Pin Pattern XY mm	Weight Total gr	Reg. ΔV/Sec %	Δt °C	Eff. %	Excitation Current mA	220V Fuse* mA	Max. Secondary Range VA	ΔV/ Sec %	Δt °C	Eff. %	220V Fuse* mA
1.6	39.6 x 39.6 x 18.5	35.58	82	.33	13	73	1.0	32	2.0	60	30	60	32
3.2	44.7 x 44.7 x 19.5	40.64	110	44	24	69	1.5	32	3.7	80	40	50	50
5.0	49.7 x 49.7 x 19.5	45.72	144	47	29	67	2.0	50	5.5	80	40	60	63
7.0	49.7 x 49.7 x 23.1	45.72	174	35	29	72	3.0	63	7.5	70	40	60	80
10.0	55.0 x 55.0 x 26.0	50.80	252	22	27	79	3.0	80	12.0	60	45	60	100
15.0	60.0 x 60.0 x 26.3	55.88	304	24	30	77	4.0	100	16.0	60	40	65	125
25.0	60.0 x 60.0 x 37.0	55.88	430	19	28	82	5.0	160	25.0	19	28	82	160

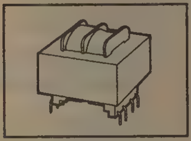
* Recommend Slo-Blo. Double the fuse current for 120 volt operation.

Power VA	Parallel VAC @ A	Series VCT @ A	Digi-Key Part No.	Pricing 1	10	25	50
1.6	7 @ .228	14 @ .114	TE70000-ND	10.91	97.00	212.19	388.00
	9 @ .178	18 @ .089	TE70001-ND	10.91	97.00	212.19	388.00
	12 @ .134	24 @ .067	TE70002-ND	10.91	97.00	212.19	388.00
	15 @ .106	30 @ .053	TE70003-ND	10.91	97.00	212.19	388.00
	18 @ .088	36 @ .044	TE70004-ND	10.91	97.00	212.19	388.00
	22 @ .072	44 @ .036	TE70005-ND	10.91	97.00	212.19	388.00
3.2	7 @ .458	14 @ .229	TE70010-ND	11.41	101.40	221.81	405.60
	9 @ .356	18 @ .178	TE70011-ND	11.41	101.40	221.81	405.60
	12 @ .266	24 @ .133	TE70012-ND	11.41	101.40	221.81	405.60
	15 @ .214	30 @ .107	TE70013-ND	11.41	101.40	221.81	405.60
	18 @ .178	36 @ .089	TE70014-ND	11.41	101.40	221.81	405.60
	22 @ .146	44 @ .073	TE70015-ND	11.41	101.40	221.81	405.60
5	7 @ .714	14 @ .357	TE70020-ND	12.13	107.80	235.81	431.20
	9 @ .556	18 @ .278	TE70021-ND	12.13	107.80	235.81	431.20
	12 @ .416	24 @ .208	TE70022-ND	12.13	107.80	235.81	431.20
	15 @ .334	30 @ .167	TE70023-ND	12.13	107.80	235.81	431.20
	18 @ .278	36 @ .139	TE70024-ND	12.13	107.80	235.81	431.20
	22 @ .228	44 @ .114	TE70025-ND	12.13	107.80	235.81	431.20
7	7 @ 1.0	14 @ .500	TE70030-ND	13.75	122.20	267.31	488.80
	9 @ .778	18 @ .389	TE70031-ND	13.75	122.20	267.31	488.80
	12 @ .584	24 @ .292	TE70032-ND	13.75	122.20	267.31	488.80
	15 @ .466	30 @ .233	TE70033-ND	13.75	122.20	267.31	488.80
	18 @ .388	36 @ .194	TE70034-ND	13.75	122.20	267.31	488.80
	22 @ .318	44 @ .159	TE70035-ND	13.75	122.20	267.31	488.80
10	7 @ 1.428	14 @ .714	TE70040-ND	15.37	136.60	298.81	546.40
	9 @ 1.112	18 @ .556	TE70041-ND	15.37	136.60	298.81	546.40
	12 @ .834	24 @ .417	TE70042-ND	15.37	136.60	298.81	546.40
	15 @ .666	30 @ .333	TE70043-ND	15.37	136.60	298.81	546.40
	18 @ .556	36 @ .278	TE70044-ND	15.37	136.60	298.81	546.40
	22 @ .454	44 @ .227	TE70045-ND	15.37	136.60	298.81	546.40
15	7 @ 2.142	14 @ 1.071	TE70050-ND	16.54	147.00	321.56	588.00
	9 @ 1.666	18 @ .833	TE70051-ND	16.54	147.00	321.56	588.00
	12 @ 1.250	24 @ .625	TE70052-ND	16.54	147.00	321.56	588.00
	15 @ 1.000	30 @ .500	TE70053-ND	16.54	147.00	321.56	588.00
	18 @ .834	36 @ .417	TE70054-ND	16.54	147.00	321.56	588.00
	22 @ .682	44 @ .341	TE70055-ND	16.54	147.00	321.56	588.00
25	7 @ 3.570	14 @ 1.785	TE70060-ND	18.23	162.00	354.38	648.00
	9 @ 2.754	18 @ 1.377	TE70061-ND	18.23	162.00	354.38	648.00
	12 @ 2.082	24 @ 1.041	TE70062-ND	18.23	162.00	354.38	648.00
	15 @ 1.664	30 @ .832	TE70063-ND	18.23	162.00	354.38	648.00
	18 @ 1.388	36 @ .694	TE70064-ND	18.23	162.00	354.38	648.00
	22 @ 1.136	44 @ .568	TE70065-ND	18.23	162.00	354.38	648.00

***Note** : To obtain output voltage, load current must be met.*

MICROTRAN company, Inc. **tamura**

SPLITFORM® Split-Bobbin Power Transformers

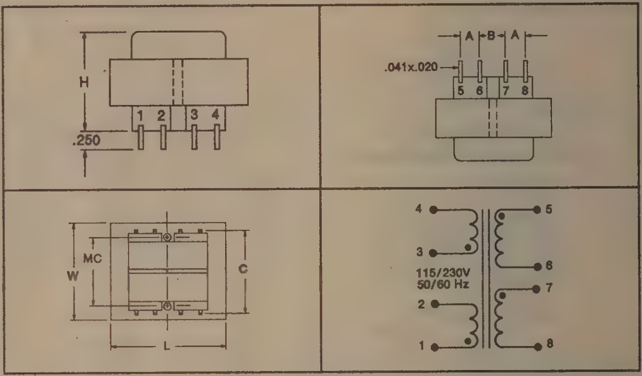


For PC Board Solid-State Power, Control, and Instrumentation Applications

- Split Bobbin Construction
- Center flange insulation barrier
- High isolation for low leakage applications
- Low capacitive coupling minimizes line noise and false triggering
- 2,500V RMS hipot
- 115/230V 50/60Hz dual primary
- Precision spaced terminals
- Terminal numbers are molded on bobbin
- 130°C insulation system

File #LR73078

UL 1585 Class 2 &3 - File #E96720
UL 506 - File #E79781



PSD Series	VA Size	Dimensions L	W	H	MC	A	B	C	Weight Lbs.
2	1.1	1.44	1.23	1.00	—	.250	.250	1.200	0.17
3	2.4	1.44	1.23	1.26	—	.250	.250	1.200	0.25
4	6	1.69	1.39	1.36	1.063	.250	.350	1.280	0.44
5	12	1.97	1.63	1.50	1.250	.300	.400	1.410	0.70

VA (Size)	Parallel VAC @ A	Series VCT @ A	Digi-Key Part No.	Pricing* 1	10	25	Microtran Part No.
1.1	6.3 @ 0.18	12.6 @ 0.09	MT2101-ND	7.65	68.00	144.50	PSD2-12
2.4	6.3 @ 0.4	12.6 @ 0.2	MT2102-ND	7.74	68.80	146.20	PSD3-12
6.0	6.3 @ 1.0	12.6 @ 0.5	MT2103-ND	8.37	74.40	158.10	PSD4-12
12.0	6.3 @ 2.0	12.6 @ 1.0	MT2104-ND	9.63	85.60	181.90	PSD5-12
1.1	8 @ 0.14	16 @ 0.07	MT2105-ND	7.65	68.00	144.50	PSD2-16
2.4	8 @ 0.3	16 @ 0.15	MT2106-ND	7.74	68.80	146.20	PSD3-16
6.0	8 @ 0.8	16 @ 0.4	MT2107-ND	8.37	74.40	158.10	PSD4-16
12.0	8 @ 1.6	16 @ 0.8	MT2108-ND	9.63	85.60	181.90	PSD5-16
1.1	10 @ 0.11	20 @ 0.055	MT2109-ND	7.65	68.00	144.50	PSD2-20
2.4	10 @ 0.24	20 @ 0.12	MT2110-ND	7.74	68.80	146.20	PSD3-20
6.0	10 @ 0.6	20 @ 0.3	MT2111-ND	8.37	74.40	158.10	PSD4-20
12.0	10 @ 1.2	20 @ 0.6	MT2112-ND	9.63	85.60	181.90	PSD5-20
1.1	12 @ 0.09	24 @ 0.045	MT2113-ND	7.65	68.00	144.50	PSD2-24
2.4	12 @ 0.2	24 @ 0.1	MT2114-ND	7.74	68.80	146.20	PSD3-24
6.0	12 @ 0.5	24 @ 0.25	MT2115-ND	8.37	74.40	158.10	PSD4-24
12.0	12 @ 1.0	24 @ 0.5	MT2116-ND	9.63	85.60	181.90	PSD5-24
1.1	14 @ 0.08	28 @ 0.04	MT2117-ND	7.65	68.00	144.50	PSD2-28
2.4	14 @ 0.17	28 @ 0.085	MT2118-ND	7.74	68.80	146.20	PSD3-28
6.0	14 @ 0.4	28 @ 0.2	MT2119-ND	8.37	74.40	158.10	PSD4-28
12.0	14 @ 0.84	28 @ 0.42	MT2120-ND	9.63	85.60	181.90	PSD5-28
1.1	18 @ 0.06	36 @ 0.03	MT2121-ND	7.65	68.00	144.50	PSD2-36
2.4	18 @ 0.13	36 @ 0.065	MT2122-ND	7.74	68.80	146.20	PSD3-36
6.0	18 @ 0.34	36 @ 0.17	MT2123-ND	8.37	74.40	158.10	PSD4-36
12.0	18 @ 0.7	36 @ 0.35	MT2124-ND	9.63	85.60	181.90	PSD5-36

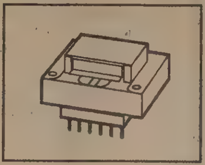
* Call for quote on quantities of 25 or more. ***Note** : To obtain output voltage, load current must be met.*

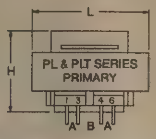
MICROTRAN company, Inc. **tamura**

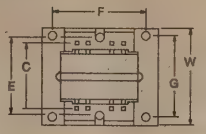
LOW PROFILE Power Transformers

For PC Board Solid-State Power, Control, & Instrumentation Applications

- Meets U.S. and International Safety Standards — UL, VDE, IEC, CSA.
- 4,000V RMS hipot test — Dual non-concentric bobbins and insulating shroud provide high isolation and reduced capacitance.
- 115/230V 50/60Hz primary.
- 130°C insulation system — Insulating materials meet UL 94V-0 flammability requirements.



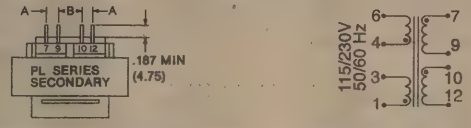




File #LR69222; File #LR69223

File 810/89, 811/89; VCD 0551,0806

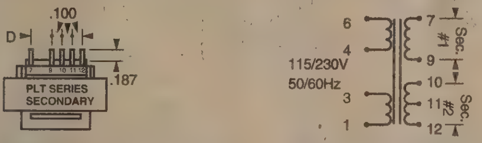
Fig. 1



TUV File 810/89, 811/89; IEC 380 EN60950

File #E79781; UL506

Fig. 2



TUV File 810/89, 811/89; IEC 380 EN60950

File #E79781; UL506

VA	Dimensions							Mounting			Mtg.	Pin	Wt.
Size	L	W	H	A†	B	C	D	E	F	G	Screw	Squa.	Lbs.
2.5	1.625	1.313	1.125	.200	.250	1.000	—	1.063	—	—	2x #4	.025	.25
5.0	1.625	1.313	1.375	.200	.400	1.000	—	1.063	—	—	2x #4	.025	.37
10.0	1.875	1.563	1.375	.200	.400	1.140	—	1.250	—	—	2x #4	.036	.53
20.0	2.250	1.875	1.625	.400	.400	1.460	.40	1.500	—	—	2x #4	.036	.90
30.0	2.625	2.188	1.563	.550	.275	1.680	.55	—	2.19	1.75	4x #6	.045	1.15
56.0	3.000	2.500	1.813	.600	.300	1.900	.60	—	2.50	2.00	4x #6	.045	1.70

† For PLT series secondary only. Dimension A is 1/2 of value shown.

Fig. No.	VA (Size)	Parallel VAC @ A	Series VCT @ A	Digi-Key Part No.	Pricing* 1	10	25	Microtran Part No.
Dual Output Low Profile								
1	2.5	5 @ 0.5	10 @ 0.25	MT3101-ND	7.97	70.80	150.45	PL2.5-10
1	5.0	5 @ 1.0	10 @ 0.5	MT3102-ND	8.60	76.40	162.35	PL5.0-10
1	10.0	5 @ 2.0	10 @ 1.0	MT3103-ND	9.47	84.20	178.93	PL10-10
1	20.0	5 @ 4.0	10 @ 2.0	MT3104-ND	11.41	101.40	215.48	PL20-10
1	30.0	5 @ 6.0	10 @ 3.0	MT3105-ND	13.52	120.20	255.43	PL30-10
1	56.0	5 @ 11.2	10 @ 5.6	MT3106-ND	18.14	161.20	342.55	PL56-10
1	2.5	6.3 @ 0.4	12.6 @ 0.2	MT3107-ND	7.97	70.80	150.45	PL2.5-12
1	5.0	6.3 @ 0.8	12.6 @ 0.4	MT3108-ND	8.60	76.40	162.35	PL5.0-12
1	10.0	6.3 @ 1.6	12.6 @ 0.8	MT3109-ND	9.47	84.20	178.93	PL10-12
1	20.0	6.3 @ 3.2	12.6 @ 1.6	MT3110-ND	11.41	101.40	215.48	PL20-12
1	30.0	6.3 @ 4.8	12.6 @ 2.4	MT3111-ND	13.52	120.20	255.43	PL30-12
1	56.0	6.3 @ 8.8	12.6 @ 4.4	MT3112-ND	18.14	161.20	342.55	PL56-12
1	2.5	8 @ 0.3	16 @ 0.15	MT3113-ND	7.97	70.80	150.45	PL2.5-16
1	5.0	8 @ 0.62	16 @ 0.31	MT3114-ND	8.60	76.40	162.35	PL5.0-16
1	10.0	8 @ 1.25	16 @ 0.62	MT3115-ND	9.47	84.20	178.93	PL10-16
1	20.0	8 @ 2.5	16 @ 1.25	MT3116-ND	11.41	101.40	215.48	PL20-16
1	30.0	8 @ 3.8	16 @ 1.9	MT3117-ND	13.52	120.20	255.43	PL30-16
1	56.0	8 @ 7.0	16 @ 3.5	MT3118-ND	18.14	161.20	342.55	PL56-16
1	2.5	10 @ 0.24	20 @ 0.12	MT3119-ND	7.97	70.80	150.45	PL2.5-20
1	5.0	10 @ 0.5	20 @ 0.25	MT3120-ND	8.60	76.40	162.35	PL5.0-20
1	10.0	10 @ 1.0	20 @ 0.5	MT3121-ND	9.47	84.20	178.93	PL10-20
1	20.0	10 @ 2.0	20 @ 1.0	MT3122-ND	11.41	101.40	215.48	PL20-20
1	30.0	10 @ 3.0	20 @ 1.5	MT3123-ND	13.52	120.20	255.43	PL30-20
1	56.0	10 @ 5.6	20 @ 2.8	MT3124-ND	18.14	161.20	342.55	PL56-20
1	2.5	12 @ 0.2	24 @ 0.1	MT3125-ND	7.97	70.80	150.45	PL2.5-24
1	5.0	12 @ 0.42	24 @ 0.21	MT3126-ND	8.60	76.40	162.35	PL5.0-24
1	10.0	12 @ 0.84	24 @ 0.42	MT3127-ND	9.47	84.20	178.93	PL10-24
1	20.0	12 @ 1.66	24 @ 0.83	MT3128-ND	11.41	101.40	215.48	PL20-24
1	30.0	12 @ 2.5	24 @ 1.25	MT3129-ND	13.52	120.20	255.43	PL30-24
1	56.0	12 @ 4.66	24 @ 2.33	MT3130-ND	18.14	161.20	342.55	PL56-24
1	2.5	14 @ 0.18	28 @ 0.09	MT3131-ND	7.97	70.80	150.45	PL2.5-28
1	5.0	14 @ 0.36	28 @ 0.18	MT3132-ND	8.60	76.40	162.35	PL5.0-28
1	10.0	14 @ 0.72	28 @ 0.36	MT3133-ND	9.47	84.20	178.93	PL10-28
1	20.0	14 @ 1.44	28 @ 0.72	MT3134-ND	11.41	101.40	215.48	PL20-28
1	30.0	14 @ 2.12	28 @ 1.06	MT3135-ND	13.52	120.20	255.43	PL30-28
1	56.0	14 @ 4.0	28 @ 2.0	MT3136-ND	18.14	161.20	342.55	PL56-28
1	2.5	18 @ 0.14	36 @ 0.07	MT3137-ND	7.97	70.80	150.45	PL2.5-36
1	5.0	18 @ 0.28	36 @ 0.14	MT3138-ND	8.60	76.40	162.35	PL5.0-36
1	10.0	18 @ 0.56	36 @ 0.28	MT3139-ND	9.47	84.20	178.93	PL10-36
1	20.0	18 @ 1.12	36 @ 0.56	MT3140-ND	11.41	101.40	215.48	PL20-36
1	30.0	18 @ 1.64	36 @ 0.82	MT3141-ND	13.52	120.20	255.43	PL30-36
1	56.0	18 @ 3.12	36 @ 1.56	MT3142-ND	18.14	161.20	342.55	PL56-36
Fig. No.	**VA (Size)**	**Sec. #1 VAC @ A**	**Sec. #2 Center Tap VCT @ A**	**Digi-Key Part No.**	**Pricing* 1**	**10**	**25**	**Microtran Part No.**
Triple Output Low Profile								
2	20.0	9.3 @1.5	27.5 @ .22	MT3143-ND†	13.61	121.00	257.13	PLT20-32
2	30.0	9.3 @ 2.2	27.5 @ .34	MT3144-ND†	15.77	140.20	297.93	PLT30-32
2	56.0	9.3 @4.0	27.5 @ .68	MT3145-ND†	20.52	182.40	387.60	PLT56-32

* Call for price on quantities of 50 or more. ***Note:*** *To obtain output voltage, load current must be met.*

† Intended for use as a regulated power supply transformer, 5VDC and ±12VDC. Contact Digi-Key for an application note.

MICROTRAN company, Inc. **tamura**

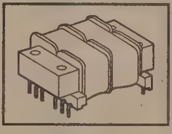
FLAT STACK® Low Profile Power Transformers

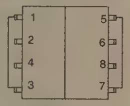
For low height PC Board Solid-State Power, Control, and Instrumentation

Four Sizes • 2.5VA size 0.6" high for 13/16" card spacing • 6VA size 0.85" high for 1" card spacing • 12VA size 1.065" high for 1-1/4" card spacing • 24VA size 1.25" high for 1-9/16" card spacing

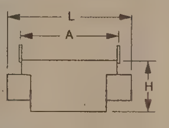
Split Bobbin • Primaries and secondaries wound side by side.

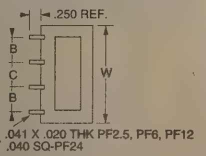
- High isolation for low leakage applications 1500V hipot. • Low capacity coupling minimizes line noise and false triggering.
- **Hum-bucking semi-toroidal construction**
- **Precision spaced terminals**
- **Dual primaries: 115/230V, 50/60Hz**



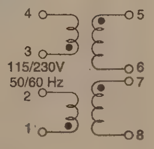


UL 506 File #E79781
130°C Insulation System





.041 X .020 THK PF2.5, PF6, PF12
.040 SQ-PF24



PF	Dimensions							Weight
Series	VA	L	W	H	A	B	C	Oz.
2.5	2.5	1.87	1.56	0.65	1.6	.375	.375	5
6	6	1.875	1.563	0.85	1.6	.375	.375	7
12	12	2.5	2.0	1.065	2.0	.500	.500	11
24	24	2.87	2.25	1.25	1.9	.600	.530	15

VA (Size)	Parallel VAC @ A	Series VCT @ A	Digi-Key Part No.	Pricing* 1	10	25	Microtran Part No.
2.5	5.0 @ 0.5	10 @ 0.25	MT1101-ND	8.78	78.00	165.75	PF2.5-10
6.0	5.0 @ 1.2	10 @ 0.6	MT1102-ND	9.63	85.60	181.90	PF6-10
12.0	5.0 @ 2.4	10 @ 1.2	MT1103-ND	12.38	110.00	233.75	PF12-10
24.0	5.0 @ 4.8	10 @ 2.4	MT1104-ND	13.73	122.00	259.25	PF24-10
2.5	6.3 @ 0.4	12.6 @ 0.2	MT1105-ND	8.78	78.00	165.75	PF2.5-12
6.0	6.3 @ 0.9	12.6 @ 0.45	MT1106-ND	9.63	85.60	181.90	PF6-12
12.0	6.3 @ 1.9	12.6 @ 0.95	MT1107-ND	12.38	110.00	233.75	PF12-12
24.0	6.3 @ 3.8	12.6 @ 1.9	MT1108-ND	13.73	122.00	259.25	PF24-12
2.5	8 @ 0.3	16 @ 0.15	MT1109-ND	8.78	78.00	165.75	PF2.5-16
6.0	8 @ 0.7	16 @ 0.35	MT1110-ND	9.63	85.60	181.90	PF6-16
12.0	8 @ 1.5	16 @ 0.75	MT1111-ND	12.38	110.00	233.75	PF12-16
24.0	8 @ 3.0	16 @ 1.5	MT1112-ND	13.73	122.00	259.25	PF24-16
2.5	10 @ 0.25	20 @ 0.125	MT1113-ND	8.78	78.00	165.75	PF2.5-20
6.0	10 @ 0.6	20 @ 0.3	MT1114-ND	9.63	85.60	181.90	PF6-20
12.0	10 @ 1.2	20 @ 0.6	MT1115-ND	12.38	110.00	233.75	PF12-20
24.0	10 @ 2.4	20 @ 1.2	MT1116-ND	13.73	122.00	259.25	PF24-20
2.5	12 @ 0.2	24 @ 0.1	MT1117-ND	8.78	78.00	165.75	PF2.5-24
6.0	12 @ 0.5	24 @ 0.25	MT1118-ND	9.63	85.60	181.90	PF6-24
12.0	12 @ 1.0	24 @ 0.5	MT1119-ND	12.38	110.00	233.75	PF12-24
24.0	12 @ 2.0	24 @ 1.0	MT1120-ND	13.73	122.00	259.25	PF24-24
2.5	15 @ 0.17	30 @ 0.085	MT1121-ND	8.78	78.00	165.75	PF2.5-30
6.0	15 @ 0.4	30 @ 0.2	MT1122-ND	9.63	85.60	181.90	PF6-30
12.0	15 @ 0.8	30 @ 0.4	MT1123-ND	12.38	110.00	233.75	PF12-30
24.0	15 @ 1.6	30 @ 0.8	MT1124-ND	13.73	122.00	259.25	PF24-30
2.5	17 @ 0.15	34 @ .075	MT1125-ND	8.78	78.00	165.75	PF2.5-34
6.0	17 @ 0.34	34 @ 0.17	MT1126-ND	9.63	85.60	181.90	PF6-34
12.0	17 @ 0.7	34 @ 0.35	MT1127-ND	12.38	110.00	233.75	PF12-34
24.0	17 @ 1.4	34 @ 0.7	MT1128-ND	13.73	122.00	259.25	PF24-34

* Call for price on quantities of 50 or more. ***Note:*** *To obtain output voltage, load current must be met.*

MICROTRAN company, inc. **tamura**

Telephone Coupling Transformers

For Interconnecting Data/Voice Telephone Lines per FCC part 68. **Frequency Response:** 300-3500Hz±0.5dB. **Hi-pot:** 1500V RMS. **Impedance Matching:** ±10%. UL 1459, File #138028.

Fig. A

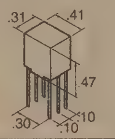

.31
.41
.47
.30
.10
.10

Fig. B

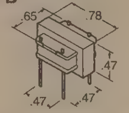

.65
.78
.47
.47
.47

Fig. C

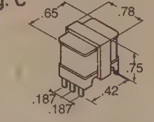

.65
.78
.75
.42
.187
.187

Fig. D

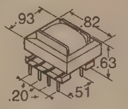

.93
.82
.63
.20
.51

Fig. E

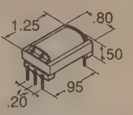

1.25
.80
.50
.95
.20

Fig. F

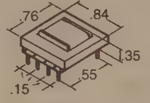

.76
.84
.35
.55
.15

Fig. G

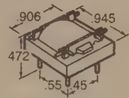

.906
.945
.472
.55
.45

Fig. H - Surface Mount

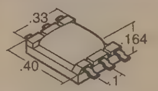


Fig. I - Surface Mount

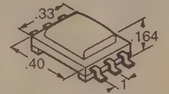


Fig. J

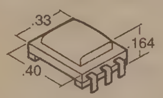


Fig. K

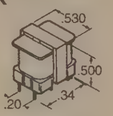

.530
.500
.20
.34

Fig. L

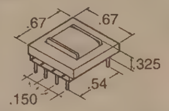

.67
.67
.325
.54
.150

Fig. M - Surface Mount

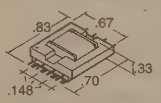

.83
.67
.33
.148
.70

Fig. N

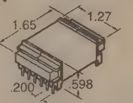
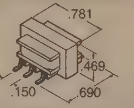
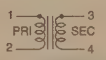

1.65
1.27
.200
.598

Fig. O - Surface Mount

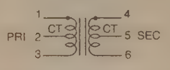

.781
.469
.150
.690

Schematic 1

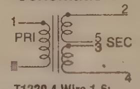

1
2
3
4
PRI
SEC

T2111 PRI 2-3 SEC 5-8
T9311 PRI 1-2 SEC 4-3
TV105/106 PRI 1-4 SEC 4-6
TSL103/203/303 PRI 1-3 SEC 4-6
TS1104/TS1115 PRI 1-3 SEC 4-6
TP3114/TS3114 PRI 1-4 SEC 5-8

Schematic 2

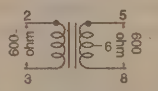

1
2
3
4
5
6
PRI
SEC
CT
CT

Schematic 4


1
2
3
4
5
PRI
SEC

T1220 4 Wire 1-6;
2 Wire 2-5; Bal. 3-4

Schematic 3


2
3
5
6
8
600-ohm
600 ohm

Schematic 5

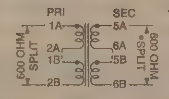

PRI
SEC
1A
2A
1B
2B
5A
6A
5B
6B
600 OHM SPLIT
600 OHM SPLIT

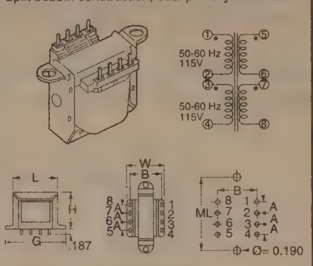
Fig.	Schematic	Impedance Pri.	Impedance Sec.	IDC (mA)	Insertion Loss (dB)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 25	Microtran Part No.
A	1	600	600	1.5	1.6	MT4110-ND	24.50	217.80	462.83	PM32-M
A	2	600CT	600CT	3	1.6	MT4111-ND	25.83	229.60	487.90	PM34-M
B	1	600	600	0	1.0	MT4112-ND	13.88	123.40	262.23	T1104
C	1	600	600	0	1.0	MT4113-ND	9.83	87.40	185.73	T2104
C	2	600CT	600CT	0	1.0	MT4114-ND	11.34	100.80	214.20	T2106
C	4	600	600/600	0	1.0	MT4115-ND*	•13.34	118.60	252.03	T2220
D	1	600	600	90	2.0	MT4116-ND	8.33	74.00	157.25	T2111
D	3	600	600CT	90	2.0	MT4117-ND	8.33	74.00	157.25	T2112
E	1	600	600	90	1.8	MT4118-ND	9.61	85.40	181.48	T9311
E	4	600	600CT	90	1.8	MT4119-ND	9.92	88.20	187.43	T9312
F	1	600	600	50	1.8	MT4120-ND	10.13	90.00	191.25	TP3111
G	1	600	470	100	2.5	MT4123-ND	6.05	53.80	114.33	TTC264
H	1	600	346	0	2.75	MT4121-ND†	13.48	119.80	254.58	TSL103
I	1	600	346	0	2.75	MT4122-ND	13.48	119.80	254.58	TSL203
J	1	600	346	0	2 7	MT4124-ND	13.48	119.80	254.58	TSL303
K	1	600	600	0	1.15	MT4125-ND	16.00	142.20	302.18	TV105
K	1	600	600	0	.60	MT4126-ND	16.00	142.20	302.18	TV106
L	1	600	500	0	1.1	MT4127-ND	12.40	110.20	234.18	TP3114
M	1	600	500	0	1.1	MT4128-ND	14.51	129.00	274.13	TS3114
N	5	600 split	600 split	80	2.0	MT4129-ND	18.25	162.20	344.68	T9116
O	1	600	600	0	1.0	MT4130-ND	11.54	102.60	218.03	TS1104
O	1	600	600	65	1.5	MT4131-ND	14.29	127.00	269.88	TS1115
O	4	600	600/600	0	.7	MT4132-ND	14.00	124.40	264.35	TS1220

* Two required for conventional hybrid operation, the insertion loss does not include 3dB in hybrid balance network.
† TSL103 must be mounted through a ciruit board cutout .4" X .33"

EWC INC Transformers

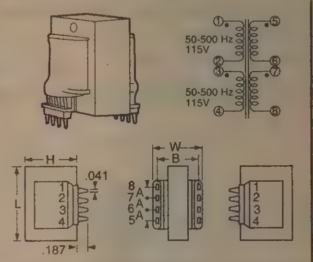
DEL Series - Dual Primary

Recommended PC hole Dia. = .052
Split bobbin construction, dual primary 115V/220V


50-60 Hz 115V
50-60 Hz 115V
1
2
3
4
5
6
7
8
L
H
G
.187
W
B
ML
A
Ø= 0.190

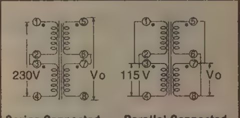
DPC Series - Dual Primary

Concentric, single section bobbin construction, dual primary 115V/220V


50-500 Hz 115V
50-500 Hz 115V
1
2
3
4
5
6
7
8
H
L
.041
.187
W
B
A

VA	L	W	H	G	ML	B	A
4.4	1.720	1.250	1.400	2.375	2.00	1.100	0.250
10	1.970	1.438	1.660	2.813	2.38	1.300	0.250
24	1.625	2.250	1.375	—	—	2.100	0.250

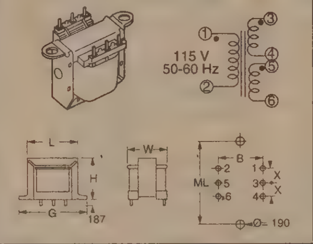
Ratings Based on 20% Regulation.


1
2
3
4
5
6
7
8
230V
Vo
115 V
Vo

Series Connected **Parallel Connected**

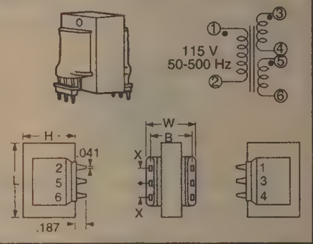
EL Series - Single Primary

Recommended PC hole Dia. = .052
Split bobbin, single primary 115V


115 V 50-60 Hz
1
2
3
4
5
6
L
H
G
187
W
B
ML
X
Ø= 190

PC Series - Single Primary

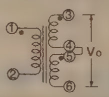
Concentric, single section bobbin construction, single primary 115V


115 V 50-500 Hz
1
2
3
4
5
6
H
L
.041
.187
W
B
X

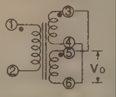
VA	L	W	H	G	ML	B	X	Oz.
4.4	1.720	1.250	1.400	2.375	2.000	1.100	0.400	5
10	1.970	1.438	1.660	2.813	2.380	1.300	0.400	9
24	1.625	2.250	1.375	—	—	2.100	0.400	12

Ratings Based on 20% Regulation.

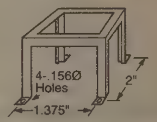
Series Connected



Parallel Connected



T199-ND
"Slide On" Bracket for 24 VA/Size

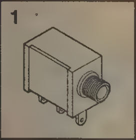

4-.156Ø Holes
2"
1.375"

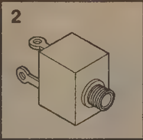
Size VA	Output (Vo) Series VCT @ mA	Output (Vo) Parallel V @ mA	Digi-Key Part No.	Pricing* 1	Pricing* 10	Pricing* 25	Mfg. Part No.
DEL Series							
4.4	10 @ 440	5 @ 880	T130-ND	7.88	70.00	148.75	DEL10-440A2
4.4	12.6 @ 350	6.3 @ 700	T131-ND	7.88	70.00	148.75	DEL12-350A6
4.4	16 @ 260	8 @ 520	T132-ND	7.88	70.00	148.75	DEL16-260A10
4.4	20 @ 220	10 @ 440	T133-ND	7.88	70.00	148.75	DEL20-220A14
4.4	24 @ 180	12 @ 360	T134-ND	7.88	70.00	148.75	DEL24-180A18
4.4	28 @ 160	14 @ 320	T135-ND	7.88	70.00	148.75	DEL28-160A50
4.4	34 @ 125	17 @ 250	T136-ND	7.88	70.00	148.75	DEL34-125A22
4.4	40 @ 110	20 @ 220	T137-ND	7.88	70.00	148.75	DEL40-110A26
10	12.6 @ 800	6.3 @ 1600	T138-ND	9.90	88.00	187.00	DEL12-800A7
10	16 @ 640	8 @ 1280	T139-ND	9.90	88.00	187.00	DEL16-640A11
10	24 @ 450	12 @ 900	T140-ND	9.90	88.00	187.00	DEL24-450A19
10	28 @ 360	14 @ 720	T141-ND	9.90	88.00	187.00	DEL28-360A51
10	34 @ 300	17 @ 600	T142-ND	9.90	88.00	187.00	DEL34-300A23
10	40 @ 250	20 @ 500	T143-ND	9.90	88.00	187.00	DEL40-250A27
DPC Series							
24	10 @ 2400	5 @ 4800	T144-ND†	10.24	91.00	193.38	DPC10-2400B4
24	12.6 @ 2000	6.3 @ 4000	T145-ND†	10.24	91.00	193.38	DPC12-2000B8
24	16 @ 1500	8 @ 3000	T146-ND†	10.24	91.00	193.38	DPC16-1500B12
24	20 @ 1200	10 @ 2400	T147-ND†	10.24	91.00	193.38	DPC20-1200B16
24	24 @ 1000	12 @ 2000	T148-ND†	10.24	91 00	193.38	DPC24-1000B20
24	28 @ 800	14 @ 1600	T149-ND†	10.24	91.00	193.38	DPC28-800B52
24	34 @ 700	17 @ 1400	T150-ND†	10.24	91.00	193.38	DPC34-700B24
24	40 @ 600	20 @ 1200	T151-ND†	10.24	91.00	193.38	DPC40-600B28
EL Series							
4.4	10@ 440	5 @ 880	T108-ND•	5.96	53.00	112.63	EL-10-440-C2
PC Series							
24	10 @ 2400	5 @ 4800	T120-ND†	9.07	80.60	171.28	PC10-2400B4
"Slide On" bracket for 24VA/Size			T199-ND	.68	6.00	12.75	B-24 BRACKET

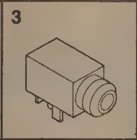
* Pricing available for larger quantities. • PC tabs, through hole mounting tabs. † Use B-24 Bracket.
Note:To obtain output voltage, load current must be met.

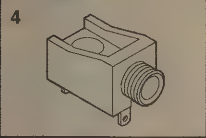
Cui STACK Power Connectors

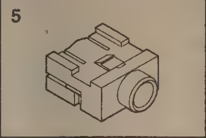
General Specifications:
Contact Resistance: 10 - 20 mΩ • **Insulation Resistance:** 50 MΩ min.: 500 VDC • **Voltage Withstand:** 250 VAC, 1 minute • **Life:** 10,000 cycles, most models • **Insertion/Extraction Force:** 0.8 - 2.0 Kgs

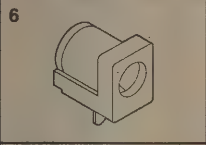
1


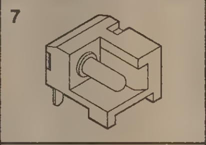
2


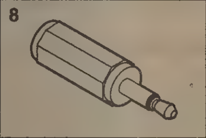
3


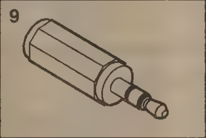
4


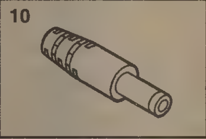
5


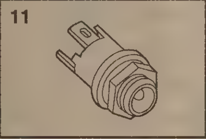
6


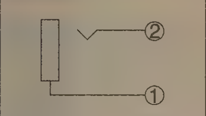
7


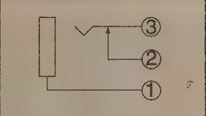
8


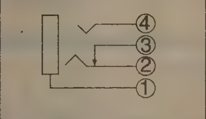
9


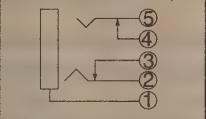
10


11


MJ-2503A


MJ/PJ series


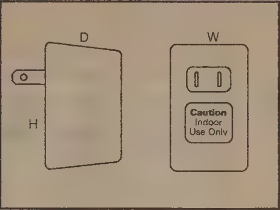
SJ-3504


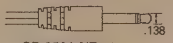
SJ-3505


Mating Connector	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Right Angle Panel Mount Jack — Fig. 1					
2.5 mm (CP-2501-ND)	CP-2502-ND	.99	8.58	66.00	MJ-2502
Straight Panel Mount Jack — Fig. 2					
2.5 mm (CP-2501-ND)	CP-2505-ND	.93	8.06	62.00	MJ-2505
PCB Panel Mount Jack — Fig. 3					
2.5 mm (CP-2501-ND)	CP-2503-ND	.51	4.39	33.80	MJ-2503A
Right Angle Panel Mount Jack — Fig. 4					
3.5 mm (CP-3501-ND)	CP-3536-ND	.39	3.41	26.20	MJ-3536
Right Angle PCB Mount Jack — Fig. 5					
3.5 mm (CP-3501-ND)	CP-3504-ND	2.06	17.86	137.40	SJ-3504
Right Angle PCB Stereo Jack — Fig. 5					
3.5 mm (CP-3502-ND)	CP-3505-ND	2.10	18.23	140.20	SJ-3505
Male Power Jack, Closed — Fig. 6					
2.0 mm (CP-004A-ND)	CP-002A-ND	.38	3.30	25.40	PJ-002A
2.4 mm (CP-004B-ND)	CP-002B-ND	.38	3.30	25.40	PJ-002B
Male Power Jack, Open — Fig. 7					
2.0 mm (CP-004A-ND)	CP-003A-ND	.34	2.96	22.80	PJ-003A
2.4 mm (CP-004B-ND)	CP-003B-ND	.34	2.96	22.80	PJ-003B
Male Power Plug — Fig. 8					
3.5 mm (P-1)	CP-3501-ND	.76	6.58	50.60	MP-3501
2.5 mm (P-2)	CP-2501-ND	.76	6.58	50.60	MP-2501
Male Stereo Plug — Fig. 9					
3.5 mm	CP-3502-ND	.87	7.57	58.20	SP-3501
Female Plug, 5.5 mm outside — Fig. 10					
2.1 mm (P-5)	CP-004A-ND	.65	5.59	43.00	PP-002A
2.5 mm (P-6)	CP-004B-ND	.65	5.59	43.00	PP-002B
Panel Mount Jack — Fig. 11					
2.1 mm (P-5)	CP-5-ND	1.83	15.86	122.00	PJ-005A
2.5 mm (P-6)	CP-6-ND	1.83	15.86	122.00	PJ-005B

Cui STACK Wall Transformers

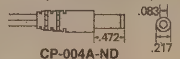
- Cord Lengths are all 6 feet unless otherwise noted.
- All transformers are UL listed and most are also CSA approved.



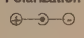
P-1 **(3.5mm Male)**


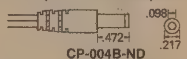
CP-3501-ND

Tip is Positive, Sleeve is Negative

P-5 **(2.1mm Female)**


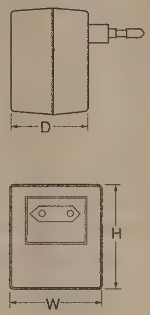
CP-004A-ND

Polarization


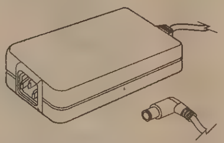
P-6 **(2.5mm Female)**


CP-004B-ND

European Transformer
TUV Approved



Switching Desk-Top Power Supply



SPECIFICATIONS: • **AC Input Voltage Range:** 90 VAC to 264 VAC Universal • **AC Input Frequency:** 47 Hz to 63 Hz • **Max. In-rush Current:** 26 A max @ 115 VAC, 50 A max @ 230 VAC at 25°C ambient cold start • **Min. Load Current:** 0A • **Output Ripple and Noise:** 5V = 50 mVP-P, 12V = 120mVP-P, 24V = 240mVP-P • **Operating Temperature:** 0°C to 40°C

Safety Requirements: **(1)** UL 1950, **(2)** CSA 22.2, No. 950, **(3)** CSA 22.2, No. 234 LEVEL 3, **(4)** IEC 950 **(5)** TUV/CS, (EN60950).

EMI Requirement: FCC class "B" rules. VDE 243/1991 class "B" rules

Ratings			Dimensions (In.)	Cord	Digi-Key	Price Each*			CUI/Stack
Volt.	mA	Reg.	H x W x D	Plug	Part No.	1	10	50	Part No.
US/Canada Transformer 110VAC/60Hz Input									
5VDC	300	5%	2.38 x 2.00 x 1.65	P-6	T309-ND	10.00	8.00	7.00	DPR050030-P6
5VDC	1000	3%	3.35 x 2.68 x 2.20	P-1	T310-ND•	27.80	22.24	19.46	DTR050100-P-1
5VDC	1500	5%	4.72 x 3.07 x 2.48	P-5	T311-ND•	51.98	41.58	36.39	DTR050150-P-5
5.5VDC	500	No	2.38 x 2.00 x 1.46	P-1	T301-ND	9.75	7.80	6.83	DPD055050-P-1
6VDC	200	No	2.15 x 1.67 x 1.46	P-1	T305-ND	5.65	4.52	3.96	DPD060020-P1-SZ
6VDC	500	No	2.32 x 1.97 x 1.63	P-1	T307-ND	6.25	5.00	4.38	DPD060050-P1-SZ
9VDC	100	No	2.15 x 1.67 x 1.46	P-1	T406-ND	5.40	4.32	3.78	DPD090010-P1-SZ
9VDC	200	No	2.19 x 1.69 x 1.48	P-1	T401-ND	5.18	4.14	3.63	DPD090020-P-1
9VDC	200	No	2.19 x 1.69 x 1.48	P-5	T402-ND	5.30	4.24	3.71	DPD090020-P-5
9VDC	300	No	2.15 x 1.67 x 1.46	P-1	T407-ND	5.68	4.54	3.98	DPD0909030-P1-SZ
9VDC	500	No	2.38 x 2.00 x 1.46	P-1	T403-ND	5.78	4.62	4.05	DPD090050-P-1
9VDC	500	No	2.38 x 2.00 x 1.46	P-5	T405-ND	5.78	4.62	4.05	DPD090050-P-5
9VDC	800	5%	2.38 x 2.38 x 1.91	P-5	T410-ND	15.43	12.34	10.80	DPR090080-P-5
9VDC	1000	No	2.38 x 2.38 x 1.91	P-1	T404-ND	11.90	9.52	8.33	DPD090100-P-1
12VDC	50	No	2.15 x 1.67 x 1.46	P-1	T508-ND	5.40	4.32	3.78	DPD120005-P1-SZ
12VDC	200	No	2.15 x 1.67 x 1.46	P-1	T509-ND	5.50	4.40	3.85	DPD120020-P1-SZ
12VDC	300	No	2.38 x 2.00 x 1.46	P-1	T501-ND	5.75	4.60	4.03	DPD120030-P-1
12VDC	300	No	2.38 x 2.00 x 1.46	P-5	T505-ND	5.75	4.60	4.03	DPD120030-P-5
12VDC	500	No	2.38 x 2.00 x 1.46	P-1	T502-ND	6.55	5.24	4.59	DPD120050-P-1
12VDC	500	No	2.38 x 2.00 x 1.46	P-5	T506-ND	6.55	5.24	4.59	DPD120050-P-5
12VDC	800	No	2.38 x 2.38 x 1.91	P-1	T503-ND	6.95	5.56	4.87	DPD120080-P-1
12VDC	800	No	2.38 x 2.38 x 1.91	P-5	T507-ND	6.95	5.56	4.87	DPD120080-P-5
24VDC	400	No	2.38 x 2.38 x 1.91	P-1	T521-ND	9.88	7.90	6.92	DPD240040-P-1
24VDC	400	No	2.38 x 2.38 x 1.91	P-6	T520-ND	9.88	7.90	6.92	DPD240040-P-6
9VAC	100	No	2.15 x 1.67 x 1.46	S/T	T701-ND	5.28	4.22	3.70	DPA090010-S/T-SZ
9VAC	600	No	2.32 x 1.99 x 1.61	S/T	T702-ND	6.70	5.36	4.69	DPA090060-S/T-SZ
12VAC	300	No	2.15 x 1.67 x 1.46	S/T	T601-ND†	5.50	4.40	3.85	DPA120030-S/T-SZ
12VAC	400	No	2.15 x 1.67 x 1.46	S/T	T611-ND†	6.98	5.58	4.89	DPA120040-S/T-SZ
12VAC	500	No	2.32 x 1.99 x 1.61	S/T	T612-ND†	7.20	5.76	5.04	DPA120050-S/T-SZ
12VAC	600	No	2.38 x 2.00 x 1.46	S/T	T602-ND†	7.55	6.04	5.29	DPA120060-S/T
12VAC	1000	No	2.76 x 1.97 x 1.54	S/T	T603-ND†	8.30	6.64	5.81	DPA120100-S/T
12VAC	1500	No	3.20 x 2.21 x 1.89	S/T	T613-ND†	13.38	10.70	9.37	DPA120150-S/T
12VAC	2000	No	3.30 x 2.48 x 2.16	S/T	T604-ND†	14.28	11.42	10.00	DPA120200-S/T
12VAC	3300	No	3.50 x 2.68 x 2.16	S/T	T605-ND§	23.60	18.88	16.52	DPA1220333C-S/T
12VAC	200	No	2.15 x 1.67 x 1.46	P-1	T606-ND	5.40	4.32	3.78	DPA120020-P1-SZ
12VAC	600	No	2.38 x 2.00 x 1.46	P-1	T607-ND	5.88	4.70	4.12	DPA120060-P-1
12VAC	1000	No	2.75 x 1.97 x 1.54	P-1	T608-ND	6.35	5.08	4.45	DPA120100-P-1
12VAC	2000	No	3.30 x 2.48 x 2.16	P-1	T609-ND	14.28	11.42	10.00	DPA120200-P-1
24VAC	1670	No	3.50 x 2.68 x 2.16	S/T	T620-ND§	23.60	18.88	16.52	DPA240167C-S/T
European Transformer 220VAC/50Hz Input									
9VDC	500	No	2.32 x 1.99 x 1.61	P-5	T408-ND	12.00	9.60	8.40	DPD090050E-P-5
12VDC	800	No	3.19 x 2.20 x 1.89	P-5	T511-ND	15.00	12.00	10.50	DPD120080E-P-5
Switching Desk-Top Power Supply									
5VDC	4000	5%	4.41 x 2.36 x 1.42	P-5(Rt)	T801-ND‡	74.66	65.33	56.00	DTS050400U/AC1-P5
12VDC	2500	5%	4.41 x 2.36 x 1.42	P-5(Rt)	T802-ND‡	74.66	65.33	56.00	DTS120250U/AC1-P5
24VDC	1250	5%	4.41 x 2.36 x 1.42	P-5(Rt)	T803-ND‡	74.66	65.33	56.00	DTS240125U/AC1-P5

Note: Mfg # "SZ", some parts have output cord changes. Please call for details.
- • Table Top Style. † "S/T" = Stripped/Tinned. ‡ AC cord included. § Center Taped.
- * Call for price on quantities of 100 or more. See "How to Order" for note concerning shipping charges on prepaid orders.

NEW! MagneTek TRIAD™ Audio Transformers

Data/Voice Coupling Transformers

(Dimensions in inches)

SPECIFICATIONS:
Designed to meet FCC Part 68.
Longitudinal Balance: (FCC68.310): 60dB min. 200-1000 HZ, 45 dB mn. 1000-4000 HZ.
Dielectric Strength: (FCC 68.304): 1500V.
Freq. Range: Data/Voice = 300 - 3500 HZ, Data = 800 - 3500 HZ

Fig. A

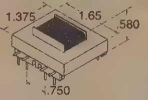


Fig. B

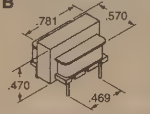


Fig. C

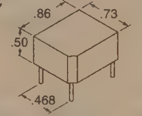


Fig. D

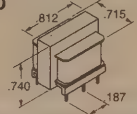


Fig. E

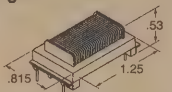


Fig. F

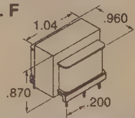
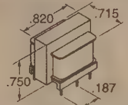
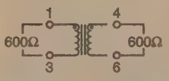


Fig. G

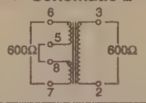


Schematic 1

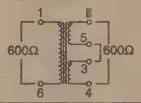


TY-305P	PRI 2, 3; SEC 6, 7
TY-307P, TY-310P	PRI 1, 3; SEC 4, 6
TY-311P, TY-400P	
TY-301P, TY-303P	
TY-402P	

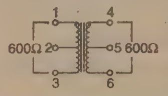
Schematic 2



Schematic 4



Schematic 3



Schematic 5

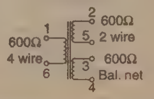


Fig.	Schematic	Impedance Pri.	Impedance Sec.	IDC Max (mA)	Insertion Loss (dB)	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
Data/Voice Coupling Transformers										
A	1	600	600	100	1.5	10619-ND	10.94	7.14	6.06	TY-305P
A	2	600 Split	600	75	1.5	10620-ND	10.94	7.14	6.06	TY-306P
B	1	600	600	0	1.0	10621-ND	6.41	4.18	3.55	TY-307P
C	1	600	600	0	1.0	10622-ND	7.54	4.92	4.17	TY-310P
D	1	600	600	0	1.0	10623-ND	5.56	3.63	3.08	TY-311P
D	3	600CT*	600CT*	0	1.0	10618-ND	5.56	3.63	3.08	TY-304P
D	1	600	900	0	1.0	10615-ND	5.56	3.63	3.08	TY-301P
D	1	4000	600	0	1.0	10617-ND	5.56	3.63	3.08	TY-303P
G	1	600	600	90	1.75	10624-ND	8.34	5.44	4.62	TY-400P
G	3	600CT*	600CT*	90	1.75	10625-ND	8.34	5.44	4.62	TY-401P
E	1	600	600	90	1.75	10626-ND	6.89	4.50	3.82	TY-402P
E	4	600	600 Split	90	1.75	10627-ND	6.89	4.50	3.82	TY-403P
Data/Voice Dual Transformer Hybrids										
D	5	600 (4W)	600/600	0	.80	10614-ND†	5.56	3.63	3.08	TY-300P
F	5	600 (4W)	600/600	0	.65	10616-ND†	8.33	5.44	4.62	TY-302P

*CT = Center Tap † Two required for conventional hybrid operation, the insertion loss does not include 3dB in hybrid balance network.

NEW! MagneTek TRIAD™

Switchmode/High Frequency Transformers

Current Sense

DESCRIPTION: TRIAD current sense transformers are used to detect the current passing through a conductor. They are constructed of UL rated 130°C materials.**Freq. Range:** 20 kHz- 200 kHz

Fig. A

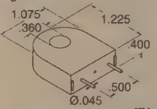
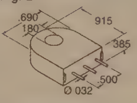


Fig. B



(Dim. in inches)

Fig.	Min. Ind. mH	DCR Max. Ohms	Pri. Amps	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
A	14.0	.580	110.0 RMS	10508-ND	6.11	3.99	3.39	CST206-1A
	14.0	.580	110.0 RMS	10509-ND	6.67	4.35	3.69	CST206-1T*
	56.0	3.500	80.0 RMS	10510-ND	6.11	3.99	3.39	CST206-2A
	56.0	3.500	80.0 RMS	10511-ND	6.67	4.35	3.69	CST206-2T*
	130.0	12.400	70.0 RMS	10512-ND	6.11	3.99	3.39	CST206-3A
	130.0	12.400	70.0 RMS	10513-ND	6.67	4.35	3.69	CST206-3T*
B	3.5	.340	35.0 RMS	10516-ND	4.11	2.69	2.28	CST306-1A
	3.5	.340	35.0 RMS	10517-ND	4.67	3.05	2.59	CST306-1T*
	14.0	1.550	25.0 RMS	10518-ND	4.11	2.69	2.28	CST306-2A
	14.0	1.550	25.0 RMS	10519-ND	4.67	3.05	2.59	CST306-2T*
	55.0	3.750	25.0 RMS	10520-ND	4.11	2.69	2.28	CST306-3A
	55.0	3.750	25.0 RMS	10521-ND	4.67	3.05	2.59	CST306-3T*

*T Suffix = Center Tapped 3-pin version

10514-ND (CST206-KIT) - 6 piece kit (one of each in series CST206).	$33.30
10522-ND (CST306-KIT) - 6 piece kit (one of each in series CST306).	$22.22

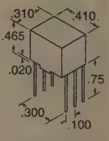
MIL-T-27E Audio Transformers

DESCRIPTION: The line of Red Spec audio transformers is designed and constructed to meet the rigid requirements of MIL-T-27E.

SPECIFICATIONS:
Freq. Response Ranges: 300 Hz to 150 kHz

TECHNICAL NOTES:
- Hi-Pot Test: 1,000 VRMS
- Working Voltage: 150 VDC

Pin-Out #	Pinout Primary	Pinout Secondary
1	1,2	3,4
2	1, 2CT, 3	4, 5
3	1, 2CT, 3	4, 5CT, 6
4	1, 2	3, 4,§, 5, 6
5	1, 2	—



(Dim. in inches)

Power Level in mW	Matching Impedance Pri.	Matching Impedance Sec.	DC Unbal. in Pri. Max(mA)	Pin-Out #	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
10	200,000 CT*	1,000 CT*	0.0	3	10628-ND	21.29	13.90	11.79	SP-4
25	50,000 CT*	1,000 CT*	0.0	3	10629-ND	21.14	13.79	11.70	SP-5
40	25,000 CT/20,000 CT*	1,000/800 CT*	0.5	3	10630-ND	20.11	13.13	11.14	SP-13
50	10,000 CT*	1,200 CT*	1.0	3	10631-ND	20.84	13.61	11.54	SP-20
	10,000 CT*	2,000 CT*	1.0	3	10632-ND	21.21	13.85	11.75	SP-21
	10,000	2,000 CT/500§	1.0	4	10633-ND	21.69	14.16	12.01	SP-22
	10,000 CT*	500 CT*	1.0	3	10634-ND	20.01	13.05	11.07	SP-29
	1,000	50	3.0	1	10635-ND	17.25	11.26	9.55	SP-33
	150 CT*	12	10.0	2	10636-ND	15.51	10.13	8.59	SP-42
	7,500 CT*	12	1.0	2	10637-ND	18.39	12.00	10.18	SP-48
	300 CT*	600	7.0	2	10638-ND	21.98	14.35	12.17	SP-49
	500 CT*	600	3.0	2	10639-ND	16.31	10.65	9.03	SP-50
	900 CT*	600	4.0	2	10640-ND	19.12	12.47	10.58	SP-51
	1,500 CT*	600	3.0	2	10641-ND	21.29	13.90	11.79	SP-52
	10,000 CT*	10,000 CT*	1.0	3	10642-ND	16.93	11.05	9.38	SP-66
	600 CT*	600 CT*	3.0	3	10643-ND	18.64	12.17	10.32	SP-67
	10,000	10,000 CT/2,500§	1.0	4	10644-ND	22.33	14.58	12.37	SP-68
	600	600 CT/150§	3.0	4	10645-ND	18.56	12.11	10.28	SP-69
	600	600	3.0	1	10646-ND	17.48	11.42	9.69	SP-70
—	0.1H	Choke	5.0	5	10647-ND	11.81	7.70	6.54	SP-128
—	—	Shield Only	—	—	10648-ND	2.76	1.80	1.53	SP-310

*CT = Center Tap § Split Secondary

Audio PC Mount Transformers

DESCRIPTION: Audio transformers are used in line matching, telephone coupling, pulse trigger and driver applications.
SPECIFICATIONS: • Freq. Response Ranges: 200 - 15,000Hz

Fig. A

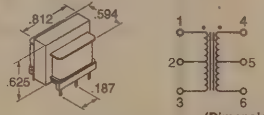
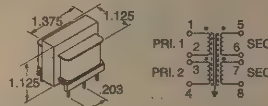


Fig. B



(Dimensions in inches)

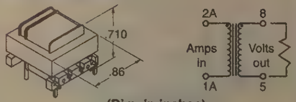
Fig.	Matching Impedance Pri.	Matching Impedance Sec.	DC Unbal. in Pri. Max (mA)	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
A	10,000 CT*	10,000 CT*	.4 Ma	10609-ND	3.89	2.54	2.16	TY-141P
A	10,000 CT*	2,000 CT*	4 Ma	10610-ND	3.89	2.54	2.16	TY-142P
A	15,000 CT*	15,000 CT*	4 Ma	10611-ND	3.89	2.54	2.16	TY-144P
A	600 CT*	600 CT*	15 Ma	10612-ND	3.89	2.54	2.16	TY-145P
B	600 CT/150§	600 CT/150§	—	10613-ND	7.22	4.72	4.00	TY-146P

*CT = Center Tap § Split Winding

Low Frequency Current Sense Transformers

DESCRIPTION: Designed to monitor current in low freq. applications. Frequencies from 50 Hz to 400 Hz, current from .1 to 30 ampheres.

TECHNICAL NOTES: • Turns ratio: Primary to sense 1:500. • Suggested burden resistor: 60 ohms. Hi-Pot: 2,500 volts.

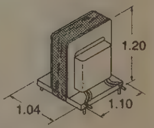


(Dim. in inches)

Primary DCR Max. μOhms	Sense DCR Max. Ohms	Typ. Output	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
250	21	110 mV/Amp	10515-ND	2.89	1.89	1.60	CSE187-L

Gate Drive Transformers

DESCRIPTION: TRIAD gate drive transformers are used to isolate the control circuitry from the line-connected switches such as with power supplies. The windings are interleaved for the lowest possible practical leakage inductance. Turn ratios of 1:1 and 1:1.5 optimize coupling and enhance performance. Features operating frequencies up to 200 kHz.
TECHNICAL NOTES: • Hi-Pot tested: 3,750 VRMS. • Pin-out: Drive = Pins 1, 2. Gate = Pins 3, 6 and Dual Gate = Pins 3, 4; 5, 6.



(Dimensions in inches)

Max. DCR Gate	Max. Leakage Inductance	Min. Inductance	Digi-Key Part No.	Price Each 1	Price Each 50	Price Each 100	MagneTek Part No.
.350 Ohms	2.5 μH	.680 mH	10552-ND	15.56	10.15	8.61	GDE25-1
.650 Ohms	2.5 μH	.680 mH	10553-ND*	15.56	10.15	8.61	GDE25-2
.350 Ohms	3.5 μH	1.50 mH	10554-ND	15.56	10.15	8.61	GDE25-3
.650 Ohms	3.5 μH	1.50 mH	10555-ND*	15.56	10.15	8.61	GDE25-4
.875 Ohms	3.5 μH	.680 mH	10556-ND	15.56	10.15	8.61	GDE25-5
1.75 Ohms	3.5 μH	.680 mH	10557-ND*	15.56	10.15	8.61	GDE25-6

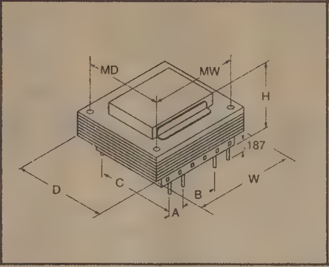
* Dual Secondary Gate

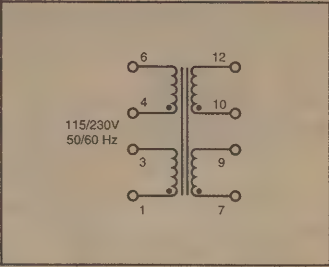
10558-ND (GDE25-KIT) - 6-piece kit (one of each)	$88.89

NEW! MagneTek TRIAD™ PC Mount - World Series™ Power Transformers

- World Series dual bobbin construction transformers meet U.S. & international standards including CSA, IEC, VDE & UL requirements.
- Hi-Pot Test: 4,000 VRMS
- Primary: 115/230V, 50/60 Hz

VA	Dimensions (inches)						Pin	Mounting		Wt.
Size	H	W	D	A	B	C	Dim.	MD	MW	Lbs.
2.5	1.125	1.625	1.3125	.200	.250	1.000	.025	—	—	.25
5.0	1.375	1.625	1.3125	.200	.400	1.000	.025	—	—	.37
10.0	1.375	1.875	1.5625	.200	.400	1.140	.036	—	—	.53
20.0	1.625	2.25	1.875	.400	.400	1.460	.036	—	—	.90
30.0	1.5625	2.625	2.1875	.550	.275	1.680	.045	1.75	2.1875	1.15
56.0	1.8125	3.000	2.500	.600	.300	1.900	.045	2.	2.5	1.70





VA (Size)	Parallel VAC @ A	Series VCT* @ A	Digi-Key Part No.	Price Each 1	50	100	MagneTek Part No.
2.5	5 @ 0.5	10 @ 0.25	10473-ND	9.62	6.51	5.70	VPP10-250
5.0	5 @ 1.0	10 @ 0.5	10494-ND	10.36	7.04	6.16	VPP10-500
10.0	5 @ 2.0	10 @ 1.0	10466-ND	11.60	7.76	6.78	VPP10-1000
20.0	5 @ 4.0	10 @ 2.0	10480-ND	14.11	9.35	8.18	VPP10-2000
30.0	5 @ 6.0	10 @ 3.0	10487-ND	16.22	11.08	9.69	VPP10-3000
56.0	5 @ 11.2	10 @ 5.6	10501-ND	19.84	12.30	10.44	VPP10-5600
2.5	6.3 @ 0.4	12.6 @ 0.2	10474-ND	9.62	6.51	5.70	VPP12-200
5.0	6.3 @ 0.8	12.6 @ 0.4	10495-ND	10.36	7.04	6.16	VPP12-400
10.0	6.3 @ 1.6	12.6 @ 0.8	10467-ND	11.60	7.76	6.78	VPP12-800
20.0	6.3 @ 3.2	12.6 @ 1.6	10481-ND	14.11	9.35	8.18	VPP12-1600
30.0	6.3 @ 4.8	12.6 @ 2.4	10488-ND	16.22	11.08	9.69	VPP12-2400
56.0	6.3 @ 8.8	12.6 @ 4.4	10502-ND	19.84	12.30	10.44	VPP12-4400
2.5	8 @ 0.3	16 @ 0.15	10475-ND	9.62	6.51	5.70	VPP16-150
5.0	8 @ 0.62	16 @ 0.31	10496-ND	10.36	7.04	6.16	VPP16-310
10.0	8 @ 1.25	16 @ 0.62	10468-ND	11.60	7.76	6.78	VPP16-620
20.0	8 @ 2.5	16 @ 1.25	10482-ND	14.11	9.35	8.18	VPP16-1250
30.0	8 @ 3.8	16 @ 1.9	10489-ND	16.22	11.08	9.69	VPP16-1900
56.0	8 @ 7.0	16 @ 3.5	10503-ND	19.84	12.30	10.44	VPP16-3500
2.5	10 @ 0.24	20 @ 0.12	10476-ND	9.62	6.51	5.70	VPP20-120
5.0	10 @ 0.5	20 @ 0.25	10497-ND	10.36	7.04	6.16	VPP20-250
10.0	10 @ 1.0	20 @ 0.5	10469-ND	11.60	7.76	6.78	VPP20-500
20.0	10 @ 2.0	20 @ 1.0	10483-ND	14.11	9.35	8.18	VPP20-1000

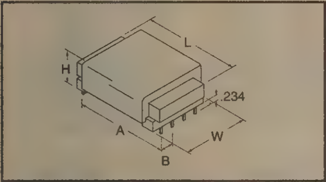
VA (Size)	Parallel VAC @ A	Series VCT* @ A	Digi-Key Part No.	Price Each 1	50	100	MagneTek Part No.
30.0	10 @ 3.0	20 @ 1.5	10490-ND	16.22	11.08	9.69	VPP20-1500
56.0	10 @ 5.6	20 @ 2.8	10504-ND	19.84	12.30	10.44	VPP20-2800
2.5	12 @ 0.2	24 @ 0.1	10477-ND	9.62	6.51	5.70	VPP24-100
5.0	12 @ 0.42	24 @ 0.21	10498-ND	10.36	7.04	6.16	VPP24-210
10.0	12 @ 0.84	24 @ 0.42	10470-ND	11.60	7.76	6.78	VPP24-420
20.0	12 @ 1.66	24 @ 0.83	10484-ND	14.11	9.35	8.18	VPP24-830
30.0	12 @ 2.50	24 @ 1.25	10491-ND	16.22	11.08	9.69	VPP24-1250
56.0	12 @ 4.66	24 @ 2.33	10505-ND	19.84	12.30	10.44	VPP24-2330
2.5	14 @ 0.18	28 @ 0.09	10478-ND	9.62	6.51	5.70	VPP28-090
5.0	14 @ 0.36	28 @ 0.18	10499-ND	10.36	7.04	6.16	VPP28-180
10.0	14 @ 0.72	28 @ 0.36	10471-ND	11.60	7.76	6.78	VPP28-360
20.0	14 @ 1.44	28 @ 0.72	10485-ND	14.11	9.35	8.18	VPP28-720
30.0	14 @ 2.12	28 @ 1.06	10492-ND	16.22	11.08	9.69	VPP28-1060
56.0	14 @ 4.0	28 @ 2.0	10506-ND	19.84	12.30	10.44	VPP28-2000
2.5	18 @ 0.14	36 @ 0.07	10479-ND	9.62	6.51	5.70	VPP36-070
5.0	18 @ 0.28	36 @ 0.14	10500-ND	10.36	7.04	6.16	VPP36-140
10.0	18 @ 0.56	36 @ 0.28	10472-ND	11.60	7.76	6.78	VPP36-280
20.0	18 @ 1.12	36 @ 0.56	10486-ND	14.11	9.35	8.18	VPP36-560
30.0	18 @ 1.64	36 @ 0.82	10493-ND	16.22	11.08	9.69	VPP36-820
56.0	18 @ 3.12	36 @ 1.56	10507-ND	19.84	12.30	10.44	VPP36-1560

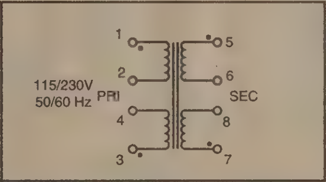
*CT = Center Tap

NEW! PC Mount - Flat Pack Power Transformers

- Designed to meet the needs of low clearance PC board and solid state power designs.
- Hi-Pot Test: 2,000 VRMS
- Primary: 115/230V, 50/60 Hz
- Class B UL Recognized, UL File E53148

VA	Dimensions (inches)					Wt.
Size	H	W	L	A	B	Oz.
2.5	0.650	1.562	1.875	1.600	0.375	5
6.0	0.875	1.562	1.875	1.600	0.375	7
12.0	1.062	2.000	2.500	2.000	0.500	11





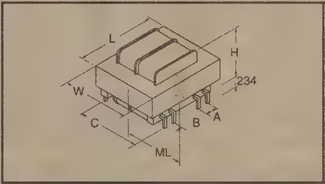
VA (Size)	Parallel VAC @ A	Series VCT* @ A	Digi-Key Part No.	Price Each 1	50	100	MagneTek Part No.
2.5	5 @ 0.5	10 @ 0.25	10423-ND	10.76	7.13	6.23	FP10-250
	6.3@ 0.4	12.6 @ 0.2	10424-ND	10.76	7.13	6.23	FP12-200
	8 @ 0.3	16 @ 0.15	10425-ND	10.76	7.13	6.23	FP16-150
	10 @ 0.25	20 @ 0.125	10426-ND	10.76	7.13	6.23	FP20-125
	12 @ 0.2	24 @ 0.1	10427-ND	10.76	7.13	6.23	FP24-100
	15 @ 0.16	30@ 0.08	10428-ND	10.76	7.13	6.23	FP30-85
	17 @ 0.15	34 @ 0.075	10429-ND	10.76	7.13	6.23	FP34-75
	28 @ 0.09	56 @ 0.045	10430-ND	10.76	7.13	6.23	FP56-45
6.0	5 @ 1.2	10 @ 0.6	10431-ND	12.00	8.18	7.21	FP10-600
	6.3@ 0.95	12.6 @ 0.475	10432-ND	12.00	8.18	7.21	FP12-475
	8 @ 0.75	16 @ 0.375	10433-ND	12.00	8.18	7.21	FP16-375
	10 @ 0.6	20 @ 0.3	10434-ND	12.00	8.18	7.21	FP20-300
	12 @ 0.5	24 @ 0.25	10435-ND	12.00	8.18	7.21	FP24-250
	15 @ 0.4	30@ 0.2	10436-ND	12.00	8.18	7.21	FP30-200
	17 @ 0.34	34 @ 0.17	10437-ND	12.00	8.18	7.21	FP34-170
	28 @ 0.2	56 @ 0.1	10438-ND	12.00	8.18	7.21	FP56-100
12.0	5 @ 2.4	10 @ 1.2	10415-ND	14.00	8.75	7.51	FP10-1200
	6.3@ 1.9	12.6 @ 0.95	10416-ND	14.00	8.75	7.51	FP12-950
	8 @ 1.5	16 @ 0.75	10417-ND	14.00	8.75	7.51	FP16-750
	10 @ 1.2	20 @ 0.6	10418-ND	14.00	8.75	7.51	FP20-600
	12 @ 1.0	24 @ 0.5	10419-ND	14.00	8.75	7.51	FP24-500
	15 @ 0.8	30@ 0.4	10420-ND	14.00	8.75	7.51	FP30-400
	17 @ 0.68	34 @ 0.34	10421-ND	14.00	8.75	7.51	FP34-340
	28 @ 0.4	56 @ 0.2	10422-ND	14.00	8.75	7.51	FP56-200

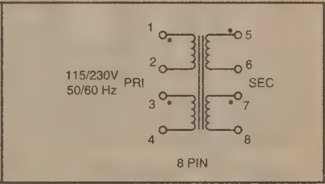
*CT = Center Tap

NEW! PC Mount -Split Pack™ Power Transformers

- Split Pack split bobbin tranformer for PC board applications.
- Hi-Pot Test: 2,500 VRMS
- Primary: 115/230V, 50/60 Hz
- Class B UL Recognized, UL File E53148

VA	Dimensions (inches)							Wt.
Size	H	W	L	ML	A	B	C	Lbs.
1.1	.9375	1.125	1.375	—	.250	.250	1.20	.17
2.5	1.1875	1.125	1.375	—	.250	.250	1.20	.25
6.0	1.3125	1.3125	1.625	1.0625	.250	.350	1.280	.44
12.0	1.4375	1.5625	1.875	1.25	.30	.40	1.410	.70





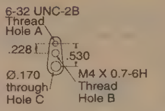
VA (Size)	Parallel VAC @ A	Series VCT* @ A	Digi-Key Part No.	Price Each 1	50	100	MagneTek Part No.
1.1	6.3 @ 0.18	12.6 @ 0.09	10439-ND	8.71	5.51	4.73	FS12-090
	8 @ 0.14	16 @ 0.07	10440-ND	8.71	5.51	4.73	FS16-070
	10 @ 0.11	20 @ 0.055	10441-ND	8.71	5.51	4.73	FS20-055
	12 @ 0.09	24 @ 0.045	10442-ND	8.71	5.51	4.73	FS24-045
	14 @ 0.08	28 @ 0.04	10443-ND	8.71	5.51	4.73	FS28-040
	18 @ 0.06	36 @ 0.03	10444-ND	8.71	5.51	4.73	FS36-030
2.5	5 @ 0.5	10 @ 0.25	10445-ND	9.00	5.63	4.83	FS10-250
	6.3@ 0.4	12.6 @ 0.2	10446-ND	9.00	5.63	4.83	FS12-200
	8 @ 0.3	16 @ 0.15	10447-ND	9.00	5.63	4.83	FS16-150
	10 @ 0.24	20 @ 0.12	10448-ND	9.00	5.63	4.83	FS20-120
	12 @ 0.2	24 @ 0.1	10449-ND	9.00	5.63	4.83	FS24-100
	14 @ 0.17	28@ 0.085	10450-ND	9.00	5.63	4.83	FS28-85
	18 @ 0.13	36 @ 0.065	10451-ND	9.00	5.63	4.83	FS36-65
6.0	5 @ 1.2	10 @ 0.6	10452-ND	9.60	6.08	5.22	FS10-600
	6.3@ 1.0	12.6 @ 0.5	10453-ND	9.60	6.08	5.22	FS12-500
	8 @ 0.8	16 @ 0.4	10454-ND	9.60	6.08	5.22	FS16-400
	10 @ 0.6	20 @ 0.3	10455-ND	9.60	6.08	5.22	FS20-300
	12 @ 0.5	24 @ 0.25	10456-ND	9.60	6.08	5.22	FS24-250
	14 @ 0.4	28 @ 0.2	10457-ND	9.60	6.08	5.22	FS28-200
	18 @ 0.34	36 @ 0.17	10458-ND	9.60	6.08	5.22	FS36-170
12.0	5 @ 2.4	10 @ 1.2	10459-ND	11.00	6.93	5.95	FS10-1200
	6.3 @ 2.0	12.6 @ 1.0	10460-ND	11.00	6.93	5.95	FS12-1000
	8.0 @ 1.6	16 @ 0.8	10461-ND	11.00	6.93	5.95	FS16-800
	10 @ 1.2	20 @ 0.6	10462-ND	11.00	6.93	5.95	FS20-600
	12 @ 1.0	24 @ 0.5	10463-ND	11.00	6.93	5.95	FS24-500
	14 @ 0.84	28 @ 0.42	10464-ND	11.00	6.93	5.95	FS28-420
	18 @ 0.7	36 @ 0.35	10465-ND	11.00	6.93	5.95	FS36-350

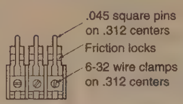
*CT = Center Tap

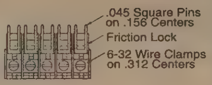
POWER-ONE® POWER SUPPLIES Switching Power Supplies

MAP SERIES

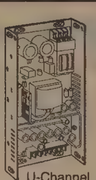
FEATURES: Power-One's proprietary Universal Terminal Block Connectors and Mounting System assure product integration. Safety agency approved: UL recognized, CSA certified, and TUV Essen certified. • Power Fail Warning Signal. 100% test, inspection and burn-in. • Overload Protection • Overvoltage Protection • Overtemperature Protection **AC Input:** Automatic selecting: 90-264 VAC, 47-63 Hz single phase. **Temperature Rating:** 0°C to +50°C. • 2 Year Warranty.

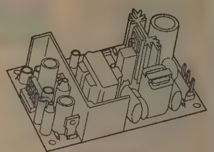






9222B-ND Power One Reference Guide..**$3.95**


U-Channel
Open Frame


Open Frame

Nominal Output Voltage	Power Continuous	Power Peak	Current Minimum	Current Peak	Initial Setting Tolerance	Line Reg.	Load Reg.	Output Adj. Range	Configuration	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 25	power-one Part No.
12V-15V*	60	70	5A/5.8Apk	4A/4.7Apk	12.1V±.1V	.2%	2%	11V-16V	U-Channel Open Frame 6.00"x3.27"x1.60"	PW9904-ND	99.28	85.95	77.49	MAP55-1012
12V-15V*	150	165	12A/13.8Apk	10A/6.7Apk†	12V±.2V	.2%	1%	11V-16V	U-Channel Open Frame 8.50"x4.50"x2.00"	PW9900-ND	204.75	181.33	164.95	MAP130-1012
24V-28V*	60	70	2.5A/3Apk	2.2A/2.5Apk	24V±.2V	.2%	.5%	23.5V-28.5V	U-Channel Open Frame 6.00"x3.27"x1.60"	PW9905-ND	99.28	85.95	77.49	MAP55-1024

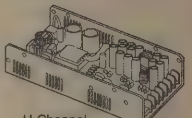
*Models with adjustable outputs have current ratings expressed as current at lowest nominal voltage followed by current at highest nominal voltage.

Nominal Output Voltage	Power(Watts) Continuous	Power(Watts) Peak	Current	Initial Setting Tolerance	Line Reg.	Load Reg.	Configuration	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 25	Price Each 50	power-one Part No.
+5V +12V -12V	40	50	3A/5A PK 2.0A/3.5A PK 0.3A/0.5A PK	Adjustable Note A ±3% Note E ±4% Note C, G	0.2% 0.3% 0.5%	1% 7% 2%	Open Frame 5.00" x 3.00" x 1.45"	PW9903-ND*	59.95	54.25	49.10	44.45	MAP40-3000
+5V +12V -5V, -12V	55	65	6A 3A/4Apk 0.5A Note F	Adjustable Note A ±4% Note C ±4% Note C	0.2% 0.2% 0.5%	2% 2% 2%	U-Channel Open Frame 6.00" x 3.27" x 1.60"	PW9906-ND	109.72	95.04	86.69	83.34	MAP55-4000
+5V +24V +12V, -12V	55	65	6A 1.5A/2.5A PK 0.5A Note F	Adjustable Note A ±4% Note C ±4% Note C	0.2% 0.2% 0.5%	2% 2% 2%	U-Channel Open Frame 6.00" x 3.27" x 1.60"	PW9907-ND	109.72	95.04	86.69	83.34	MAP55-4001
+5V +12V +12V, -12V	55	65	6A 3A/4A PK 0.5A Note F	Adjustable Note A ±4% Note C ±4% Note C	0.2% 0.2% 0.5%	2% 2% 2%	U-Channel Open Frame 6.00" x 3.27" x 1.60"	PW9908-ND	109.72	95.04	86.69	83.34	MAP55-4002
+5V +15 -5V, -15V	55	65	6A 2.5A/3.5A PK 0.5A Note F	Adjustable Note A ±4% Note C ±4% Note C	0.2% 0.2% 0.5%	2% 2% 2%	U-Channel Open Frame 6.00" x 3.27" x 1.60"	PW9909-ND	114.17	100.95	89.14	86.47	MAP55-4003
+5V +12V -12V, -5V	80	90	14A 4A/7A PK 1A	Adjustable Note A Adjustable Note B ±4% Note C	0.2% 0.2% 0.5%	1% 1% 2%	U-Channel Open Frame 7.20" x 4.20" x 1.80"	PW9910-ND	134.54	126.14	113.72	110.60	MAP80-4000
+5V +24V +12V, -12V	80	90	14A 2A/3.5A 1A	Adjustable Note A Adjustable Note B ±4% Note C	0.2% 0.2% 0.5%	1% 1% 2%	U-Channel Open Frame 7.20" x 4.20" x 1.80"	PW9911-ND	134.54	126.14	113.72	110.60	MAP80-4001
+5V +12V +12V, -12V	80	90	14A 4A/7A PK 1A	Adjustable Note A Adjustable Note B ±4% Note C	0.2% 0.2% 0.5%	1% 1% 2%	U-Channel Open Frame 7.20" x 4.20" x 1.80"	PW9912-ND	134.54	126.14	113.72	106.08	MAP80-4002
+5V +15V -5V, -15V	80	90	14A 3.5A/6A PK 1A	Adjustable Note A Adjustable Note B ±4% Note C	0.2% 0.2% 0.5%	1% 1% 2%	U-Channel Open Frame 7.20" x 4.20" x 1.80"	PW9913-ND	138.74	130.08	117.26	113.84	MAP80-4003
+5V +12V -12V,-5V	130	165	20A† 5A/10A PK 1A	Adjustable Note A, G Adjustable NoteB ±4% Note C	0.2% 0.5% 0.5%	1% 2% 2%	U-Channel Open Frame 8.50" x 4.50" x 2.00"	PW9901-ND	212.59	189.18	170.51	165.84	MAP130-4000
+5V +12V +12V, -12V	130	165	20A† 5A/10A PK 1A	Adjustable Note A, G Adjustable Note B ±4% Note C	0.2% 0.5% 0.5%	1% 2% 2%	U-Channel Open Frame 8.50" x 4.50" x 2.00"	PW9902-ND	212.59	189.18	170.51	165.84	MAP130-4002

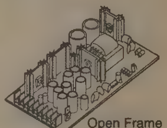
NOTES: A. Voltage level adjustable from 4.75V to 5 50V. Factory set to ±1% of nominal. B. Fully Regulated output, voltage adjustable ±4% minimum. Factory set to ±1% of nominal. C. Fully regulated output, voltage fixed. D. Voltage level adjustable from 10V to 16V. Factory set to 12V ±0.2V. E. Quasi regulated output. F. Max load on V3 or V4 can be 1 amp if either V3 or V4 is unloaded. G. MAP40-3000 V3 regulation requires a minimum load of 0.5A on V1 or 0.3A on V2 † Indicates Remote Sensing.
* Requires Connectors WM 2123-ND, WM2126-ND, & WM2300-ND which are sold separately.

SPL SERIES

GENERAL SPECIFICATIONS: AC Input: 90-264 VAC, user selectable 47-63 Hz. • Power-Fail Warning Signal: Single Output Models: provided on SPL 250 models only. TTL compatible signal. Multiple Output Models: provided on models with a "P" suffix. • Efficiency: 70% ±5% . • Minimum Load: Single Output Models: 5% of rated current. Multiple Output Models: Minimum load required on the +5V main output: SPL40, SPL50: 1A, SPL53: 2A, SPL130: 5A, SPL200: 6A. • Output Noise and Ripple: 0.3% RMS, 1% PK-PK maximum. • Output Overload Protection • Overvoltage Protection: Single Output Models: provided on all 5V models. Multiple Output Models: provided on +5V main output. • Temperature Rating: Operating: 0°C to +50°C . • 2 year warranty


U-Channel
Open Frame

Output Voltage	Power (Watts) Continuous	Power (Watts) Peak	Current	Line Reg.	Load Reg.	Configuration	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 25	Price Each 50	power-one Part No.
5V	40	N/A	8A	±0.3%	±1%	Open Frame	PW9925-ND	118.39	102.50	92.40	89.92	SPL40-1005
	80	N/A	16A†	±0.3%	±1%	Open Frame	PW9928-ND	149.92	140.54	126.68	123.24	SPL53-1005
	140	N/A	26A†	±0.3%	±1%	U-Channel Open Frame	PW9914-ND	286.24	258.71	235.81	229.26	SPL130-1005
	250	N/A	50A†	±0.3%	±1%	U-Channel Open Frame	PW9922-ND	380.55	337.58	318.50	298.62	SPL250-1005
12-15V* Adjustable	80	N/A	6.7A/5.3A†	±0.3%	±1%	Open Frame	PW9929-ND	149.92	140.54	126.67	123.24	SPL53-1012
	130	N/A	11A/9A†	±0.3%	±1%	U-Channel Open Frame	PW9915-ND	286.24	258.71	235.81	229.26	SPL130-1012
	250	N/A	21A/17A†	±0.3%	±1%	U-Channel Open Frame	PW9923-ND	380.55	337.58	318.50	298.62	SPL250-1012
24-28V* Adjustable	80	N/A	3.3A/2.8A†	±0.3%	±1%	Open Frame	PW9930-ND	149.92	140.54	126.68	123.24	SPL53-1024
	140	N/A	5.5A/4.5A†	±0.3%	±1%	U-Channel Open Frame	PW9916-ND	286.24	258.71	235.81	229.26	SPL130-1024
	250	N/A	10A/7A†	±0.3%	±1%	U-Channel Open Frame	PW9924-ND	380.55	337.58	318.50	298.62	SPL250-1024


Open Frame

*Models with adjustable voltages have current ratings expressed as current at lowest Voltage/Current followed at highest voltage.

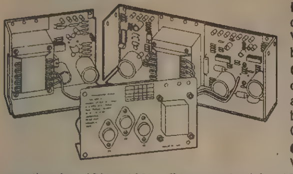
Output Voltage	Power (Watts) Continuous	Power (Watts) Peak	Current	Initial Setting Tolerance	Line Reg.	Load Reg.	Cross Reg.	Configuration	Digi-Key Part No.	Price Each 1	Price Each 10	Price Each 25	Price Each 50	power-one Part No.
+5V +12V, -12V, -5V	40	N/A	5A 0.5A	Adjustable Note A ±4% Note B	±0.3% ±0.1%	±1% ±1%	N/A N/A	Open Frame 6.30" x 3.92" x 2.00"	PW9926-ND	147.02	127.35	114.81	111.66	SPL40-4000
+5V +12V -12V	50	60	6A 2A/4A PK 0.5A	Adjustable Note A ±5% Note C ±10% Note C	±0.3% ±0.3% ±0.3%	±1% ±3% ±5%	N/A ±5% ±10%	Open Frame 6.30" x 3.92" x 2.00"	PW9927-ND*	98.76	92.63	83.44	81.24	SPL50-3200
+5v Note G +12V Note G -12V, -5V	80	N/A	8A 2.5A/5A PK 0.6A	Adjustable Note A Adjustable Note D ±4% Note B	±0.3% ±0.1% ±0.1%	±1% ±1% ±1%	N/A N/A N/A	Open Frame 8.25" x 4.25" x 2.10"	PW9931-ND	158.73	148.83	134.17	130.47	SPL53-4000
+5V +12V, -12V +24V	80	N/A	8A 1.2A, 0.6A 1.5A/3A PK	Adjustable Note A ±4% Note B ±5% Note C	±0.3% ±0.1% ±0.5%	±1% ±1% ±5%	N/A N/A ±5%	Open Frame 8.25" x 4.25" x 2.10"	PW9932-ND	158.73	148.83	134.17	130.47	SPL53-4101
+5V +12V, -12V +12V	80	N/A	8A 1.2A, 0.6A 2.5A/5A PK	Adjustable Note A ±4% Note B ±5% Note C	±0.3% ±0.1% ±0.5%	±1% ±1% ±5%	N/A N/A ±5%	Open Frame 8.25" x 4.25" x 2.10"	PW9933-ND	176.96	148.83	134.17	130.49	SPL53-4102
+5V +12V -12V, -5V	120	135	22A 3A 1.5A	Adjustable Note A† Adjustable Note D† ±4% Note B†	±0.3% ±0.1% ±0.1%	±1% ±1% ±1%	N/A N/A N/A	U-Channel Open Frame 10.50" x 5.00" x 2.45"	PW9917-ND	337.04	269.61	243.00	236.34	SPL130-4000
+5V +12V AUX1 +12V, -12V	130	150	20A Note E 4A/6A PK 1.5A	Adjustable Note A† ±5% Note C† ±4% Note B†	±0.3% ±0.5% ±0.1%	±1% ±5% ±1%	N/A ±5% N/A	U-Channel Open Frame 10.50" x 5.00" x 2.45"	PW9918-ND	337.04	269.61	243.00	236.34	SPL130-4100P
+5V +12V, -12V +24V AUX 1	130	150	20A Note E 1.5A 2A/4A PK	Adjustable Note A† ±4% Note B† ±5% Note C†	±0.3% ±0.1% ±0.5%	±1% ±1% ±5%	N/A N/A ±5%	U-Channel Open Frame 10.50" x 5.00" x 2.45"	PW9919-ND	337.04	269.61	243.00	236.34	SPL130-4101P
+5V +12V AUX 1 -12V, -5V	200	250	35A Note F 4A/7A PK 1.5A	Adjustable Note A ±5% Note C ±4% Note B	±0.3% ±0.5% ±0.1%	±1% ±3% ±1%	N/A ±3% N/A	U-Channel Open Frame 13.00" x 5.00" x 2.45"	PW9920-ND	400.84	352.03	334.45	316.84	SPL200-4100P
+5V +12V AUX 1 +12V, -12V, -5V	200	250	35A Note F 4A/8A PK 1.5A	Adjustable Note A ±5% Note C ±4% Note B	±0.3% ±0.5% ±0.1%	±1% ±5% ±1%	N/A ±3% N/A	U-Channel Open Frame 13.00" x 5.00" x 2.45"	PW9921-ND	400.84	352.03	334.45	316.84	SPL200-5100P

Notes: A - Voltage level adjustable from 4.75V to OVP trip point. Factory set to ±1% of nominal. B - Fully regulated output, voltage fixed (3 terminal regulator). C - Quasi-regulated output. D - Fully regulated output, voltage adjustable ±5% minimum. Factory set to ±1% of nominal. E - The sum of the main +5V and AUX 1 load currents must not exceed 30A. F - The sum of the main +5V and AUX 1 load currents must not exceed the main +5V current rating. G - Maximum load is 10A or 120W.
† - Indicates Remote Sensing. * Requires Connectors which are sold separately.

POWER-ONE® POWER SUPPLIES

Linear Power Supplies

9222B-ND	Power One Reference Guide	$3.95



Features: • Worldwide AC input Capabilities • Meets domestic and foreign safety standards: UL, CSA, IEC, VDE, BPO, ECMA, CEE • Low output ripple • 2 hour burn-in • Made in U.S.A.

Overvoltage Protection Options: Optional overvoltage protection modules are offered, each is user adjustable from 6.4V to 34V. Note: Outputs with factory built-in OVP are indicated in the Voltage/Current Rating Chart for each model.

General Specifications: • AC Input: 100/120/220/240 VAC +10%, -13%. 47-63 Hz. Tolerance for 230 VAC operation is +15%, -10%. Factory wired for 120V operation. • DC Output: Adjustment range ±5% minimum. Voltage non-adjustable on "3 terminal regulator" outputs. • Line Regulation: ± .05% for a 10% line change. Exceptions: ±.01% for F, G case models, ±0.5% for all other outputs using "3 terminal regulators" • Load Regulation: ±.05% for a 50% load change. Exceptions: ±.02% for F, G case models, ±0.5% for all other outputs using "3 terminal regulators" • Output Ripple: 5V through 15V models: 5.0 mV PK-PK maximum. (3.0 mV PK-PK maximum for F, G case models). 24V through 250V models: 3.0 mV PK-PK plus .02% of output voltage, maximum. All "3 terminal regulator" outputs: 0.2% PK-PK maximum. • Overvoltage Protection: Provided on 5V outputs where indicated. Set at 6.2V ±0.4%. Other outputs use optional overvoltage protectors OVP12 and OVP24. • Operating Temperature: 0°C to 50°C full rated, derated linearly to 40% at 70°C. • Efficiency: 5V outputs — 45%, 12V and 15V outputs — 55%, 24V through 250V outputs — 60%. • Master/Slave Operation: Provided on F, G models only. For parallel operation of up to 6 units.

Safety Specifications: All models exceed the following safety standards — Leakage Current Line to Ground (max.): 0.05 mA. • Dielectric Withstand Voltage (min.): Input to Ground — 3750VRMS, Input to Outputs — 3750VRMS, Outputs to Ground — 500VDC • 2 year warranty

Overvoltage Protection

Voltage Adjustment Range: 6.4 - 33VDC		
Maximum Current Rating		
Model	Intermittent	Continuous
OVP-12	12.0A	8.0A
OVP-24	30.0A	20.0A

Dimensions Height	Width	Thickness	Digi-Key Part No.	Price Each 1	10	25	power-one Part No.
1.50"	1.55"	0.56"	PW9988-ND	9.73	9.44	9.24	OVP-12
2.00"	2.75"	0.77"	PW9989-ND	16.20	15.71	15.39	OVP-24

OVP SELECTION GUIDE		
Model	Case Size	OVP Modules Required
Single Output	B, C, N, D	(1) OVP-12
	E, F	(1) OVP-24
Dual Output	AA, B, BB, CC	(1) OVP-12 protects both outputs
	E	(1) OVP-24 protects both outputs
Triple Output	AA, BAA, D, CBB 131, DBB, DCC	(1) OVP-12 protects both 12V through 15V outputs
Peak Current Models	PW9935-ND	(1) OVP-12 protects any output not provided with built-in OVP

International Series Single Output

Voltage/ Current	Case Size	Digi-Key Part No.	Price Each 1	10	25	50	power-one Part No.
5V @ 1.5A*	B	PW9941-ND	34.66	33.62	32.92	31.19	HA5-1.5/OVP-A
5V @ 3A†*	B	PW9953-ND	36.56	35.46	34.73	32.99	HB5-3/OVP-A
5V @ 6A†*	C	PW9962-ND	57.42	55.70	54.86	51.66	HC5-6/OVP-A
5V @ 9A†*	N	PW9986-ND	78.32	75.97	74.40	70.49	HN5-9/OVP-A
5V @ 12A†*	D	PW9973-ND	88.77	86.11	84.33	79.89	HD5-12/OVP-A
5V @ 18A†*	E	PW9981-ND	131.00	127.07	124.45	117.89	HE5-18/OVP-A
5V @ 25A†*	F	PW9938-ND	184.51	178.97	175.29	166.06	F5-25/OVP-A
12V @ 0.9A**	B	PW9939-ND	32.13	31.16	30.51	28.90	HA15-0.9-A
12V @ 1.7A†	B	PW9947-ND	34.43	33.40	32.71	30.99	HB12-1.7-A
12V @ 3.4A†	C	PW9958-ND	52.20	50.63	49.59	46.98	HC12-3.4-A
12V @ 5.1A†	N	PW9982-ND	73.10	70.90	69.44	65.78	HN12-5.1-A
12V @ 6.8A†	D	PW9968-ND	83.55	81.04	79.37	75.20	HD12-6.8-A
12V @ 10.2A†	E	PW9977-ND	114.90	111.45	109.15	103.41	HE12-10.2-A
12V @ 16A†**	F	PW9936-ND	184.51	178.97	175.29	166.06	F15-15-A
15V @ 1.5A†	B	PW9948-ND	35.64	34.58	33.86	32.07	HB15-1.5-A
15V @ 3A†	C	PW9959-ND	52.20	50.63	49.59	46.98	HC15-3-A
15V @ 4.5A†	N	PW9983-ND	73.10	70.90	69.44	65.78	HN15-4.5-A
15V @ 6A†	D	PW9969-ND	83.55	81.04	79.37	75.20	HD15-6-A
15V @ 9A†	E	PW9978-ND	114.90	111.45	109.15	103.41	HE15-9-A
24V @ 0.5A**	B	PW9940-ND	34.66	33.62	32.92	31.19	HA24-0.5-A
24V @ 1.2A†	B	PW9950-ND	36.35	35.26	34.53	32.70	HB24-1.2-A
24V @ 2.4A†	C	PW9960-ND	52.20	50.63	49.59	46.98	HC24-2.4-A
24V @ 3.6A†	N	PW9984-ND	73.10	70.90	69.44	65.78	HN24-3.6-A
24V @ 4.8A†	D	PW9970-ND	83.55	81.04	79.37	75.20	HD24-4.8-A
24V @ 7.2A†	E	PW9979-ND	114.90	111.45	109.15	103.41	HE24-7.2-A
24V @ 12A†**	F	PW9937-ND	184.51	178.97	175.29	166.06	F24-12-A
28V @ 1A†	B	PW9951-ND	36.35	35.26	34.53	32.70	HB28-1-A
28V @ 2A†	C	PW9961-ND	52.20	50.63	49.59	46.98	HC28-2-A
28V @ 3A†	N	PW9985-ND	73.10	70.90	69.44	65.78	HN28-3-A
28V @ 4A†	D	PW9971-ND	83.55	81.04	79.37	75.20	HD28-4-A
48V @ 0.5A	B	PW9952-ND	41.83	40.58	39.73	37.65	HB48-0.5-A
48V @ 3A†	D	PW9972-ND	88.77	86.11	84.33	79.89	HD48-3-A
48V @ 4A†	E	PW9980-ND	125.35	121.59	119.09	112.82	HE48-4-A
175-210V @ 0.12A	B	PW9949-ND	46.97	45.55	44.61	43.29	HB200-0.12-A

* Overvoltage protection provided. Set at 6.2V ±0.4V. **Adjustable outputs: F15-15-A: 12-15V, F24-12-A: 24-28V, HA24-0.5-A: 24-28V † Remote sense provided

Case Size

Case	Overall Size	Weight
CBB	11.00" x 4.87" x 3.28"	8 Lbs
D	9.00" x 4.87" x 3.28"	7.5 Lbs
DBB	14.25" x 4.87" 3.38"	11 Lbs
DCC	15.00" x 4.88" x 4.55"	12 Lbs
E	14.00" x 4.87" x 3.53"	10 Lbs
F	16.75" x 4.88" x 5.00"	19 Lbs
AA	6.50" x 4.00" x 2.10"	2.5 Lbs
B	4.87" x 4.00" x 2.10"	2.2 Lbs

Case	Overall Size	Weight
BB	7.00" x 4.87" x 2.95"	4.4 Lbs
BAA	10.25" x 4.00" x 2.95"	5 Lbs
C	5.62" x 4.87" x 2.95"	4.25 Lbs
CC	9.38" x 4.87" x 3.28"	7 Lbs
N	7.00" x 4.87" x 3.20"	6 Lbs
CP131	11.00" x 4.87" x 3.20"	9 Lbs
NRG275	9.00" x 5.00" x 2.50"	3 Lbs

International Series Dual Output

Output #1	Output #2	Case Size	Digi-Key Part No.	Price Each 1	10	25	50	power-one Part No.
+12V @ 0.4A§	-12V @ 0.4A§	B	PW9945-ND	38.61	37.46	36.68	34.76	HAD12-0.4-A
+15 @ 0.4A§	-15V @ 0.4A§	B	PW9946-ND	38.61	37.46	36.68	34.76	HAD15-0.4-A
+12V @ 1A or +15V @ 0.8A†	-12V @ 1A or -15V @ 0.8A or -5V @ 0.4A†	AA	PW9942-ND	44.88	43.53	42.64	40.39	HAA15-0.8-A
+12V @ 1.7A or +15V @ 1.5A†	-12V @1.7A or -15V @ 1.5A or -5V @ 0.7A†	BB	PW9955-ND	57.42	55.70	54.86	51.69	HBB15-1.5-A
+12V @ 3.4A or +15V @ 3A†	-12V @ 3.4A or -15V @ 3A†	CC	PW9965-ND	91.91	89.15	87.62	82.72	HCC15-3-A
+12V or 15V @ 5A†	(-)12V or 15V @ 5A†	E	PW9976-ND	135.80	131.72	129.01	122.22	HDD15-5-A
+18-20V @ 0.4A or +24V @ 0.6A	(-)18-20V @ 0.4A or -24V @ 0.6A	AA	PW9943-ND	48.46	47.00	46.04	43.62	HAA24-0.6-A
+18-20V @ 0.9A or +24V @ 1.2A	(-)18-20V @ 0.9A or -24V @ 1.2A	BB	PW9956-ND	57.42	55.70	54.86	52.20	HBB24-1.2-A
+18-20V @ 1.8A or +24V @ 2.4A†	(-)18-20V @ 1.8A or -24V @ 2.4A†	CC	PW9966-ND	91.91	89.15	87.62	82.72	HCC24-2.4-A
5V @ 2A*x	12-15V @ 0.5A	AA	PW9944-ND	52.20	50.63	49.59	46.98	HAA512-A
5V @ 3A*x†	12-15V @ 1.25A†	BB	PW9957-ND	62.65	60.77	59.51	56.38	HBB512-A
5V @ 6A*x†	12-15V @ 2.5A†	CC	PW9967-ND	99.22	96.24	94.29	89.30	HCC512-A
+5V @ 2A*	+12V @ 4A	N	PW9935-ND	83.55	81.04	79.37	75.19	CP323-A

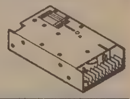
* Overvoltage protection provided. Set at 6.2V ±0.4%. † Remote sense provided. x Isolated outputs, can be referenced as + or -. § Non-adjustable 3 terminal regulator.

International Series Triple Output

Output #1	Output #2	Output #3	Case Size	Digi-Key Part No.	Price Each 1	10	25	50	power-one Part No.
5V @ 2A*x	+12 to 15V @ 0.4A	(-)12 to 15V @ 0.4A or -5V @ 0.4A	AA	PW9987-ND	57.42	55.70	54.55	51.69	HTAA-16W-A
5V @ 3A*†x	+12V @ 1A or +15V @ 0.8A†	(-)12 @ 1A or -15V @ 0.8A or -5V @ 0.4A†	BAA	PW9954-ND	79.37	76.99	75.41	71.43	HBAA-40W-A
+5V @ 6A*†	+12 to 15V @1.0A	(-)12 to 15V @ 1A or -5V @ 0.4A	D	PW9963-ND	94.00	91.18	89.30	84.54	HCAA-60W-A
5V @ 6A*†x	+12V @ 1.7A or +15V @ 1.5A†	-12V @ 1.7A or -15V @ 1.5A or -5V @ 0.7A†	CBB	PW9964-ND	109.67	106.38	104.16	98.71	HCBB-75W-A
5V @ 8A*†x	+12V @ 1.7A or +15V @ 1.5A†	-12V @ 1.7A or -15V @ 1.5A or -5V @ 0.7A†	131	PW9934-ND	125.35	121.59	119.08	112.82	CP131-A
5V @ 12A*†x	+12V @ 1.7A or +15V @ 1.5A†	-12V @ 1.7A or -15V @ 1.5A or -5V @ 0.7A†	DBB	PW9974-ND	141.02	136.79	133.97	128.92	HDBB-105W-A
5V @ 12A*†x	+12V @ 3.4A or +15V @ 3A†	-12V @ 3.4A or -15V @ 3A†	DCC	PW9975-ND	161.92	157.06	153.82	146.74	HDCC-150W-A

* Overvoltage protection provided. Set at 6.2V ±0.4%. † Remote sense provided. x Isolated outputs, can be referenced as + or -

NRG Series Mid Power



Features: • Minimum Loads: The following minimum loads are required on the main output to maintain regulation: NRG275 - 3.5A, NRG350 - 3.5A. • Remote Sensing: Provided onthe main output. • Overload Protection: Entire unit hiccups if V1-V3 is overloaded. V4 is self limiting. • Load Regulations = ±1% • Outputs 1 and 2 are positive polarity. Outputs 3 and 4 are floating and can be referenced as either + or -. **Dimensions:** • Overall Size: 9.00" x 5.00" x 2.50" • Weight: 3 Lbs

Output #1	Adjustment Range	Output #2	Adjustment Range	Output #3	Adjustment Range	Output #4	Adjustment Range	Digi-Key Part No.	Price Each 1	10	25	50	power-one Part No.
+5V @ 3.5-25A	4.75-5.3V	+12V @ 10A/16APK	11.4-12.6V	12V @ 6A	11.4-12.6V	5V @ 2A	5-6V	PW9990-ND	343.75	330.00	316.25	288.75	NRG275-4000
+5V @ 3.5-25A	4.75-5.3V	+12V @ 10A/16APK	11.4-12.6V	12V @ 6A	11.4-12.6V	12V @ 2A	11.8-15.5V	PW9991-ND	343.75	330.00	316.25	288.75	NRG275-4001
+5V @ 3.5-25A	4.75-5.3V	+12V @ 10A/16APK	11.4-12.6V	12V @ 6A	11.4-12.6V	24V @ 2A	19-25V	PW9992-ND	343.75	330.00	316.25	288.75	NRG275-4002
+5V @ 3.5-35A	4.75-5.3V	+12V @ 10A/16APK	11.4-12.6V	12V @ 6A	11.4-12.6V	5V @ 3A	5-6V	PW9993-ND	420.00	402.01	385.01	350.00	NRG350-4000
+5V @ 3.5-35A	4.75-5.3V	+12V @ 10A/16APK	11.4-12.6V	12V @ 6A	11.4-12.6V	12V @ 3A	11.8-15.5V	PW9994-ND	420.00	402.01	385.01	350.00	NRG350-4001
+5V @ 3.5-35A	4.75-5.3V	+12V @ 10A/16APK	11-13V	12V @ 6A	11-13V	24V @ 3A	19.25V	PW9995-ND	420.00	402.01	385.01	350.00	NRG350-4002

POWER SWITCH CORP

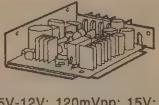
Single-Output PL Open Frame Linear Power Supplies

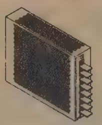
Outputs VDC	Amps @40°C	Dimensions (in.) L	W	H	Digi-Key Part No.	Price Each 1	5	10	Mfg. Part No.
15	1.5	5.62	4.87	1.62	PS003-ND	31.92	30.60	30.00	PLS-15-1.5/OVP

FEATURES: • Tight regulation. • Fast response time. • Dual input range standard. • Full output rating to +50°C. • Remote sensing standard. • Foldback current limiting with automatic recovery. • Built-in OVP on 5V models. • UL recognized component. • VDE transformer available. • Shock and vibration to MIL-STD-810C. • 100% Burn-in before shipment. • One year warranty. **SPECIFICATIONS:** • AC Input Voltage: 103.5-126.5/207-253VAC. • AC Input Frequency: 47-440Hz (Derate output by 10% for 50Hz operation). • DC Output Adjustment: Full load; ±5% minimum. • Line Regulation: Within specified AC limits; ±0.02%. • Load Regulation: 50% load change; ±0.02%. • Ambient Operating Temperature: Continuous duty, full rating, derate linearly to 40% at 70°C; 0°C to +50°C, +50°C to +70°C. • Short Circuit Protection: Foldback type, automatic recovery; factory set. • Weight: 2 lbs.

TOKO
TOKO AMERICA,INC.

PS SERIES





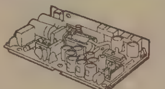
General Specifications: • **Input Voltage:** 85-135 VAC or 110-175 VDC • **Frequency Range:** 47-440 Hz • **Inrush Current:** PS10; 20A; PS15: 25A • **Ripple Voltage (max.):** 5V-12V: 120mVpp; 15V: 150mVpp; 24V: 200mVpp: • **Overall Output Req.:** 3% • **Overload Protection:** +105% of rated current, automatic recovery • **Efficiency:** 50% • **Dielectric Strength:** 1500 VAC for 1 minute applied between input/output and input/frame; leakage current less than 10mA • **Insulation Resistance:** + 100mΩ between output frame, measured with a 500 VDC tester • **Operating Temperature:** 0° to +60°C • **Operating Humidity:** 30% to 85% RH • **Weight:** PS10: 210g (.46 lb.); PS15: 220g (.485 lb.); PS30: 330g (.73 lb.); PS50: 410g (.9 lb.); PS100: 880g (1.95 lb.).

Input Voltage	Output Voltage(s) (V)	Output Current (A)	Dimensions (mm) H x D x W	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
Output Power — 10 Watts — Open Case								
110	5	2.0	26 x 97 x 90	TS9950-ND	54.30	497.79	4561.58	PS10-05F
110	12	0.9	26 x 97 x 90	TS9951-ND	54.30	497.79	4561.58	PS10-12F
110	15	0.7	26 x 97 x 90	TS9952-ND	54.30	497.79	4561.58	PS10-15F
110	24	0.5	26 x 97 x 90	TS9953-ND	54.30	497.79	4561.58	PS10-24F
Output Power — 10 Watts — Enclosed Case								
110	5	2.0	26 x 97 x 90	TS9900-ND	58.03	531.92	4874.31	PS10-05C
110	12	0.9	26 x 97 x 90	TS9899-ND	58.03	531.92	4874.31	PS10-12C
110	15	0.7	26 x 97 x 90	TS9898-ND	58.03	531.92	4874.31	PS10-15C
110	24	0.5	26 x 97 x 90	TS9897-ND	58.03	531.92	4874.31	PS10-24C
Output Power — 15 Watts — Open Case								
110	5	3.0	32 x 97 x 90	TS9955-ND	58.90	539.94	4947.77	PS15-05F
110	12	1.3	32 x 97 x 90	TS9956-ND	58.90	539.94	4947.77	PS15-12F
110	15	1.0	32 x 97 x 90	TS9957-ND	58.90	539.94	4947.77	PS15-15F
110	24	0.7	32 x 97 x 90	TS9958-ND	58.90	539.94	4947.77	PS15-24F
Output Power — 15 Watts — Enclosed Case								
110	5	3.0	32 x 97 x 90	TS9896-ND	62.85	576.08	5279.02	PS15-05C
110	12	1.3	32 x 97 x 90	TS9895-ND	62.85	576.08	5279.02	PS15-12C
110	15	1.0	32 x 97 x 90	TS9894-ND	62.85	576.08	5279.02	PS15-15C
110	24	0.7	32 x 97 x 90	TS9893-ND	62.85	576.08	5279.02	PS15-24C
Output Power — 30 Watts — Open Case								
110	5	5.5	35 x 120 x 97	TS9938-ND	71.60	656.36	6014.61	PS30-05F
110	12	2.5	35 x 120 x 97	TS9939-ND	71.60	656.36	6014.61	PS30-12F
110	15	2.0	35 x 120 x 97	TS9940-ND	71.60	656.36	6014.61	PS30-15F
110	24	1.3	35 x 120 x 97	TS9941-ND	71.60	656.36	6014.61	PS30-24F
Output Power — 30 Watts — Enclosed Case								
110	5	5.5	35 x 120 x 97	TS9892-ND	76.86	704.52	6455.99	PS30-05C
110	12	2.5	35 x 120 x 97	TS9891-ND	76.86	704.52	6455.99	PS30-12C
110	15	2.0	35 x 120 x 97	TS9890-ND	76.86	704.52	6455.99	PS30-15C
110	24	1.3	35 x 120 x 97	TS9889-ND	76.86	704.52	6455.99	PS30-24C
Output Power — 50 Watts— Open Case								
110	5	10.0	38 x 155 x 97	TS9942-ND	99.63	913.28	8368.92	PS50-05F
110	12	4.2	38 x 155 x 97	TS9943-ND	99.63	913.28	8368.92	PS50-12F
110	15	3.4	38 x 155 x 97	TS9944-ND	99.63	913.28	8368.92	PS50-15F
110	24	2.1	38 x 155 x 97	TS9945-ND	99.63	913.28	8368.92	PS50-24F
Output Power — 50 Watts — Enclosed Case								
110	5	10.0	38 x 155 x 97	TS9888-ND	105.11	963.46	8828.82	PS50-05C
110	12	4.2	38 x 155 x 97	TS9887-ND	105.11	963.46	8828.82	PS50-12C
110	15	3.4	38 x 155 x 97	TS9886-ND	105.11	963.46	8828.82	PS50-15C
110	24	2.1	38 x 155 x 97	TS9885-ND	105.11	963.46	8828.82	PS50-24C
Output Power — 100 Watts — Open Case								
110*	5	20.0	50 x 209 x 97	TS9946-ND	174.74	1601.75	14677.87	PS100-05F
110*	12	8.3	50 x 209 x 97	TS9947-ND	174.74	1601.75	14677.87	PS100-12F
110*	15	6.6	50 x 209 x 97	TS9948-ND	174.74	1601.75	14677.87	PS100-15F
110*	24	4.2	50 x 209 x 97	TS9949-ND	174.74	1601.75	14677.87	PS100-24F
Output Power — 100 Watts — Enclosed Case								
110*	5	20.0	50 x 209 x 97	TS9884-ND	180.65	1655.94	15174.43	PS100-05C
110*	12	8.3	50 x 209 x 97	TS9883-ND	180.65	1655.94	15174.43	PS100-12C
110*	15	6.6	50 x 209.x 97	TS9882-ND	180.65	1655.94	15174.43	PS100-15C
110*	24	4.2	50 x 209 x 97	TS9881-ND	180.65	1655.94	15174.43	PS100-24C

* AC Input voltage only

TS9917-ND	Cable Kit AC Input PS10/15/30/50 Series	**$2.85**
TS9912-ND	Cable Kit DC Output PS10/15/30 Series	**$6.13**
TS9911-ND	Cable Kit DC Output PS 50 Series	**$6.57**
9139B-ND	Toko Coils & Filter Catalog	**$9.95**
9140B-ND	Toko Power Supplies & DC-DC Converter Catalog	**$9.95**

MW SERIES Switching Power Supplies

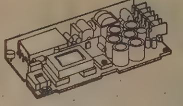


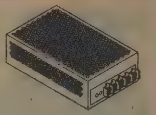
General Specifications: • **Frequency Range:** 47-63Hz • **Inrush Current:** 30A • **Ripple Voltage (max.):** 100mVpp • **Overall Output Reg.:** 2% max. • **Overload Protection:** Effective at ° 105% of rated current, automatic recovery • **Efficiency:** 65% • **Dielectric Strength:** 3.750 VAC for 1 minute applied between input/output and input/frame, leakage less than 10mA • **Insulation Resistance:** +100mΩ between output frame, measured with a 500 VDC tester • **Operating Temperature:** -10 ~ 60°C • **Operating Humidity:** 30 ~ 85% RH • **Weight:** MW15: 150g (.33 lb.); MW30: 230g (0.5 lb.); MW50: 330g (.73 lb.); MW100: 1,000g (2.2 lb.) • **Safety Standards:** UL478 CSA C22.2, No. 143, 154; MW100: Designed to meet VDE, IEC 950, CSA C22.2, No.143, 154, applicable to UL478, 1419 • **Noise Standards:** Meets FCC Class B.

Input Voltage (AC)	Output Voltage(s) (V)	Output Current (A)	Dimensions (mm) H x D x W	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
Output Power — 15 Watts								
85-264	+5, +12, –12 +5, +15, –15	3, 0.5, 0.5 3, 0.5, 0.5	25 x 110 x 60	TS9969-ND TS9970-ND	83.65 83.65	766.76 766.76	7026.26 7026.26	MW15-01 MW15-11
Output Power — 30 Watts								
85-264	+5, +12, –12 +5, +15, –15	5, 1.2, 0.5 5, 1.2, 0.5	25 x 150 x 60	TS9971-ND TS9972-ND	119.78 119.78	1097.95 1097.95	10061.23 10061.23	MW30-01 MW30-11
Output Power — 50 Watts								
85-132/ 170-264 Dual	+5, +12, –12 +5, +15, –15 +5, +12, –5	8, 1.5, 1.0 8, 1.5, 1.0 8, 1.5, 1.0	25 x 155 x 95	TS9973-ND TS9974-ND TS9975-ND	169.26 169.26 169.26	1551.56 1551.56 1551.56	14217.97 14217.97 14217.97	MW50-01 MW50-11 MW50-21
Output Power — 100 Watts								
85-132/ 170-264 Dual	+5, +24, +12, –12 +5, +12, +12, –12 +5, +12, –12	12, 2, 2, 1 12, 2, 2, 1 12, 2, 2	40 x 210 x 120 40 x 210 x 120 40 x 210 x 120	TS9976-ND TS9977-ND TS9978-ND	309.40 309.40 309.40	2836.19 2836.19 2836.19	25989.77 25989.77 25989.77	MW100-01 MW100-02 MW100-03

TS9915-ND	Cable Kit AC Input MW Series	**$4.60**
TS9908-ND	Cable Kit DC Output MW15 Series	**$7.88**
~~TS9907-ND~~	Cable Kit DC Output MW30/50 Series	**$9.85**
TS9906-ND	Cable Kit DC Output MW100 Series	**$7.88**

SW SERIES





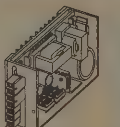
Features: • Very low profile and small size • Wide Variation: 7 type 94 part number • Worldwide Input Voltage: all type 85VAC ~ 264VAC (continuous) • High Dialectic Strength: 2000VAC between input & output • Safety Standards: Designed to meet UL1950(D3).
General Specifications: • **Frequency Range:** 47-63 Hz • **Inrush Current:** 5V-15V = 30/60A; 30V-100V = 45/90A • **Ripple Voltage (max.):** 5V-12V: 120mVpp; 15V: 150mVpp; 24V: 200mVpp; 48V: 400mVpp: • **Overall Output Req.:** 3% • **Overload Protection:** +105% of rated current, automatic recovery • **Dielectric Strength:** 2.0KVAC for 1 minute applied between input/output. • **Insulation Resistance:** 100mΩ between output/frame and input/output, measured with a 500 VDC tester • **Operating Temperature:** 0° to +60°C • **Operating Humidity:** 30% to 85% RH • **Weight:** SW05: 50g; ,SW10: 60g; SW15: 220g; SW30: 250g; SW50: 400g; SW75: 550g; SW100: 600g.

Input Voltage (Vac)	Output Voltage(s) (V)	Output Current (A)	Dimensions (mm) H x D x W	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
Output Power — 5 Watts — Open Frame								
85-264	5	1.0	50 x 65 x 18	TS9983-ND	40.29	369.33	3384.36	SW05-05PC
85-264	12	.42	50 x 65 x 18	TS9984-ND	40.29	369.33	3384.36	SW05-12PC
Output Power — 10 Watts — Open Frame								
85-264	5	2.0	65 x 70 x 18	TS9985-ND	46.64	427.53	3917.72	SW10-05PC
85-264	12	.83	65 x 70 x 18	TS9986-ND	46.64	427.53	3917.72	SW10-12PC
85-264	15	.67	65 x 70 x 18	TS9987-ND	46.64	427.53	3917.72	SW10-15PC
85-264	24	.42	65 x 70 x 18	TS9988-ND	46.64	427.53	3917.72	SW10-24PC
Output Power — 15 Watts — Open Frame								
85-264	5	3.0	97 x 80 x 25.4	TS9989-ND	65.91	604.18	5536.44	SW15-05F
85-264	12	1.3	97 x 80 x 25.4	TS9990-ND	65.91	604.18	5536.44	SW15-12F
85-264	15	1.0	97 x 80 x 25.4	TS9991-ND	65.91	604.18	5536.44	SW15-15F
85-264	24	.63	97 x 80 x 25.4	TS9992-ND	65.91	604.18	5536.44	SW15-24F
Output Power — 15 Watts — Enclosed Frame								
85-264	5	3.0	97 x 80 x 25.4	TS9880-ND	70.29	644.31	5904.23	SW15-05C
85-264	12	1.3	97 x 80 x 25.4	TS9879-ND	70.29	644.31	5904.23	SW15-12C
85-264	15	1.0	97 x 80 x 25.4	TS9878-ND	70.29	644.31	5904.23	SW15-15C
85-264	24	0.63	97 x 80 x 25.4	TS9877-ND	70.29	644.31	5904.23	SW15-24C
Output Power — 30 Watts — Open Frame								
85-264	5	6.0	97 x 114 x 25.4	TS9993-ND	92.62	849.05	7780.37	SW30-05F
85-264	12	2.5	97 x 114 x 25.4	TS9994-ND	92.62	849.05	7780.37	SW30-12F
85-264	15	2.0	97 x 114 x 25.4	TS9995-ND	92.62	849.05	7780.37	SW30-15F
85-264	24	1.33	97 x 114 x 25.4	TS9996-ND	92.62	849.05	7780.37	SW30-24F
Output Power — 30 Watts — Enclosed Frame								
85-264	5	6.0	97 x 114 x 25.4	TS9876-ND	91.75	841.01	7706.66	SW30-05C
85-264	12	2.5	97 x 114 x 25.4	TS9875-ND	91.75	841.01	7706.66	SW30-12C
85-264	15	2.0	97 x 114 x 25.4	TS9874-ND	91.75	841.01	7706.66	SW30-15C
85-264	24	1.33	97 x 114 x 25.4	TS9873-ND	91.75	841.01	7706.66	SW30-24C
Output Power — 50 Watts — Open Frame								
85-264	5	10.0	97 x 158 x 25.4	TS9997-ND	110.58	1013.64	9288.59	SW50-05F
85-264	12	4.2	97 x 158 x 25.4	TS9998-ND	110.58	1013.64	9288.59	SW50-12F
85-264	15	3.4	97 x 158 x 25.4	TS9999-ND	110.58	1013.64	9288.59	SW50-15F
85-264	24	2.1	97 x 158 x 25.4	TS9937-ND	110.58	1013.64	9288.59	SW50-24F
Output Power — 50 Watts — Enclosed Frame								
85-264	5	10.0	97 x 158 x 25.4	TS9872-ND	116.27	1065.82	9766.76	SW50-05C
85-264	12	4.2	97 x 158 x 25.4	TS9871-ND	116.27	1065.82	9766.76	SW50-12C
85-264	15	3.4	97 x 158 x 25.4	TS9870-ND	116.27	1065.82	9766.76	SW50-15C
85-264	24	2.1	97 x 158 x 25.4	TS9869-ND	116.27	1065.82	9766.76	SW50-24C
Output Power — 75 Watts — Open Frame								
85-264	12	6.3	97 x 179 x 30	TS9935-ND	154.59	1417.08	12985.56	SW75-12F
85-264	15	5.0	97 x 179 x 30	TS9934-ND	154.59	1417.08	12985.56	SW75-15F
85-264	24	3.1	97 x 179 x 30	TS9933-ND	154.59	1417.08	12985.56	SW75-24F
85-264	48	1.6	97 x 179 x 30	TS9932-ND	154.59	1417.08	12985.56	SW75-48F
Output Power — 75 Watts — Enclosed Frame								
85-264	12	6.3	97 x 179 x 32	TS9868-ND	161.38	1479.31	13555.84	SW75-12C
85-264	15	5.0	97 x 179 x 32	TS9867-ND	161.38	1479.31	13555.84	SW75-15C
85-264	24	3.1	97 x 179 x 32	TS9866-ND	161.38	1479.31	13555.84	SW75-24C
85-264	48	1.6	97 x 179 x 32	TS9865-ND	161.38	1479.31	13555.84	SW75-48C
Output Power — 100 Watts — Open Frame								
85-264	5	20.0	97 x 194 x 35	TS9931-ND	171.89	1575.65	14438.72	SW100-05F
85-264	12	8.3	97 x 194 x 35	TS9930-ND	171.89	1575.65	14438.72	SW100-12F
85-264	15	6.7	97 x 194 x 35	TS9929-ND	171.89	1575.65	14438.72	SW100-15F
85-264	24	4.2	97 x 194 x 35	TS9928-ND	171.89	1575.65	14438.72	SW100-24F
85-264	48	2 1	97 x 194 x 35	TS9927-ND	171.89	1575.65	14438.72	SW100-48F
Output Power — 100 WattS — Enclosed Frame								
85-264	5	20.0	97 x 194 x 35	TS9864-ND	179.12	1641.90	15045.79	SW100-05C
85-264	12	8.3	97 x 194 x 35	TS9863-ND	179.12	1641.90	15045.79	SW100-12C
85-264	15	6.7	97 x 194 x 35	TS9862-ND	179.12	1641.90	15045.79	SW100-15C
85-264	24	4.2	97 x 194 x 35	TS9861-ND	179.12	1641.90	15045.79	SW100-24C
85-264	48	2.1	97 x 194 x 35	TS9860-ND	179.12	1641.90	15045.79	SW100-48C

TS9913-ND	Cable Kit AC Input SW High Power Series	**$3.94**
TS9914-ND	Cable Kit AC Input SW05/10 Series	**$3.50**
TS9905-ND	Cable Kit DC Output SW05 Series	**$3.50**
TS9901-ND	Cable Kit DC Output SW10 Series	**$5.48**
TS9904-ND	Cable Kit DC Output SW15/30/50 Series	**$6.13**
~~TS9903-ND~~	Cable Kit DC Output SW 75 Series	**$7.23**
TS9902-ND	Cable Kit DC Output SW100 Series	**$7.67**

MK SERIES

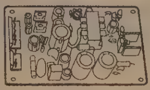
150W Single Output MOSFET Power Supply-Open Frame



Features: • Ultra compact, high power density • High conversion efficiency, 80% typical • Overload and overvoltage protection • Highest grade components for highest reliability • Switching frequency: 150KHz • MK is UL478 approved, designed to meet CSA 22.2/154.
Specifications: • **Input Voltage:** MK: 90 ~ 132VAC, 120 ~ 175VDC • **Input Frequency:** 47 to 440Hz • **Efficiency:** 78 to 82% • Adjustable Output Range: ±10% • **Output Voltage Accuracy:** ±3% • **Overload Protection:** From 105% of rated output (automatic recovery) • **Overvoltage Protection:** Internal, overall cut off method (recovery at switch ON) • **Power ON Indicator:** Red LED on front panel • **Dielectric Test:** 1500VAC 1 min. between input to frame, and input to output (w/o varistor 2000VAC) • **Insulation Resistance:** 100MΩ, min. at 500VDC (input to frame) • **Operating Temperature:** 0 to +60°C.

Inpute Voltage	Output Voltage(s) (V)	Output Current (A)	Dimensions (mm) H x D x W	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
Output Power — 150 Watts								
110	5	30.0	97 x 171 x 59	TS9979-ND	208.02	1906.85	17473.68	MK150-05F
110	12	12.5	97 x 171 x 59	TS9980-ND	208.02	1906.85	17473.68	MK150-12F
110	15	10.0	97 x 171 x 59	TS9981-ND	208.02	1906.85	17473.68	MK150-15F
110	24	6.3	97 x 171 x 59	TS9982-ND	208.02	1906.85	17473.68	MK150-24F

TOKO TOKO AMERICA,INC. Switching Power Supplies ET and EM Series



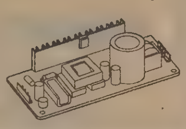
General Specifications:
• **Input Voltage:** ET: 85 ~ 132 VAC; EM: 170 ~ 264 VAC • **Frequency Range:** 47 ~ 440Hz (single phase) • **Inrush Current:** 20A • **Ripple Voltage (max.):** 100mVpp typical • **Overall Output Reg.:** ±5% • **Overload Protection:** 105% of rated current, automatic recovery • **Efficiency:** 65% (typical at 220 VAC input and max. load) • **Dielectric Strength:** 1,500 VAC for 1 min. applied between input/output and input/frame, leakage less than 10mA • **Insulation Resistance:** + 100MΩ between output/frame, measured with a 500V DC tester (25°C, 60% RH) • **Operating Temperature:** 0 to +60°C • **Operating Humidity:** 30 to 85% RH • **Weight:** ET: 100g (.22 lb.); EM10: 100g (.22 lb.); EM15: 120g (.27 lb.).

The power supplies are most suited for installation in equipment due to their small size. The ET and EM Series are designed for 85-132V AC and 170-264V AC use respectively. Both series are available with triple output and with 10 and 15W ratings.

Input Voltage	Output Voltage(s) (V)	Output Current (A)	Dimensions (mm) H × D × W	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
Output Power — 10 Watts								
110	+ 5, + 12, – 12	1, 0.3, 0.1	65 × 112 × 32	TS9960-ND	32.85	301.08	2759.02	ET10-01
110	+ 5, + 12, – 5	1, 0.3, 0.1	65 × 112 × 32	TS9961-ND	32.85	301.08	2759.02	ET10-21
220	+ 5, + 12, – 12	1, 0.3, 0.1	65 × 112 × 32	TS9965-ND	37.88	347.24	3182.00	EM10-01
220	+ 5, + 12, – 5	1, 0.3, 0.1	65 × 112 × 32	TS9966-ND	37.88	347.24	3182.00	EM10-21
Output Power — 15 Watts								
110	+ 5, + 12, – 12	2, 0.3, 0.2	78 × 125 × 35	TS9962-ND	36.57	335.20	3071.63	ET15-01
110	+ 5, + 12, – 5	2, 0.3, 0.2	78 × 125 × 35	TS9963-ND	36.57	335.20	3071.63	ET15-21
220	+ 5, + 12, – 5	2, 0.3, 0.2	78 × 125 × 35	TS9968-ND	41.82	383.38	3513.13	EM15-21

TS9916-ND Cable Kit AC Input ET/EM 10 Series **$3.72**
TS9917-ND Cable Kit AC Input ET/EM 15 Series **$2.85**
TS9909-ND Cable Kit DC Output ET/EM 10 Series **$6.57**
TS9910-ND Cable Kit DC Output ET/EM 15 Series **$6.13**

TOKO TOKO AMERICA,INC. LS SERIES



The LS Series of switching power supplies offers high density and low profile. Worldwide input ratings are covered by the LS Series at 85 - 132 VAC input. The LS Series is especially suited for distributed power architectures where flexibility of output is required. With the addition of Toko DC-DC Converter.

Features: • Low cost • High density • High isolation • Simple structure that is easy to install • Overcurrent protection with safety reset • Overvoltage protection • Ability to operate in series • Input voltage: LS Series input of 120 VAC • Available power: 30W, 50W, and 100W • Available voltage: 5V, 12V, and 24V

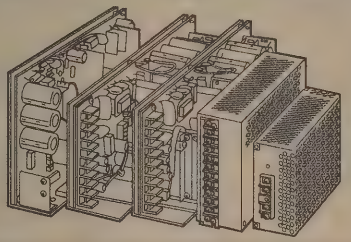
Safety Standard: • Designed to meet UL 1950 (D3) • Designed to meet CSA 22.2 no. 950 (D3)

Noise Standard: • FCC Class A • VCCI Class 1

Input Voltage	Output Voltage(s) (V)	Output Current (A)	Dimensions (mm) H X D X W	Digi-Key Part No.	Pricing 1	10	100	Toko Part No.
Output Power — 30 Watts - Open Frame								
85 - 132	5	6.0	30 x 145 x 50	TS9926-ND	51.46	471.69	4322.43	LS30-05PC
85 - 132	12	2.5	30 x 145 x 50	TS9925-ND	51.46	471.69	4322.43	LS30-12PC
85 - 132	24	1.3	30 x 145 x 50	TS9924-ND	51.46	471.69	4322.43	LS30-24PC
Output Power — 50 Watts - Open Frame								
85 - 132	5	10.0	32 x 190 x 55	TS9923-ND	57.92	530.90	4864.99	LS50-05PC
85 - 132	12	4.2	32 x 190 x 55	TS9922-ND	57.92	530.90	4864.99	LS50-12PC
85 - 132	24	2.1	32 x 190 x 55	TS9921-ND	57.92	530.90	4864.99	LS50-24PC
Output Power — 100 Watts - Open Frame								
85 - 132	5	20.0	37 x 220 x 65	TS9920-ND	98.65	904.26	8286.26	LS100-05PC
85 - 132	12	8.3	37 x 220 x 65	TS9919-ND	98.65	904.26	8286.26	LS100-12PC
85 - 132	24	4.2	37 x 220 x 65	TS9918-ND	98.65	904.26	8286.26	LS100-24PC

TS9915-ND Cable Kit AC Input LS Series **$4.60**
TS9904-ND Cable Kit DC Output LS30/50 Series **$6.13**
TS9902-ND Cable Kit DC Output LS100 Series **$7.67**

Panasonic. Power Switching Supplies



Power (W)	Output Voltage (V)	Output Current (A)	Dimensions (inches) L x W x H	Digi-Key Part No.	Price* 1	Panasonic Part No.
K Series — Closed Frame						
50	15	3.4	6.26 x 3.74 x 1.46	PS9961-ND	101.40	ETU-15K34
V Series — Open Frame						
30	15	2.0	6.69 x 3.94 x 1.77	PS9918-ND	87.75	ETU-15V20
30	24	1.3	6.69 x 3.94 x 1.77	PS9919-ND	87.75	ETU-24V13
60	5	12.0	8.07 x 3.94 x 2.17	PS9920-ND	117.00	ETU-5V120
60	12	5.0	8.07 x 3.94 x 2.17	PS9921-ND	117.00	ETU-12V50
100	5	20.0	7.87 x 4.75 x 2.25	PS9924-ND	204.75	ETU-5V200

*Call for special pricing on five or more units.

30 W (Series V)

Electrical Specifications: Input Voltage: 85-132VAC or 170-264VAC, 240V-360VDC. **Input Current:** 1.0A typ., 0.6A typ. **Efficiency:** 65% typ. (±5V), 75% typ. (others). **Output Voltage Adjustment Range:** ±10%. **Load Regulation:** 0.5% max. **Ripple and Noise:** 1% (p-p) max. **Overcurrent Protection:** 120% typ. **Radiated Noise:** FCC Class B. **Operating Temperature:** 0-50° C.

30 & 50 W (Series K)

Electrical Specifications: Input Voltage: 85-132VAC; 47-440Hz; 120-180VDC. **Input Current:** 0.4A typ. (15W); 0.8A typ. (30W); 1.1A typ. (50W). **Efficiency:** 5V unit: 75% typ. (50W); others: 80% typ. (50W). **Output Voltage Adjustment Range:** 4.5-5.5V (5V), 10.8-13.2 (12V), 13.5-16.5V (15V), 21.6-26.4 (24V). **Load Regulation:** 15W: 3% (10%-100% rated output); 15W: 5% (0%-10% rated output); 30W, 50W: 0.8% (0%-100% rated output). **Ripple and Noise:** 5V unit: 120mV, p-p; other outputs; 1%, ripple ◀ 40kHz ◀ noise. **Overcurrent Protection:** 120%. **Overvoltage Protection:** 130%. **Radiated Noise:** FCC Class B limits. **Operating Temperature:** 0-40° C.

60 W (Series V)

Electrical Specifications: Input Voltage: 85-132VAC or 170-264VAC, 240V-360VDC. **Input Current:** 1.9A typ., 1.0A typ. **Efficiency:** 65% typ. (+5V model), 75% typ. (All others). **Output Voltage Adjustment Range:** ±10%. **Load Regulation:** 0.5% max. **Ripple and Noise:** 1% +75 mV (p-p) max. **Overcurrent Protection:** 120% typ. **Overvoltage Protection:** 130% typ. **Radiated Noise:** FCC Class A. **Operating Temperature:** 0-50° C.

100 W (Series V)

Electrical Specifications: Input Voltage: 85-132VAC or 170-264VAC, 240V-360VDC. **Input Current:** 2.8A typ., 1.5A typ. **Efficiency:** 70% typ. (5V model), 75% typ. (All others). **Output Voltage Adjustment Range:** ±5%. **Load Regulation:** 0.5% max. **Ripple and Noise:** 1% + 75 mV (p-p) max. **Overcurrent Protection:** 120% typ. **Overvoltage Protection:** 130% typ. **Radiated Noise:** FCC Class A, VDE Class A. **Operating Temperature:** 0-50° C.

Panasonic. Multiple Output Switching Power Supplies — Open Frame

All Multiple Output Supplies Must Have Main Outputs Loaded To Operate.

MN & MP Series

Features:
● Dual input (user selectable) ● Minimum 50kHz switching frequency ● Open frame construction ● Up to 4 outputs ● 50°C operating temperature (w/o derating, convection cooled) ● Over voltage protection ● Over current limiting ● Power valid signal ● Safety approval UL, TUV ● Noise regulations-FCC class B minimum ● PS9937-PS9939: FCC-class B ● PS9940: VDE-class D

Electrical & Mechanical Specifications:
Input Voltage: 120V or 240V is jumper selectable on the PWB, 85-132VAC or 170-264VAC, 47-440 Hz. **Input Current:** 120VAC input, 1.2A typ.; 240VAC input, 0.7A typ. **Efficiency:** 66% typ. **Output Voltage Adjustment Range:** ±5%. **Load Regulation:** 4% overall. **Drift:** 0.2% typ. **Ripple & Noise:** 1% max. **Over Current Protection:** Yes. **Over Voltage Protection:** Yes. **Operating Temperature:** 0-50°C.

MR Series

Features:
● Dual input (jumper selectable) ● 4 outputs ● Printed circuit board construction ● Recognized by UL114.478, approved by TUV (for VDE 0806) ● Designed to conform to IEC380 (class 1), BS5850 (class 1) ● Operating frequency 100kHz ● FET circuitry ● Noise regulation, FCC Class B, VDE Class B

Electrical Specifications:
Input Voltage: 85-132VAC or 170-264VAC, 47-440Hz. **Input Current:** 1.8A typ., 1.0A typ. **Efficiency:** 70% typ. **Ripple and Noise:** 1% max. (p-p). **Overcurrent Protection:** Standard. **Overvoltage Protection:** 130% typ. **Radiated Noise:** FCC Class B, VDE Class B. **Operating Temperature:** 0-50°C.

Power (W)	Series	Main Output	Auxiliary Output	Dimensions (in.) L x W x H	Digi-Key Part No.	Price*	Panasonic Part No.
40	MN	+5V 3A	+12V 2A, –12V .1A	6.30x3.90x2.06	PS9937-ND	76.05	ETU-3MNO4UP
50	MP	+5V 6A	–5V .5A, +12V 2.5A, –12V .5A	7.75x4.25x1.75	PS9940-ND	136.50	ETU-4MPO3UP
75	MR	+5V 7A	+12V 3A, –12V .5A, +12V 2A	7.76x4.25x2.19	PS9911-ND	201.24	ETU-4MRO3UP
100	MS	+5V 12A	+24V 1.5A, –12V .5A, +12V 2A	8.25x4.50x2.18	PS9912-ND	202.80	ETU-4MSO7UP

*Call for special pricing on five or more units.

MS Series

Features:
● Dual input (jumper selectable) ● 4 outputs ● Printed circuit board construction ● Recognized by UL114.478, approved by TUV (for VDE 0806) ● Designed to conform to IEC380 (Class 1), BS5850 (Class 1) ● Operating frequency 100kHz ● FET circuitry ● Noise regulation. FCC Class B, VDE Class B

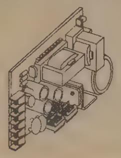
Electrical Specifications:
Input Voltage: 85-132VAC or 170-264VAC, 47-440Hz. **Input Current:** 2.4A typ., 1.4A typ. **Efficiency:** 70% typ. **Ripple and Noise:** 1% max. (p-p). **Overcurrent Protection:** Standard. **Overvoltage Protection:** 130% typ. **Radiated Noise:** FCC Class B, VDE Class B. **Operating Temperature:** 0-50°C.

Volgen

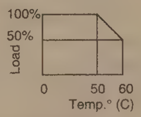
Enclosed Switching Power Supplies

SXU SERIES

Models: 15W, 30W, 50W, 100W & 150W



Derating Temperature:



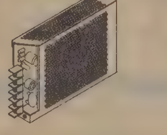
Features:
• AC Input for U.S. & Canada (AC85-132V) • Safety Approvals: UL 1950, CSA22.2 No. 234 • EMI: FCC Class "B", CISPR-B, VCCI-2 • Built-in Overvoltage/Overcurrent Protection • Operating Temperature: 0 - 50°C • Metal Chassis with Cover • Compact, Low-Profile Packages • One Year Factory Warranty.

General Specifications:
• **Input Frequency:** 50/60Hz (47~63 Hz) • **Output Adjust Range:** ±10% • **Over Voltage Protection:** Zener Limiter (Output Shutdown: for 50, 100 and 150 Models). • **Over Current Protection:** Over 105% (Automatic Recovery). • **Temperature Coefficient:** 0.02% / °C • **Drift:** 0.5% +15 mV max. / 8 hour (after 1 hour). • **Rise Time:** 100 mS max. (at 25°C nominal input/output) & 300 mS max. for 100 &150 Models • **Hold-Up Time:** 20mS (typical) • **Storage Temperature:** Temperature: -20 - 85°C. • Humidity: 20-85% RH (Non Condensing) • **Dielectric Withstanding Voltage:** Models 15W, 30W & 50W: Primary - Secondary: AC 2000V / 1 min., Primary Case: AC 2000V / 1 min., Secondary Case: AC 500V / 1 min. Models 100W & 150W: Primary - Secondary: AC 2000V / 1 min., Primary Case: AC 1500V / 1 min., Secondary Case: AC 500V / 1 min. • **Leakage Current:** 0.5 mA max. • **Isolation Resistance**: Input-Output-Case 100 M-ohms min. • **Shock Test Procedures:** 0.5mm width, 10-55 Hz / 1 min. cycle, 3 directions each 30 min. 20G (3 directions each 3 times).

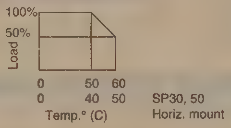
Input Voltage	Input Current A(typ)	Inrush Current A(typ)	Output Voltage (VDC)	Output Current (A)	Efficiency	Line Reg. (mV)	Load Reg. (mV)	Ripple Noise (mVp-p)	Dimensions (mm) HxWxD	Digi-Key Part No.	Pricing 1	10	25	50	Volgen Part No.
							SX15U								
85 - 132	0.3	10	5	3.0	73%	20	40	100	34X69X84	10348-ND	57.63	530.78	1213.20	2123.10	SX15U-05S
85 - 132	0.3	10	12	1.3	76%	40	60	150	34X69X84	10349-ND	57.63	530.78	1213.20	2123.10	SX15U-12S
85 - 132	0.3	10	15	1.0	76%	40	60	150	34X69X84	10350-ND	57.63	530.78	1213.20	2123.10	SX15U-15S
85 -132	0.3	10	24	0.7	78%	60	150	200	34X69X84	10351-ND	57.63	530.78	1213.20	2123.10	SX15U-24S
							SX30U								
85 - 132	0.7	20	5	6.0	72%	20	40	150	34X69X104	10352-ND	66.73	614.60	1404.80	2458.40	SX30U-05S
85 - 132	0.7	20	12	2.6	76%	30	60	150	34X69X104	10353-ND	66.73	614.60	1404.80	2458.40	SX30U-12S
85 - 132	0.7	20	15	2.1	77%	30	60	150	34X69X104	10354-ND	66.73	614.60	1404.80	2458.40	SX30U-15S
85 - 132	0.7	20	24	1.4	79%	30	60	150	34X69X104	10355-ND	66.73	614.60	1404.80	2458.40	SX30U-24S
							SX50U								
85 - 132	1.1	28	5	9.5	72%	25	60	100	37X85X119	10356-ND	92.87	855.40	1955.20	3421.60	SX50U-05S
85 - 132	1.1	28	12	4.2	78%	40	120	150	37X85X119	10357-ND	92.87	855.40	1955.20	3421.60	SX50U-12S
85 - 132	1.1	28	15	3.4	78%	40	120	150	37X85X119	10358-ND	92.87	855.40	1955.20	3421.60	SX50U-15S
85 - 132	1.1	28	24	2.2	80%	60	160	200	37X85X119	10359-ND	92.87	855.40	1955.20	3421.60	SX50U-24S
							SX100U								
85 - 132	2.3	14	5	20.0	82%	10	20	100	39X93X160	10360-ND	138.68	1277.33	2919.60	5109.30	SX100U-05S
85 -132	2.3	14	12	8.6	85%	10	20	170	39X93X160	10361-ND	138.68	1277.33	2919.60	5109.30	SX100U-12S
85 -132	2.3	14	15	7.0	86%	10	20	170	39X93X160	10362-ND	138.68	1277.33	2919.60	5109.30	SX100U-15S
85 -132	2.3	14	24	4.4	87%	20	30	200	39X93X160	10363-ND	138.68	1277.33	2919.60	5109.30	SX100U-24S
							SX150U								
85 - 132	3.5	15	5	30.0	82%	10	30	100	48X93X175	10364-ND	181.74	1673.88	3826.00	6695.50	SX150U-05S
85 -132	3.5	15	12	12.5	85%	15	45	170	48X93X175	10365-ND	181.74	1673.88	3826.00	6695.50	SX150U-12S
85 -132	3.5	15	15	10.0	86%	15	45	170	48X93X175	10366-ND	181.74	1673.88	3826.00	6695.50	SX150U-15S
85 -132	3.5	15	24	6.5	87%	20	60	200	48X93X175	10367-ND	181.74	1673.88	3826.00	6695.50	SX150U-24S

SPU SERIES Universal Input

Models: 15W, 30W & 50W



Derating Temperature:



Features:
• Universal Input (AC85-264V). • International Safety Approvals including: IEC801-2, -3, -4 & EMI: FCC Class "B", EN55022-B, VCCI-II, CE • Built-in Overvoltage/Overcurrent Protection • Operating Temperature: 0 - 50°C • Lightweight Construction • Metal Chassis with Cover • 1 Year Factory Warranty.

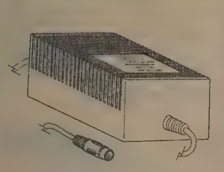
General Specifications:
• **Input Frequency:** 50/60Hz (47-63 Hz) • **Output Adjust Range:** ±10% • **Output Ripple (100/230VAC, Full load):** 150mV / 75mVp-p max. DC-100MHz • **Over Voltage Protection:** Zener Limiter • **Over Current Protection:** Over 105% (Auto. Recovery) • **Temperature Coefficient:** 0.02%/ °C maximum • **Drift:** 0.5% +15 mV max. / 8 hr. (after one hour) • **Rise Time:** 100 mS maximum • **Storage Temperature and Humidity:** Temperature: -20 - 85°C. Humidity: 20-85% RH (Non Condensing) • **Dielectric Withstanding Voltage:** Primary - Secondary: AC 3000V / 1 min., Primary Case: AC 1500V / 1 minute, Secondary Case: AC 500V / 1 min. • **Leakage Current** (100 / 230 VAC): 0.5 / 0.75 mA max. • **Isolation Resistance**: Input-Output-Case 100 M-ohms min. • **Shock Test Procedures:** Vibration: 0.5mm width, 10-55 Hz / 1 minute cycle, 3 directions each 30 minutes. Shock: 20G (3 directions each 3 times).

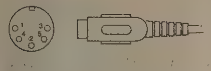
Input Voltage	Input Current A(typ)	Hold-Up Time mS(typ)	Inrush Current A(typ)	Output Voltage (VDC)	Output Current @100V (A)	@230V	Efficiency	Line Reg. (mV)	Load Reg. (mV)	Dimensions (mm) HxWxD	Digi-Key Part No.	Pricing 1	10	25	50	Volgen Part No.
									SP15U							
85-284	0.28-0.17	20-100	12-24	3.3	3.0	3.6	70%	20	40	33X75X107	10368-ND	78.66	724.50	1656.00	2898.00	SPU15-03S
85-284	0.36-0.24	15-70	12-24	5	3.0	3.6	73%	20	50	33X75X107	10369-ND	78.66	724.50	1656.00	2898.00	SPU15-05S
85-284	0.36-0.24	15-70	12-24	12	1.3	1.5	77%	30	50	33X75X107	10370-ND	78.66	724.50	1656.00	2898.00	SPU15-12S
85-284	0.36-0.24	15-70	12-24	15	1.0	1.2	77%	30	50	33X75X107	10371-ND	78.66	724.50	1656.00	2898.00	SPU15-15S
85-284	0.36-0.24	15-70	12-24	24	0.7	0.8	78%	30	50	33X75X107	10372-ND	78.66	724.50	1656.00	2898.00	SPU15-24S
85-284	0.36-0.24	15-70	12-24	48	0.35	0.4	79%	50	50	33X75X107	10373-ND	78.66	724.50	1656.00	2898.00	SPU15-48S
									SP30U							
85-284	0.5-0.33	30-180	12-28	3.3	6.0	7.0	70%	20	40	33X79X124	10374-ND	100.09	921.90	2107.20	3687.60	SPU30-03S
85-284	0.7-0.46	20-120	12-28	5	6.0	7.0	72%	20	40	33X79X124	10375-ND	100.09	921.90	2107.20	3687.60	SPU30-05S
85-284	0.7-0.46	20-120	12-28	12	2.6	3.0	77%	20	40	33X79X124	10376-ND	100.09	921.90	2107.20	3687.60	SPU30-12S
85-284	0.7-0.46	20-120	12-28	15	2.1	2.5	77%	20	40	33X79X124	10377-ND	100.09	921.90	2107.20	3687.60	SPU30-15S
85-284	0.7-0.46	20-120	12-28	24	1.4	1.5	77%	30	80	33X79X124	10378-ND	100.09	921.90	2107.20	3687.60	SPU30-24S
85-284	0.7-0.46	20-120	12-28	48	0.7	0.80	79%	50	120	33X79X124	10379-ND	100.09	921.90	2107.20	3687.60	SPU30-48S
									SP50U							
85-284	0.8-0.52	35-210	18-45	3.3	10.0	12.0	70%	20	60	33X89X164	10380-ND	143.60	1322.65	3023.20	5290.60	SPU50-03S
85-284	1.2-0.75	20-120	18-45	5	10.0	12.0	72%	20	60	33X89X164	10381-ND	143.60	1322.65	3023.20	5290.60	SPU50-05S
85-284	1.2-0.75	20-120	18-45	12	4.6	5.5	77%	20	60	33X89X164	10382-ND	143.60	1322.65	3023.20	5290.60	SPU50-12S
85-284	1.2-0.75	20-120	18-45	15	3.7	4.4	77%	20	60	33X89X164	10383-ND	143.60	1322.65	3023.20	5290.60	SPU50-15S
85-284	1.2-0.75	20-120	18-45	24	2.3	2.7	77%	30	120	33X89X164	10384-ND	143.60	1322.65	3023.20	5290.60	SPU50-24S
85-284	1.2-0.75	20-120	18-45	48	1.2	1.4	79%	50	180	33X89X164	10385-ND	143.60	1322.65	3023.20	5290.60	SPU50-48S

ELPAC POWER SYSTEMS

External Power Supplies

Wide Range Input Series- Switching Regulated Tabletops†





Features: • IEC input connector • One year warranty.

General Specifications: • Storage Temp.: -55°C to +85°C • Operating Temp.: 0-40 ° Centigrade

Output Specifications: • Line Regulation: ±0.2% max. • Load Regulation: ±5% from 60% load nominal except output #2 • Cross Regulation: ±2%. Cross regulation specifies the max. voltage change on auxiliary outputs when the +5V output load current is varied from 75% of full rated to either 50% or 100% of full rated • Set Point: ±2% at 60% load on main input • Ripple & Noise: ±1% max. • Overload Protection: All outputs protected against overloads and short circuit. Automatic recovery upon removal of overload conditions • Overvoltage Protection: Provided on main output only and set at 115-135% • Output Overshoot: No overshoot on turn-on or turn-off • Transient Response: For all outputs, recovery to within 1% of nominal output occurs within 2 milliseconds for a 50% to 100% load step. Maximum excursion is 6% from initial voltage setpoint • Hold-Up Time: 25msec min. at full rated load and nominal AC input voltage • Min. Load: Third quarter down to zero load.

Approved by all major regulatory agencies

TUV FCC IEC

Outside ring on all units is an EMI earth ground (Not to be used as a safety ground).

OUTPUT PIN CONFIGURATION-5 PIN DIN

Single Output Model

MODEL	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
WRI3012	COM	COM	12V	COM	12V
WRI3014	COM	COM	24V	COM	24V
WRI4212	COM	COM	12V	COM	12V
WRI4214	COM	COM	24V	COM	24V
WRI5215	COM	COM	30V	COM	30V

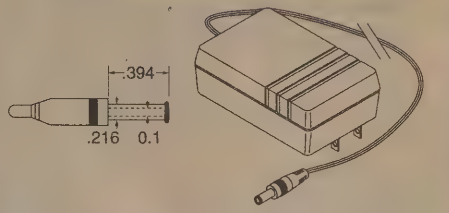
Dual Output Model

MODEL	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
WRI2721	COM	COM	5V	COM	12V
WRI3021	COM	COM	5V	COM	12V
WRI3025	COM	N/C	5V	COM	5V
WRI4221	COM	COM	5V	COM	12V

Triple Output Model

MODEL	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
WRI2731	COM	COM	5V	-12V	12V
WRI3031	COM	COM	5V	-12V	12V
WRI4231	COM	COM	5V	-12V	12V
WRI4232	COM	COM	5V	-12V	12V

NEW! Wallmount Switchers

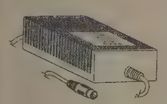


Input Specifications: • A/C Input: 108-132VAC 60Hz • Efficiency: Typical 82% at nominal line. • Input Protection: Internal Input line fuse.

Output Specifications: • Minimum Load; 0 watts • Ripple & Noise: ±1% PK-PK max. • Line Regulation: ±.1% • Load Regulation: ±5%

General Specifications: • Operating Temperature: 0-40°C • Size: 2.3 x 3.6 x 1.3 inches • Weight: 5.7oz • Agency Approvals: UL1310 listed, CSA certified to 223 • Input: M3 standard 3 prong • Output Cable: 6' with barrel connector: ID = 2.5mm, OD = 5.5mm, Barrel Length 10.0mm, Inside positive

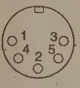
Regulated Tabletops



DIN PINOUT MATRIX

MODEL	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
WM100★	-5V	N/C	5V	COM	COM
WM150	COM	N/C	5V	COM	5V
WM113TT	COM	N/C	5V	-12V	12V
WM217	COM	N/C	5V	COM	12V
WM220-1	COM	N/C	5V	-12V	12V
WM230	12V	N/C	5V	COM	COM

Features: • UL 1310 listed, CSA Approved • One year warranty



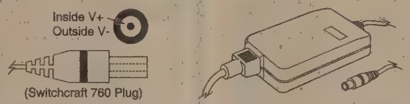
Specifications: • Output Ripple: 20 millivolts (p-p) • Operating Temperature: 0-40°C • Combined Regulation: ±5% • Fusing: Internal & non-replaceable

Options: • ***Shielded output cable - S Option***: Shielded cable with EMI ground tied to outer ring of DIN connector (Not to be used as safety ground) • Connector Type: Din.

UL and CSA Approved
★ CSA Approved Only

Euro Models Available

Switching MIADA Series
(Notebook Style)



(Switchcraft 760 Plug)

Input Specifications: • A/C Input: 95-250VAC 47/63Hz via IEC input connector • Input Protection: Input line fuse provided. • Inrush Current: Internally limited by thermistor. Cold start, peak current at 250VAC, 25 amps max.

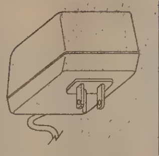
Output Specifications: • Line Regulation: ±.2% over 90-132 or 180-250 • Load Regulation: ±5% for ±40% load variation (60% nominal) • Minimum load: 0 watts • Ripple & Noise: ±1% PK-PK max. • Overload Protection: Automatic Recovery • Overvoltage Protection: 115-140%

General Specifications: • Storage Temperature: -55°C to +85°C • Operating Temperature: 0-40°C • EMI: FCC B/VDE B • Input Connector: IEC 320 Series.

UL, CSA & TUV Approved

TUV

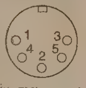
Regulated Wallmounts



DIN PINOUT MATRIX

MODEL	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
WM025	COM	N/C	5V	COM	5V
WM053	COM	N/C	5V	-5V	12V
WM063	COM	N/C	5V	-12V	12V
WM075	COM	N/C	5V	COM	5V
WM093	COM	N/C	5V	-5V	12V
WM112	COM	N/C	5V	COM	12V
WM113	COM	N/C	5V	-12V	12V
WM144	COM	N/C	12V	COM	12V

Features: • UL 1310 & UL 1950 listed, CSA Approved • One year warranty



Specifications: • Output Ripple: 20 millivolts (p-p) • Operating Temperature: 0-40°C • Combined Regulation: ±5% • Fusing: Internal & non-replaceable

Options: • Shielded output cable - S Option: Shielded cable with EMI ground tied to outer ring of DIN connector (Not to be used as safety ground)

Connector Type: Din, except for WM025 which is Switchcraft Plug 760.

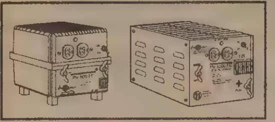
UL and CSA Approved

AC Input	Outputs			Max. Watts	Dimensions L x W x H (In.)	Digi-Key Part No.	Price Each			Elpac Part No.
	Single	Double	Triple				1	5	10	
Wide Range Input Series-Regulated Tabletops										
90-250VAC, 47-440Hz	12V, 2.5A	—	—	30†	6.3 x 3.82 x 2.66	EPS107-ND	110.00	99.00	91.30	WRI3012-D5
90-250VAC, 47-440Hz	24V, 1.25A	—	—	30†	6.3 x 3.82 x 2.66	EPS108-ND	114.00	102.60	94.62	WRI3014-D5
90-250VAC, 47-440Hz	12V, 3.5A	—	—	42†	6.3 x 3.82 x 2.66	EPS112-ND	112.00	100.80	92.96	WRI4212-D5
90-250VAC, 47-440Hz	24V, 1.75A	—	—	42†	6.3 x 3.82 x 2.66	EPS113-ND	112.00	100.80	92.96	WRI4214-D5
90-250VAC, 47-440Hz	30V, 1.75A	—	—	52†	6.3 x 3.82 x 2.66	EPS117-ND	136.00	122.40	112.88	WRI5215-D5
90-250VAC, 47-440Hz	5V, 4.0A	12V, .5A	—	27††	6.3 x 3.82 x 2.66	EPS105-ND	120.00	108.00	99.60	WRI2721-D5
90-250VAC, 47-440Hz	5V, 2.0A	12V, 1.5/2.5A*	—	30	6.3 x 3.82 x 2.66	EPS109-ND	118.00	106.20	97.94	WRI3021-D5
90-250VAC, 47-440Hz	5V, 3.0A	5V, 3.0A	—	30†	6.3 x 3.82 x 2.66	EPS110-ND	120.00	108.00	99.60	WRI3025-D5
90-250VAC, 47-440Hz	5V, 3.0A	12V, 2.5/4.0A*	—	42	6.3 x 3.82 x 2.66	EPS114-ND	118.00	106.20	97.94	WRI4221-D5
90-250VAC, 47-440Hz	5V, 3.0A	12V, .5A	-12V, 0.5A	27††	6.3 x 3.82 x 2.66	EPS106-ND	124.00	111.60	102.92	WRI2731-D5
90-250VAC, 47-440Hz	5V, 2.0A	12V, 1.5/2.5A*	-12V, 0.5A	30	6.3 x 3.82 x 2.66	EPS111-ND	120.00	108.00	99.60	WRI3031-D5
90-250VAC, 47-440Hz	5V, 3.0A	12V, 2.5/4.0A*	-12V, 0.5A	42	6.3 x 3.82 x 2.66	EPS115-ND	120.00	108.00	99.60	WRI4231-D5
90-250VAC, 47-440Hz	5V, 4.8A	12V, 1.5/2.5A*	-12V, 0.5A	42	6.3 x 3.82 x 2.66	EPS116-ND	124.00	111.60	102.92	WRI4232-D5
Regulated Wallmounts										
115VAC, 60Hz	5V, 500mA	—	—	2.5	2.20 x 2.75 x 3.50	EPS129-ND•	33.75	30.00	27.00	WM025
115VAC, 60Hz	5V, 380mA	-5V, 180mA	12V, 180mA	5.3	2.20 x 2.75 x 3.50	EPS118-ND	48.38	43.00	38.70	WM053
115VAC, 60Hz	5V, 380mA	-12V, 180mA	12V, 180mA	6.3	2.20 x 2.75 x 3.50	EPS120-ND	51.75	46.00	41.40	WM063-S
115VAC, 60Hz	5V, 380mA	-12V, 180mA	12V, 180mA	6.3	2.20 x 2.75 x 3.50	EPS142-ND	46.13	41.00	36.90	WM063-1950
115VAC, 60Hz	5V, 1.5A	—	—	7.5	2.28 x 3.10 x 4.36	EPS121-ND	49.50	44.00	39.60	WM075
115VAC, 60Hz	5V, 1.5A	—	—	7.5	2.28 x 3.10 x 4.36	EPS122-ND	51.75	46.00	41.40	WM075-S
115VAC, 60Hz	5V, 1.5A	—	—	7.5	2.28 x 3.10 x 4.36	EPS143-ND	45.00	40.00	36.00	WM075-1950
115VAC, 60Hz	5V, 1.5A	—	—	7.5	2.28 x 3.10 x 4.36	EPS144-ND	47.25	42.00	37.80	WM075-1950-S
115VAC, 60Hz	5V, 860mA	-5V, 300mA	12V, 300mA	9.3	2.28 x 3.10 x 4.36	EPS123-ND	60.75	54.00	48.60	WM093
115VAC, 60Hz	5V, 860mA	-5V, 300mA	12V, 300mA	9.3	2.28 x 3.10 x 4.36	EPS124-ND	63.00	56.00	50.40	WM093-S
115VAC, 60Hz	5V, 800mA	—	12V, 600mA	11.2	2.28 x 3.10 x 4.36	EPS125-ND	60.75	54.00	48.60	WM112
115VAC, 60Hz	5V, 860mA	-12V, 300mA	12V, 300mA	11.3	2.28 x 3.10 x 4.36	EPS126-ND	46.13	41.00	36.90	WM113
115VAC, 60Hz	5V, 860mA	-12V, 300mA	12V, 300mA	11.3	2.28 x 3.10 x 4.36	EPS127-ND	50.63	45.00	40.50	WM113-S
115VAC, 60Hz	12V, 1.2A	—	—	14.4	2.28 x 3.10 x 4.36	EPS145-ND	49.50	44.00	39.60	WM144-1950-S
Regulated Tabletops										
115VAC, 60Hz	5V, 1.0A	-5V, 1.0A	—	10	2.28 x 3.10 x 4.36	EPS130-ND	58.50	52.00	46.80	WM100-S
115VAC, 60Hz	5V, 860mA	+12V, 300mA	12V, 300mA	11.3	2.28 x 3.10 x 4.36	EPS131-ND	58.50	52.00	46.80	WM113TT
115VAC, 60Hz	5V, 2.0A	-12V, 500mA	12V, 500mA	22	2.66 x 3.82 x 6.30	EPS134-ND	96.75	86.00	77.40	WM220-1
115VAC, 60Hz	5V, 1.0A	+12V, 1.5/2.5A	—	23	2.66 x 3.82 x 6.30	EPS135-ND	96.75	86.00	77.40	WM230-S
Miada Series										
95-250VAC, 47/63Hz	5V, 3.0A	—	—	15	3.0 x 5.0 x 1.31	EPS146-ND	101.25	90.00	81.00	MI2005-760
95-250VAC, 47/63Hz	12V, 2.17A	—	—	26	3.0 x 5.0 x 1.31	EPS101-ND	90.00	81.00	74.70	MI2612-760
95-250VAC, 47/63Hz	15V, 1.9A	—	—	28	3.0 x 5.0 x 1.31	EPS102-ND	90.00	81.00	74.70	MI2815-760
95-250VAC, 47/63Hz	18V, 1.56A	—	—	28	3.0 x 5.0 x 1.31	EPS103-ND	90.00	81.00	74.70	MI2818-760
95-250VAC, 47/63Hz	24V, 1.17A	—	—	28	3.0 x 5.0 x 1.31	EPS104-ND	90.00	81.00	74.70	MI2824-760
Wallmount Switchers Series										
108-132VAC,60Hz	8V, 2.5A	—	—	20	2.3 x 3.6 x 1.3	EPS151-ND ***NEW!***	81.00	72.00	64.80	M32008-760
108-132VAC,60Hz	12V, 2.5A	—	—	30	2.3 x 3.6 x 1.3	EPS152-ND ***NEW!***	81.00	72.00	64.80	M33012-760
108-132VAC,60Hz	15V, 2.13A	—	—	32	2.3 x3.6 x1.3	EPS153-ND ***NEW!***	81.00	72.00	64.80	M33215-760
108-132VAC,60Hz	18V, 1.83A	—	—	33	2.3 x3.6 x1.3	EPS154-ND ***NEW!***	81.00	72.00	64.80	M33318-760
108-132VAC,60Hz	24V, 1.42A	—	—	34	2.3 x3.6 x1.3	EPS155-ND ***NEW!***	81.00	72.00	64.80	M33424-760
Single Output, Wide Range Switchers Series										
85-265VAC,47/63Hz	8V, 2.5A	—	—	20	3.0 x 5.0 x 1.31	EPS147-ND ***NEW!***	81.00	72.00	64.80	M42008-760
85-265VAC,47/63Hz	12V, 1.7A	—	—	20	3.0 x 5.0 x 1.31	EPS148-ND ***NEW!***	81.00	72.00	64.80	M42012-760
85-265VAC,47/63Hz	15V, 1.3A	—	—	20	3.0 x 5.0 x 1.31	EPS149-ND ***NEW!***	81.00	72.00	64.80	M42015-760
85-265VAC,47/63Hz	18V, 1.1A	—	—	20	3.0 x 5.0 x 1.31	EPS150-ND ***NEW!***	81.00	72.00	64.80	M42018-760

† Min. load on models=8 Watts, †† Min. load on models=2 Watts. * Max. Peak •Has a Switchcraft Plug 760.

"THE POWER PEOPLE"

Power Inverters

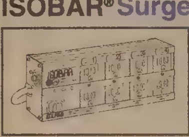


Solid-state electronic power inverters change 12 volts DC into 117 volts AC (60Hz.). Simply plug your computer, stereo, fax or household appliances into your inverter. Conveniently operates in cars, campers, trucks, boats, or wherever 12 volt DC battery power is available. Frequency-controlled models are ideal for audio and video recorders, test equipment, computers, etc. Ratings from 100 to 1800 watts continuous; intermittent duty, plus 10%. * New Peak Power Models handle twice their wattage for short periods of time, making them ideal for refrigerators, power tools, microwaves, etc.

APS units feature modified sinewave, frequency controlled fully regulated output. These units automatically sense and switch AC output between line power and Battery Power. Recharge circuit recharges the battery when line voltage is available. Perfect for sump pumps, emergency lighting and more.

Description (Size: H" x W" x D")	Digi-Key Part No.	Price	Tripplite Part No.
125 watts, 1 outlet, cigarette lighter plug (3 x 6 x 5)	TL063-ND	89.00	PV125
200 watts, 1 outlet (3 x 6 x 5)	TL030-ND	109.00	PV200
400 watts, 1 outlet (3 5/8 x 7 x 6)	TL031-ND	159.00	PV400
550 watts, 2 outlet (7 x 7 x 10)	TL099-ND	229.00	PV550A
400 watts, 2 outlet, frequency controlled (7 x 7 x 10)	TL098-ND	259.00	PV400FC*
750 watts, 2 outlet, frequency controlled (7 x 7 x 10)	TL100-ND	389.00	PV750FC*
1200 watts, 2 outlet, frequency controlled (Modified sinewave) (6 3/4 x 7 1/2 x 14)	TL062-ND	599.00	PV1200FC*
1800 watts, 24 volts, frequency controlled (6 x 8 x 12)	TL101-ND	699.00	PV1800FC/24*
400 watts, 2 outlet (7 x 7 x 10) (Modified sinewave)	TL102-ND	312.55	APS400*
750 watts, 2 outlet (7 x 7 x 10) (Modified sinewave)	TL103-ND	512.05	APS750*
1250 watts, 2 outlet (6.5 x 8.5 x 12) (Modified sinewave)	TL104-ND	806.55	APS1250*

ISOBAR® Surge Suppressors



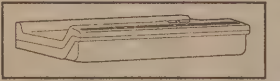
ISOBAR® is the most electronically advanced surge suppressor available today. Includes isolation — preventing connected equipment from interfering with each other. The only surge suppressor with 3 UL listings.

Only ISOBAR® provides: • Superior RFI/EMI noise suppression • "Cascade Circuitry" to increase protection for more sensitive devices • Surge Suppression up to 13,000 amp spikes • Rack Mount model (IBAR-12) for industrial and sound applications • Up to 24 active filtering components • Multiple filtering components to safeguard against equipment interaction • Meets IEEE 587 A & B Specifications • Less than 5 nanosecond transient response time.

Description	Digi-Key Part No.	Price	Tripplite Part No.
2 outlet, direct plug-in*	TL002-ND	43.20	ISOBLOK2-0
2 outlet, 6' cord*	TL003-ND	53.96	IBAR2-6
4 outlet, 6' cord, w/ Diag. LED†	TL076-ND	80.95	ISOBAR4ULTRA
6 outlet, 6' cord, w/ Diag. LED†	TL077-ND	94.45	ISOBAR6ULTRA
8 outlet, 12' cord, w/ Diag. LED†	TL078-ND	105.25	ISOBAR8ULTRA
8 outlets, 12' cord with remote power switch*	TL050-ND	116.55	ISOBAR8RM
Rack mt., 12 out., 12' cord*	TL027-ND	134.10	IBAR12

*ULTIMATE® LIFETIME WARRANTY covers both the ISOBAR® and the connected equipment from surge related damage, including direct lightning strikes, up to $10,000 . . . for life! († coverage up to $25,000)

Command Console



Command Console gives you ISOBAR® protection in an under-monitor design and fingertip control of your computer peripherals.

• Superior ISOBAR® surge and RFI/EMI noise filtration • Built-in touch anywhere static guard is safer than static mats • 6 outlets; master control and 4 individual component switches • Suppresses up to 13,000 amp spikes • 15 amp circuit breaker with reset • Modem/fax spike filter on CCI-6 PLUS model. • CCC4 features a slimline plastic housing and diagnostic LEDs. $5,000 Ultimate Lifetime Insurance.

Touch Master features diagnostic LED indicators with Tripp-Lites highest surge rating.

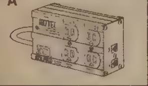
Description	Digi-Key Part No.	Price	Tripplite Part No.
6 outlets, 12' cord*	TL038-ND	103.45	CCI6
6 outlets, 12' cord, Fax/Modem Protection*	TL001-ND	115.15	CCI6PLUS
Compact Command Console 4 outlet, 5 yr warranty	TL084-ND	71.96	CCC4
6 outlet, Touch Master	TL106-ND	121.45	MT-6
6 outlet, Touch Master, with Fax/Modem Protection	TL107-ND	134.95	MT-6 PLUS

*ULTIMATE® LIFETIME WARRANTY covers both the Command Console and the connected equipment from surge related damage, including direct lightning strikes, up to $10,000 . . . for life!

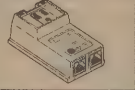
Modem/Fax Protectors

Protects modems, phone lines and faxes from damaging spikes and harmful line noise.

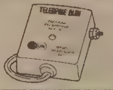
A



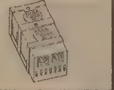
B



C



D



Description	Digi-Key Part No.	Price	Tripplite Part No.
4 outlet ISOBAR® with 2 RJ11 jacks for telephone line protection*, (Fig. A)	TL009-ND	89.95	ISOTEL
6 outlet ISOBAR®, 6' cord with fax protection†	TL081-ND	107.96	ISOTEL6ULTRA
8 outlet ISOBAR®, 12' cord with fax protection†	TL082-ND	121.46	ISOTEL8MULTIMEDIA
Direct Plug-in 1 AC outlet, RJ11 fax supp. circuit*., (Fig. B)	TL008-ND	42.46	SMPGS
Premium 3-stage data line protection. 2 year warranty (Fig. C)	TL015-ND	50.96	TSB
Economical data line protection, 2 year warranty	TL007-ND	16.96	MP
Direct Plug-in 2 AC outlet, RJ45 fax protector*, (Fig. D)	TL070-ND	58.45	ISOFAX
2 outlet, direct plug-in, with coaxial "F" connectors. For cable TV systems*	TL079-ND	62.95	ISOBARULTRACOAX
2 outlet, direct plug-in, with 1 RJ11 jack for one data line circuit*	TL080-ND	62.95	ISOBARULTRAFAX
Super 7, 7 outlet, 7' cord, with fax protection	TL105-ND	32.73	S7+TEL

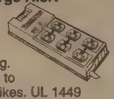
*ULTIMATE® LIFETIME WARRANTY (on select models) covers your product and the connected equipment from surge related damage, including direct lightning strikes, up to $10,000 . . . for life! († Coverage up to $25,000)

Economy Surge Suppressors

For a more economical approach to power protection, Tripp Lite offers six units for your specialized needs.

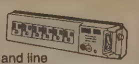
A - Super Surge Alert

Mid-priced surge suppression with RFI/EMI filtering. Suppresses up to 72,000 amp spikes. UL 1449 approved. Lifetime warranty.



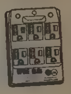
B - Super 8

Performance in a low cost spike and line noise suppressor. Suppresses up to 48,000 amps. UL 1449 approved. Lifetime warranty.



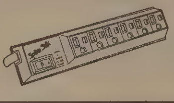
C - Spike Blok

Performance in a low cost spike and line noise suppressor. Suppresses up to 27,000 amps. UL 1449 approved. 2 year warranty.



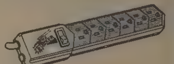
D - Spike Stik

Effective spike suppressor. Suppresses spikes up to 27,000 amps. Lifetime warranty.



E - Super 7

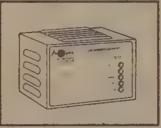
Protects equipment from damaging AC surges, spikes, and line noise. Suppresses spikes up to 27,000 amps. Lifetime warranty.



Description	Digi-Key Part No.	Price	Tripplite Part No.
Super Surge Alert, 6 outlets, 6' cord Diag. LED's(Fig. A)	TL051-ND	53.95	TR6
Super 8, 6 outlets, 6' cord (Fig. B)	TL011-ND	38.21	SK6-6
Spike BLOK, 6 outlets, Direct plug-in (Fig. C)	TL010-ND	23.70	SK6-0
Spike Stik, 6 outlets, 6' cord (Fig. D)	TL026-ND	21.21	STIK
Super Surge, 6 outlets, 4' cord (Fig E)	TL083-ND	12.56	STRIKER
Super 7, 7 outlets, 7' cord W/ LEDs	TL085-ND	23.76	SUPER7

Line Conditioners

Line Conditioners let you work through brownouts for unlimited time periods. Units maintain a constant voltage level during fluctuating voltages, providing your equipment with a safe 117 VAC. Automatically adjusts varying input voltages, providing spike and RFI/EMI line noise filtering. 2 year warranty.



Description	Digi-Key Part No.	Price	Tripplite Part No.
600 watts, 2 outlets, under voltage only	TL012-ND	122.55	LS600
600 watts, 4 outlet	TL039-ND	151.05	LS604
1200 watts, 4 outlet	TL013-ND	217.55	LC1200
1800 watts, 6 outlet	TL014-ND	284.05	LC1800
2400 watts, 6 outlet	TL044-ND	379.05	LC2400
Rack Mount, 2400 watts, 14 outlet	TL028-ND	436.05	LCR2400

Line Surge Suppressors

Data networks are increasingly susceptible to problems from dataline transients as transmission rates continue to rise. Tripplite's dataline surge suppressors safely divert damaging surges before they reach your critical network equipment. Protects I/O and Serial ports, modem-fax cards, network interface cards and motherboards.

Specifications: • 6000V Clamping at <1 picosecond reponse time. • Breakover voltage: 7.5V (ethernet), 18V (RS-232), 260V (telephone). • Peak Pulse Current: 750 amps (ehernet), 340 amps (RS-232). • Max. Shunt Capacitance: <30 pF.

Fig. 1

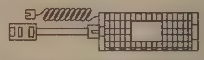


Fig. 2

Fig. 3

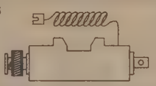


Fig. 4

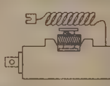


Fig. 5

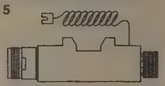


Fig. 6

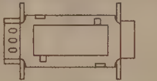


Fig. 7

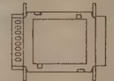


Fig. 8

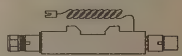
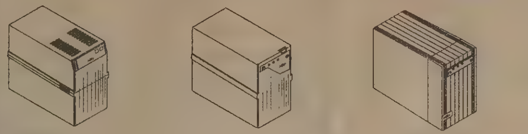


Fig. No. and Application	Lines Protected	Interface Type	Digi-Key Part No.	Price	Tripplite Part No.
Fig. 1 — Protects 10 Base-T ethernet network interface cards, bridges, routers, etc	1,2,3,6	RJ45	TL146-ND	38.66	D10BT
Fig. 2 — 8 port ethernet, token ring and RS422/423/485 protector with single grounding point. Ideal for hubs, repeaters, terminal servers, MUXs, MAUs, etc.	1-8	RJ45	TL149-ND	251.10	DHUB
Fig. 3 — Protects 10Base-2 (thin coax) ethernet network interface cards, bridges, routers, etc. Also protects IBM 3270 and CCTV lines.	Center Shield & Chassis	BNC Coax	TL147-ND	38.66	D10B2
Fig. 4 — Above in convenient T version (jack/plug/jack) for clean, low loss, 10Base-2 ethernet. Also protects IBM 3270 and CCTV lines.	Center Shield & Chassis	BNC Coax	TL148-ND	43.16	D10B2-T
Fig. 5 — Twinaxial AS400/Sys3x protector (male/female)	Both Wires Shield & Chassis	Twinax	TL150-ND	62.95	DTWINAX
Fig. 6 — Protects RS-232 DB9 serial ports of data terminal and data communication equipment including PCs, printers, fax/modems, etc. User configurable for either male or female captive ports.	1-9 and Chassis	DB9	TL151-ND	34.15	DB9
Fig. 7 — Protects many RS-232 DB25 serial ports of data terminal and data communication equipment including PCs, printers, fax/modems, etc. User configurable for either male or female captive ports.	1-8, 20, and Chassis	DB25	TL152-ND	36.85	DB25
Fig. 7 — Protects any RS-232 serial or parallel DB25 regardless of cable configuration. Self-programming to your application. User configurable for male or female captive ports.	1-25 and Chassis	DB25	TL153-ND	51.26	DB25-ALL
Fig. 1 — Protects both single and two line telephone equipment including internal and external modems, fax machines, answering machines, etc.	4,5 & 3,6	RJ11/RJ45	TL154-ND	36.85	DTEL2
Fig. 8 — Protects coaxial cable lines at TV, VCR or satellite receiver connection point.	Center Shield Conduc.	Type F Coax	TL155-ND	44.96	DCATV

"THE POWER PEOPLE"

Standby and On-Line UPS Systems



Standby UPS Systems

BC Standby UPS systems are battery backups in sleek, compact housings. They protect your computers, and electronic equipment from power failures, brownouts and AC surges and transients. With critical business functions being performed at home now more than ever before, Tripp-Lites BC Series makes power protection for the entire office affordable and a reality. BC Pro units are ideal for networked PCs and workstations

BC Internet Backups offer complete protection for PC's connected to the internet and World Wide Web. These offer all the benefits of the BC Personal with RJ11 jacks for modem protection.

- All UPS's are UL Approved • 2 year warranty

SMART Pro Net Intelligent UPS Systems

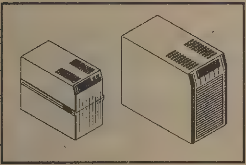
The Smart Pro Net UPS system is complete network power protection in a single box. You get a reliable Tripp-lite UPS System, a CD Rom containing power alert plus line of software for every major network operating system and complete cabling to implement your UPS solution. Everything you need is included in a single box. Complete brownout protection keeps your batteries fresh when they may be needed in a blackout. A built-in microprocessor constantly monitors incoming line voltages and protects your equipment from damaging voltage levels (spikes, sag's, EMI/RFI).

OmniSmart PnP Interactive UPS System

Includes all the features of the Smart Pro series plus adds the capability of detailed self test to all major functions of UPS and offers automatic inverter shutdown 20 seconds after your file server has performed an unattended shutdown, the OmniSmart will also power itself down to save battery power. Network managers can view power conditions about any fileserver to include input voltage, load capacity, battery conditions, operating temperatures and output voltage and frequency data in easy to read pull down menus.

Description	Digi-Key Part No.	Price	Tripplite Part No.
BC Personal Backup 200 VA, 140 watts, 2 outlets	TL120-ND	103.55	BC PERS 200
BC Personal Backup 280 VA, 175 watts, 2 outlets	TL121-ND	122.55	BC PERS 280
BC Personal Backup 420 VA, 295 watts, 2 outlets	TL122-ND	166.25	BC PERS 420
BC Personal Backup 500 VA, 350 watts, 4 outlets	TL123-ND	217.55	BC PERS 500
BC PRO Backup 450 VA, 325 watts, 4 outlets	TL124-ND	189.05	BC PRO 450
BC PRO Backup 550 VA, 375 watts, 4 outlets	TL125-ND	246.05	BC PRO 550
BC PRO Backup 675 VA, 425 watts, 4 outlets	TL126-ND	284.05	BC PRO 675
BC PRO Backup 850 VA, 570 watts, 4 outlets	TL127-ND	379.05	BC PRO 850
BC PRO Backup 1050 VA, 705 watts, 6 outlets	TL128-ND	426.55	BC PRO 1050
BC PRO Backup 1400 VA, 940 watts, 6 outlets	TL129-ND	540.55	BC PRO 1400
BC PRO Int Backup 230 V, 325 watts, 3 outlets	TL130-ND	198.55	BC PRO INT 450
NEW! BC Internet 325VA, 220 Watts, 2 outlets	TL163-ND	156.75	BCINTERNET325
NEW! BC Internet 450VA, 280 Watts, 4 outlets	TL164-ND	189.05	BCINTERNET450
NEW! BC Internet 675VA, 425 Watts, 4 outlets	TL165-ND	284.05	BCINTERNET675
NEW! Smart Pro Net Backup 280VA, 175 Watts, 4 outlets	TL156-ND	284.05	SMART280NET
NEW! Smart Pro Net Backup 450VA, 325 Watts, 4 outlets	TL157-ND	360.05	SMART450NET
NEW! Smart Pro Net Backup 700VA, 450 Watts, 4 outlets	TL158-ND	468.35	SMART700NET
NEW! Smart Pro Net Backup 1050VA, 705 Watts, 6 outlets	TL159-ND	626.05	SMART1050NET
NEW! Smart Pro Net Backup 1400VA, 940 Watts, 6 outlets	TL160-ND	759.05	SMART1400NET
NEW! Smart Pro Net Rack Mount 700VA, 450 Watts, 8 outlets	TL161-ND	569.05	SMART700RM
NEW! Smart Pro Net Rack Mount 1050VA, 705 Watts, 8 outlets	TL162-ND	711.55	SMART1050RM
Smart Pro Net Rack Mount 1400 VA, 940 watts, 6 outlets	TL140-ND	901.55	SMART1400RM
NEW! Omni Smart Backup 280VA, 175 Watts, 2 outlets	TL166-ND	170.05	OMNISMART280PNP
NEW! Omni Smart Backup 450VA, 325 Watts, 4 outlets	TL167-ND	284.05	OMNISMART450PNP
NEW! Omni Smart Backup 675VA, 425 Watts, 4 outlets	TL168-ND	350.55	OMNISMART675PNP
NEW! Omni Smart Backup 850VA, 570 Watts, 4 outlets	TL169-ND	493.05	OMNISMART850PNP
NEW! Omni Smart Backup 1050VA, 705 Watts, 6 outlets	TL170-ND	531.05	OMNISMART1050PNP
NEW! Omni Smart Backup 1400VA, 940 Watts, 6 outlets	TL171-ND	626.05	OMNISMART1400PNP

Affordable, True On-Line UPS Systems With Zero Transfer Time



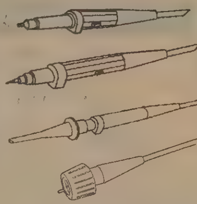
The new Tripp Lite/Unison models give you the true on-line, pure sine wave UPS protection with standby UPS affordability. Provides reliable blackout protection and fully regulated output, each unit continuously conditions all power to your computer to eliminate brownouts, spikes and line noise. Absolute surge and spike protection where power irregularities cannot penetrate Unison's double conversion on-line UPS design. Comes with Tripp-lites's award winning Poweralert software and cable. Perfect for high-end servers and workstations, CAD/CAM, RISC, UNIX and other systems that have proven more sensitive to power irregularities.

Description	Digi-Key Part No.	Price	Tripplite Part No.
NEW! Unison UPS 400 VA, 300 watts, 4 outlet	TL141-ND	581.03	PS450
NEW! Unison UPS 700 VA, 300 watts, 4 outlet	TL142-ND	707.13	PS700
NEW! Unison UPS 1000 VA, 700 watts, 6 outlet	TL143-ND	872.03	PS1000
NEW! Unison UPS 1200 VA, 800 watts, 6 outlet	TL144-ND	1357.03	MPS1400
NEW! Unison UPS 2000 VA, 1300 watts, 6 outlet	TL145-ND	1939.03	MPS2000

STACK ELECTRONICS CO., LTD.

Oscilloscope Probes & Accessories

One out of every five oscilloscope users in the world has already used a STACK probe without knowing it!



CROSS REFERENCE GUIDE

60MHz B/W — CP-801-ND: **Kikusui:** COS5040TM, COS5041TM, COS5020TM, COS5021TM, DSS5020A. **Hitachi:** V-209, V-222, V-422, V-509. ***60MHz B/W — CP-210- ND:*** **Tektronix:** T202, 2201, 2220. **Kikusui:** COM7060A, COM7061A, COS5042TM, COS5060TM, DSS5040. **Hitachi:** V-680, VC-6025. **Leader:** 1020, LBO-313, LBO-315, LBO-323, LBO-325, LBO-513A, LBO-514A, LBO-522, LBO-523, LBO-524, LBO-524L, LBO-526, LBO-2060, LBO-5825. ***60MHz B/W — CP-802-ND:*** **Tektronix:** 2221, 2211, 2224. ***100MHz B/W — CP-209-ND:*** **Kikusui:** COM7100A, COM7101A, COS5100TM, COS6100A. **Hitachi:** V-660, V-665, V-1060, V-1065, V-1100A, V-6045. **Leader:** LBO-516, LBO-518. ***100MHz B/W — CP-241-ND:*** **Hitachi:** 3060D. ***100 MHz B/W — CP-263-ND:*** **Kikusui:** COM7200A, COM7201A. **Hitachi:** V-1150. ***350MHz B/W — CP-250-ND:*** **Tektronix:** 2235, 2236, 2245A, 2430A, 2431L, 2432A, 2440.

***Give us a call if your scope is not listed!**

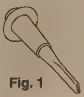


Fig. 1

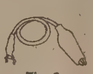


Fig. 2

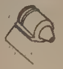


Fig. 3

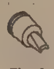


Fig. 4

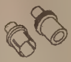
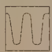


Fig. 5



The unique 'floating' adjustment screw allows you to calibrate the Stack probe to a known frequency without disturbing the image.

Stack used the same stringent rise time to frequency response standards for rating bandwidth capability as Tektronix and Hewlett Packard.

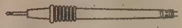
Fig. 6


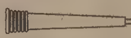
Fig. 7


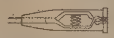
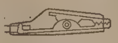
Fig. 8


Fig. 9


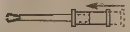


Fig. 10

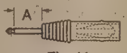


Fig. 11

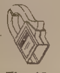


Fig. 12

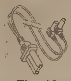
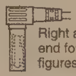


Fig. 13


Right angle end for figures 6-10

Loading resistance is 10MΩ (1 MΩ scope input resistance) for all x 10 and x 100 probes except for the CP-264 & CP-320 which are 500Ω (50Ω scope input resistance.) The CP-210 and CP-209 are switchable x 1/ x 10 models. All probes have a 1.5 meter cable length except for the CP-263, CP-320 and CP-250 which are 1.0 meter.

Oscilloscope Probes

Band-width	Atten. % Acc.	Capacitance Load	Capacitance Scope	Comp. Range	Max. VDC	Access. Group	Digi-Key Part No.	Pricing 1	Pricing 10
60MHz	x1x10 3%	22pF	25pF	20-45pF	600	A	CP-210-ND	35.00	315.00
60MHz	x1x10 3%	20pF	10pF	20-45pF	600	A	CP-321-ND	23.33	210.00
60MHz	x10 3%	19.5pF	25pF	20-45pF	600	A	CP-801-ND •	35.00	315.00
60MHz	x10 3%	19.5pF	25pF	20-45pF	600	A	CP-802-ND† •	41.67	375.00
100MHz	x1x10 3%	14pF	20pF	20-35pF	600	B	CP-209-ND	56.67	510.00
100MHz	x10 2%	14pF	20pF	20-35pF	600	D	CP-223-ND •	73.33	660.00
100MHz	x10 2%	14pF	20pF	20-35pF	600	D	CP-240-ND† •	80.00	720.00
100MHz	x100 3%	4pF	20pF	20-35pF	1000	B	CP-241-ND	68.33	615.00
100MHz	x100 4%	4pF	20pF	20-35pF	1000	B	CP-243-ND†	75.00	675.00
100MHz	x10 3%	12.5pF	20pF	20-35pF	600	B	CP-901-ND •	45.00	405.00
100MHz	x10 3%	12.5pF	20pF	20-35pF	600	B	CP-902-ND† •	51.67	465.00
300MHz	x10 2%	14pF	15pF	15-35pF	600	C	CP-249-ND† •	103.33	930.00
300MHz	x10 2%	14pF	15pF	15-35pF	600	C	CP-261-ND •	98.33	885.00
350MHz	x10 2%	14pF	15pF	15-35pF	600	C	CP-263-ND •	98.33	885.00
350MHz	x10 2%	14pF	15pF	15-35pF	600	C	CP-250-ND† •	105.00	945.00
1GHz	x10 3%	1pF	—	—	22 rms	C	CP-264-ND† •	116.67	1050.00
8GHz	10:1	<0.5 pF	—	—	10Vrms	—	CP-320-ND	380.65	—

† Digital Readout Actuator; • Ground Reference.

Accessories

Fig.	Description	Digi-Key Part No. A	Digi-Key Part No. B	Pricing 1	Pricing 10	Digi-Key Part No. C	Digi-Key Part No. D	Pricing 1	Pricing 10
1	Retractable pincher tip	PF-004-ND	PF-004-ND	5.50	49.50	PF-059-ND	PF-059-ND	8.00	72.00
2	Ground lead	PF-060-ND	PF-060-ND	2.83	25.50	PF-014-ND	PF-061-ND	4.17	37.50
3	Ground bayonet	—	PF-008-ND	3.17	28.50	PF-015-ND	PF-015-ND	3.33	30.00
4	IC tip	—	PF-009-ND	1.67	15.00	PF-016-ND	PF-016-ND	1.67	15.00
5	BNC adaptor	—	PF-010-ND	4.83	43.50	PF-017-ND	PF-017-ND	6.67	60.00
—	Screwdriver	PF-094-ND	PF-094-ND	2.42	21.75	PF-094-ND	PF-094-ND	2.42	21.75

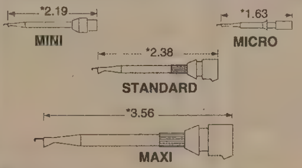
Test Leads and Accessories

Fig.	Description	Digi-Key Part No.	Pricing 1	Pricing 10
6	Test Lead Set Standard 46"	CP-2601-ND	7.88	66.50
7	Test Lead Set Deluxe Extender	CP-2602-ND	14.63	123.50
8	Test Lead Set Lg Clip 9" Pigtail	CP-2603-ND	5.51	46.55
9	Test Lead Set Sm Clip 9" Pigtail	CP-2604-ND	4.16	35.15
10	Probe Tip Red Mini Grabber With 9" Pigtail	CP-2607-ND	6.53	55.10
10	Probe Tip Black Mini Grabber With 9" Pigtail	CP-2608-ND	6.53	55.10
11	Probe Tip Set Short; Dimension A = 12.7mm	CP-2605-ND	5.51	46.55
11	Probe Tip Set Long; Dimension A = 62mm	CP-2606-ND	7.09	59.85
—	Kit Test Lead Set 7 Pair	CP-2600-ND	43.16	390.00
12	Current Clamp Head	CP-2609-ND	33.40	291.83
13	Current Clamp Adapter	CP-2610-ND	9.39	82.00

Electronic Specialty Products

Probe-It

Specifications: Contact: Phosphor bronze. Body: Nylon. 3M new series of Probe-It™ plunger-actuated clips make test connections to individual component leads faster & easier. Simply press cap to extend the hook contact, place on component lead or wire under test, & release for hands-free troubleshooting & circuit testing. When removed from the lead the hook contact retracts into the plastic tip to min. the possibility of shorting components.

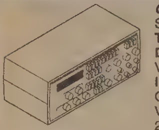


Description	Color	Digi-Key Part No.	Price / Pkg.
Micro Probe-It*	Red Black Blue Green Yellow White	923830-RD-ND 923830-BK-ND 923830-BU-ND 923830-GN-ND 923830-YL-ND 923830-WT-ND	2.98
Mini Probe-It*	Red Black Blue Green Yellow White	923835-RD-ND 923835-BK-ND 923835-BU-ND 923835-GN-ND 923835-YL-ND 923835-WT-ND	2.84
Standard Probe-It*	Red Black	923840-RD-ND 923840-BK-ND	2.84
Maxi Probe-It*	Red Black	923845-RD-ND 923845-BK-ND	5.00
Micro Probe-It Assort. †	1 of ea.	923848-ND	7.58
Mini Probe-It Assort. †	1 of ea.	923850-ND	7.27

* 2 per package † 6 per package

BK PRECISION
MAXTEC INTERNATIONAL CORP.
Manufactured in the U.S.A.

Function Generators



General Specifications: • **Wave-forms:** Sine, Square, Triangle, ±Pulse, ±Ramp. **Temperature Stability:** .06%/°C. **Variable Duty Cycle:** 15:85:15 Continuously Variable. ***Output Characteristics:*** **Impedance:** 50Ω ±10%. **Level:** 20V p-p Open-circuit, 10V p-p into 50Ω. **Amplitude:** Variable, 20db range typical. **Attenuation:** -20db ±1db. **DC Offset: Preset:** ±0.1V typical. **Variable:** ±10V open-circuit, ±5V into 50Ω. ***TTL Output:*** **Level:** .8V to 2.4V. **Rise Time:** ≤20ns. **Duty Cycle:** 50% typical. ***CMOS Output:*** **Max frequency:** 4MHz. **Level:** 4V p-p to 14,5V p-p, continuously variable. **Rise Time:** <+120nS. **VCG Input: Input Voltage:** 0-10V ±1V causes a 100:1 frequency change. **Impedance:** 10K ±5%. **Power Source:** 120/230VAC +10% 50/60 Hz, Internal jumper selectable. ***Accessories:*** Output Cable, BNC to Alligator Clips, Instruction Manual. **Dimensions:** (HxWxD) 3-3/8 x 10-3/8 x 11-7/16".

2MHz Function Generator

Model BK4010-ND: ***Frequency Characteristics:*** **Range:** 0.2Hz to 2MHz in 7 ranges. **Dial Accuracy:** ±5% (BK4010-ND). **Tuning Range:** 10:1. **Operating Modes:** Normal, VCG (Voltage Controlled Generator). **Sine Wave: Distortion:** 0.5Hz to100KHz: ≤1% >100KHz. **Harmonics:** >30dB below fundamental. **Flatness:** ≤5% (.35dB). **Square Wave: Symmetry:** 0.5Hz to 2MHz ≤2%. **Rise Time:** ≤20ns. **Triangle Wave: Linearity:** ≥98% to 100KHz, ≥95% to 2MHz.

5MHz Function Generator w/ Digital Display

Model BK4011-ND: ***Frequency Characteristics:*** **Range:** 0.5Hz to 5MHz in 7 ranges. **Resolution:** 4 digits. **Tuning Range: Coarse:** 10:1. **Fine:** ±5% of Coarse Setting. **Operating Modes:** Normal, VCG (Voltage Controlled Generator). **Sine Wave: Distortion:** 0.5Hz to100KHz: ≤1% >100KHz. **Harmonics:** >30dB below fundamental. **Flatness:** ≤5% (.35dB). **Square Wave: Symmetry:** 0.5Hz to 5MHz ≤2%. **Rise Time:** ≤20ns. **Triangle Wave: Linearity:** ≥98% to 100KHz, ≥95% to 5MHz. **Frequency Counter: Accuracy:** Time Base Accuracy ±1 count. **Time Base Accuracy:** ±10PPM (23°C ±5°C).

10MHz Sweep/Function Generator with Digital Display

Model BK4017-ND: ***Frequency Characteristics:*** **Range:** 0.1Hz to 10MHz in 8 ranges. **Resolution:** 5 digits. **Tuning Range: Coarse:**10:1. **Fine:** ±5% of Coarse Setting. **Operating Modes:** Normal, Sweep, VCG (Voltage Controlled Generator). **Sine Wave: Distortion:** 0.1Hz to100KHz: ≤1% >100KHz. **Harmonics:** >30dB below fundamental. **Flatness:** ≤5% (.35dB). **Square Wave: Symmetry:** 0.1Hz to 10MHz ≥2%. **Rise Time:** ≤20ns. **Triangle Wave: Linearity:** ≥98% to 100KHz. **Sweep Operation: Mode:** LIN/LOG. **Width:** 100:1, continuously variable. **Rate:** .5sec to 30sec, continuously variable. **Sweep Output:** 0 to 2V. **Frequency Counter: Accuracy:** Time Base Accuracy ±1 count. **Time Base Accuracy:** ±1PPM (23°C ± 5°C). **Display:** 5 digit LED.

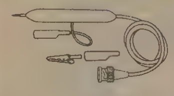
20MHz Sweep/Function Generator w/Frequency Counter & Digital Display

Model BK4040-ND: ***Frequency Characteristics:*** **Range:** 0.2Hz to 20MHz in 8 ranges. **Resolution:** 5 digits. **Tuning Range: Coarse:** 10:1. **Fine:** ±10% of Coarse Setting. **Operating Modes:** Normal, Sweep, VCG (Voltage Controlled Generator), AM, FM, Burst. **Sine Wave: Distortion:** 0.2Hz to100KHz: ≤1% > 100KHz. **Harmonics:** >30dB below fundamental. **Flatness:** ≤5% (.35dB). **Square Wave: Symmetry:** 0.2Hz to 20MHz ≤2%. **Rise Time:** ≤20ns. **Triangle Wave: Linearity:** ≥98% to 100KHz. **Sweep Operation: Mode:** LIN/LOG. **Width:** 100:1, continuously variable. **Rate:** .5sec to 30sec, continuously variable. **Sweep Output:** 0 to 2V. **Start/Stop Frequencies:** Adjustable. ***AM Modulation Characteristics:*** **Source:** Internal, External. **Modulation Ratio:** 0 to 100%. **Int Modulation:** 1KHz. **Ext Modulation:** DC to 20KHz. **EXT Sensitivity:** <10V fir 100% modulation. **Burst Characteristics: Source:** Internal, External. **Burst Width:** Continuously variable from 5% to 90% of internal gating frequency. **Repetition Rate:** 0.5Hz to 50Hz Internal DC to 500KHz external. **External Level:** TTL levels. **Burst Frequency:** Determined by the main generator frequency setting. Tone burst is in integral cycles of frequency being gated. **Frequency Counter: Accuracy: Time Base Accuracy:** ±1 count. **Time Base Accuracy:** ±10PPM (23°C ±5°C). **Display:** 5 digit LED. **Mode:** INT **External Input: Frequency:** 5Hz to 30MHz. **Resolution:** 0.1 1,10,100Hz. **Sensitivity:** ≤20mV rms. **Impedance:** 1M ohm 100pF.

BK4010-ND	**$229.00**
BK4011-ND	**$284.00**
BK4017-ND	**$369.00**
BK4040-ND	**$499.00**

Oscilloscopes

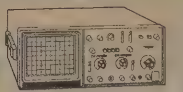
Demodulator Probe For Oscilloscopes



All purpose demodulator/detector probe with BNC Connector, usable with most oscilloscopes. Features include lightweight design and 36" coaxial cable. Probe bodies are constructed of rugged plastic and shielded. **Band Width:** -6 dB at 250MHz. **Input Impedance:** >30kΩ shunted <4.5pF.

PR-32-ND	**$58.98**

20, 60, 100 MHZ Dual Trace Oscilloscope



General Specifications: **Power Source:** 115/230VAC ±10%, 50/60Hz **Accessories Supplied:** Two 10:1 Probes, Power Cord, Spare Fuse, Instruction Manual

Model BK2120-ND: 20MHz Dual-Trace operation. 1 mV/div sensitivity. AUTO-/NORM triggered sweep operation with AC, TVH, TVV and line coupling. Calibrated 19 step timebase with x10 magnifier. Approximately 35W **Dimensions:** 12.6 x 5.1 x 14.2". **Two year warranty.**

Model BK2160-ND: 60 MHz Dual-Trace 1 mV/div sensitivity. Sweep to 5 nS/div. **Main Time Base:** 23 calibrated ranges. **Delayed Time Base:** 19 calibrated ranges. Signal delay line. V mode-displays two signals unrelated in frequency. Component tester. Z axis input. Single sweep. Beam finder. **Dimensions:** 5 3/4 x 13 3/8 x 17". **Three year warranty.**

Model BK2190A-ND: 100MHz 1mV/div sensitivity. Sweeps to 5nS/div. 22 calibrated ranges. **Main Time Base:** 19 calibrated ranges on delayed time base. Signal delay line. 15 kV accelerating voltage. Channel 1 output. Approximately 65W **Dimensions:** 5.5 x 12.6 x 16.9". **Three year warranty.**

BK2120-ND	**$454.95**
BK2190A-ND	**$1497.60**

Oscilloscope Probes

Model BKPR33A-ND: **Bandwidth:** 90MHz (15MHz) **Division Ratio:** X10 (X1). **Input R:** 10MΩ (1MΩ). **Input C:** 15pF (45pF). **Compensation:** 15 - 35pF. **Max Voltage:** 600V (200V). **Length** 52" approx. **Connector:** BNC. ***NOTE:*** Specifications in () refer to X1 position. **Three month warranty.**

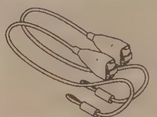
Model BKPR-37AR-ND: **Bandwidth:** 150MHz (6MHz). **Division Ratio:** X10 (X1). **Input R:** 10MΩ (1MΩ). **Input C;** 15pF (100pF). **Compensation:** 15 - 35pF. **Max Voltage:** 600V. **Length** 52" approx. **Connector:** BNC. ***NOTE:*** Specifications in () refer to X1 position. **Six month warranty.**

Model BKPR100A-ND: **Bandwidth:** 250MHz. **Division Ratio:** X100. **Input R:** 100MΩ. **Input C:** 6.5pF. **Compensation:** 10 - 35pF. **Max Voltage:** 1200V. **Length** 54" approx. **Connector:** BNC. **Six month warranty.**

BKPR-33A-ND	**$43.00**
BKPR-37AR-ND	**$54.50**
BKPR-100A-ND	**$69.00**

DC Power Supplies

Power Supply Hook-up Cables

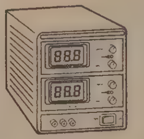


BKTL-5-ND: 5A power supply leads. Banana plug on supply end. Crocodile clamp on component end.

BKTL-30-ND: 30A power supply leads. Spade lug on supply end. Crocodile clamp on component end.

BKTL-5-ND	**$9.00**
BKTL-30-ND	**$12.50**

Single Output Power Supply



All models are backed by B+K's 2-year warranty. All models have short circuit protection, overload protection, reverse polarity protection, thermal protection, and current limiting. All models have CV and CC operation, 0.01% +3mV line and load regulation (zero to full load), adjustable current limits (5 to 100%), low ripple (≤1mVrms), fast recovery time (≤100μS), and operate from 120 VAC ±10%, 60Hz. **Dimensions:** 6.2 X 5.5 X 12.5". Test Lead Set TL-5 and TL-30 sold separately above.

Model BK1710-ND: Single 0-30V, 0-1A output. Two analog meters. **Voltmeter:** 0-32 ±2.5%. **Ammeter:** High Range = 0-1.04A, Low range = 0-0.26A, Accuracy = ±2.5%. **Power Consumption:** 70W.

Model BK1705-ND: Single 0-30V, 0-1A output. Two 3-digit LED meters. **Voltmeter:** 0-99.9V (green) ± (0.5% rdg + 2 digits). **Ammeter:** Range = 0-9.99A (red), Accuracy = ±0.5% rdg + 2 digits). **Power Consumption:** 70W.

Model BK1711-ND: Single 0-60V, 0-2A output. Two analog meters. **Voltmeter:** 0-64 ±2.5%. **Ammeter:** High Range = 0-2.2A, Low range = 0-0.55A, Accuracy = ±2.5%. **Power Consumption:** 210W.

Model BK1715-ND: Single 0-60V, 0-2A output. Two 3-digit LED meters. **Voltmeter:** 0-99.9V (green) ± (0.5% rdg + 2 digits). **Ammeter:** Range = 0-9.99A (red), Accuracy = (0.5% rdg + 2 digits). **Power Consumption:** 210W.

Model BK1730-ND: Single 0-30V, 0-3A output. Two analog meters. **Voltmeter:** 0-32 ±2.5%. **Ammeter:** High Range = 0-3.2A, Low range = 0-0.53A, Accuracy = ±2.5%. **Power Consumption:** 180W.

Model BK1735-ND: Single 0-30V, 0-3A output. Two 3-digit LED meters. **Voltmeter:** 0-99.9V ±0.5%. **Ammeter:** Range = 0-9.99A, Accuracy = ±0.5%. **Power Consumption:** 180W.

BK1710-ND	**$229.00**
BK1705-ND	**$299.00**
BK1711-ND	**$309.00**
BK1715-ND	**$379.00**
BK1730-ND	**$315.00**
BK1735-ND	**$380.00**

DC Power Supplies to 240 Watts Output

All models are backed by B+K's 2-year warranty. All models have short circuit protection, overload protection, reverse polarity protection, thermal protection, and current limiting. All models have CV and CC operation, 0.02% +2mV line and 0.04%+2mV load regulation (zero to full load), adjustable current limits (five to 100%), low ripple (≤1mVrms), fast recovery time (≤100μS), and operate from 120VAC ±10%, 60Hz. **Dim.:** 5.7 X 10.5 X 15". Test Lead Set TL-5 and TL-30 sold separately.

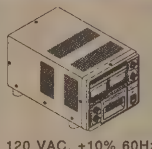
Model BK1746-ND: Single 0-16V, 0-10A output. Two analog meters. **Voltmeter:** 0-16V ± 2.5%. **Ammeter:** High Range = 0-11A, Low Range = 0-2.2A, Accuracy = ±2.5%. **Power Consumption:** 380W

Model BK1740-ND: Single 0-60V, 0-4A output. Two analog meters. **Voltmeter:** 64V ± 2.5%. **Ammeter:** High Range = 0-4.4A, Low Range = 0-1.1A, Accuracy = ±2.5%. **Power Consumption:** 450W

Model BK1743-ND: Single 0-35V, 0-6A output. Two 3-digit LED meters. **Voltmeter:** 0-99.9V (green) ± (0.5% rdg + 2 digits). **Ammeter:** High Range = 0-99.9A (red), Accuracy = ±(0.5% rdg + 2 digits). **Power Consumption:** 420W

BK1746-ND	**$499.00**
BK1740-ND	**$499.00**
BK1743-ND	**$499.00**

Triple Output Power Supply



Two Main sections capable of independent or tracking operation (Master & Slave). One fixed section. Switchable series/parallel operation and adjustable current limit controls for Main sections. Two displays - one reads volts or amps of "slave" supply - one reads volts or amps of "master" supply or fixed supply. Constant current & voltage indicators — Main sections. **Power Source:** 120 VAC, ±10% 60Hz. **Accessories Supplied**: Spare fuse, Instruction Manual, Power Cord. Test Lead Set TL-5 is sold separately.

Model BK1760-ND: Two 0-30VDC, 2A sections, One 5VDC, 4A section. Switchable series/parallel operation for 24V sections. Three Digit LED Displays. **Dimensions:** 3.9 x 9.4 x 7.5". **2 year warranty.**

Model BK1651-ND: Two 0-24VDC, 0.5A sections, One 5V, 4A section. Switchable series/parallel operation for 24V sections. Two Analog Displays. **Accessories Included:** Test leads (3 Pairs) **Dimensions:** 12.4 x 15 x 6.5". **1 year warranty.**

NEW! **Model BK1670-ND:** Produces 3 outputs simultaneously. #1= 0-30V @ 2.5A, #2 = 12VDC @ 500mA and #3 = 5VDC @ 500mA. Three digit LCD displays. **Dim.:** 5.5 x 5.875 x 9.5". **1 year warranty.**

BK1760-ND	**$649.00**
BK1651-ND	**$429.00**
BK1670-ND *NEW!*	**$199.00**

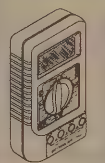
Digital Multimeters

3½ Digit Ruggedized DMM

The Survivor™. High Energy Fused Ruggedized DMM. 3-1/2 digit 0.8" high contrast LCD display. **Audible Continuity:** 20 Amp range. **Sampling:** 2.5 times/sec (nominal). Heavy Duty 1500VDC, 1000VAC rating. Water resistant case. **Power Requirements:** Single 9V battery. **Auto Power Off:** approximately 30 min. **Dimensions:** 6.87 x 3.5 x 1.5". **Accessories Supplied:** Battery, Test Leads, Instruction Manual, Rubber Boot. **Five year Warranty.**

BK2860A-ND	**$99.00**
LC-29A-ND Carrying Case (1 year Warranty)	**$10.00**

"Tool Kit" Multimeters



Display: 3-1/2 digit, high-contrast 0.7" LCD, 1999 counts. **Sampling:** 3 times/sec.(nominal). 0.5%DCV accuracy. DC current to 10A. Diode Test. Drop resistant case. Audible continuity. **Operating Temp:** 0 to +50°C, 0 to 70% RH. **Power Requirements:** 9V battery (Digi-Key Part No. P104-ND). **Dimensions:** 5.9 x 3.1 x 1.3". **Accessories Included:** Battery, Test Leads, and Instruction Manual. **One year Warranty.**

Model BK2704A-ND: DMM, Component Tester. **Resistance:** 0.1 to 20M ohm. **Capacitance:** to 20μF. **Transistor Gain Measure:** (hFE).

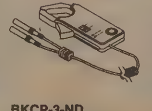
Model BK2703A-ND: Measure voltage, resistance, and current. **Resistance:** 0.1 to 20M ohm.

Model BK2706-ND: DMM, Component tester and temperature meter. **Resistance:** 0.1 to 20M ohm. **Capacitance:** to 20μF. **Temperature:** 0 to 750°C. **Transistor Gain Measure:** (hFE). Thermocouple probe included.

Model BK2707-ND: DMM, Component tester and logic probe. **Resistance:** 0.1 to 200M ohm. **Frequency:** to 200kHz. **Capacitance:** to 20μF. Logic probe function (TTL). **Transistor Gain Measure:** (hFE).

BK2704A-ND	**$59.00**
BK2703A-ND	**$39.00**
BK2706-ND	**$79.00**
BK2707-ND	**$89.00**

DC/AC Current Clamp Adapter

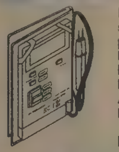


Measures current without disconnecting circuit under test. Measures to 400A DC or AC. Outputs 1 mV per Amp., operates on 2V range of any DMM. **Power Requirements:** 9V battery. **Operating Temp:** 0° to 50°C, <70% RH. **Dimensions:** 7 x 2.75 x 1.3". **Accessories Included:** Battery, Instruction Manual.

BKCP-3-ND	**$86.00**

BK PRECISION
MAXTEC INTERNATIONAL CORP.
Manufactured in the U.S.A.

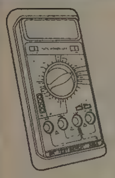
Pocket DMM



Pocket DMM. Analog bar graph with 32 segments. 3200 count LCD display. Auto power off. Low battery indicator. Range hold. Data hold. Integral test leads (one red, one black). **Power:** Two 1.5V button type batteries. **Dimensions:** 4.4 x 2.2 x 0.4". **Accessories Supplied:** Batteries, Instruction Manual, Case.

BK2700-ND $34.43

Test Bench Multimeters



High quality, ruggedized, multi-function DMM's in a drop resistant case. Resistance and Frequency measurement. Diode check. Auto power off. All current ranges fused. **Power Requirements:** Single 9V battery, Digi-Key Part No P104-ND. **Dimensions:** 7.5 x 3.4 x 1.5". **Accessories Supplied:** 9 Volt Battery, Test Leads, Instruction Manual, Rubber Boot. **Three year warranty.**

Model BK388A-ND: 3-3/4 Digit .6" LCD Display. 41 ranges. DC and AC current. Drop resistant to 4 feet. 0.5% DCV accuracy. **Resistance:** 0.1Ω to 4MegΩ. **Frequency:** 1Hz to 4MHz. **Capacitance:** to 40µF. Logic level measure (TTL). Transistor gain (hFE) and peak hold.

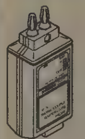
Model BK390-ND: 3-3/4 Digit .45" LCD Display (4000 count). **Analog Bar Graph:** 42 segments. 0.1% DCV accuracy. Auto/manual ranging. Capacitance measurement. Temperature probe. Relative mode. Min-max hold. Memory. Audible continuity. Data hold. Thermocouple Probe included.

Model BK389-ND: 3-3/4 Digit .45" LCD Display (4000 count). **Analog Bar Graph:** 42 segments. 0.25% DCV accuracy. Auto/manual ranging. Capacitance measurement. Relative mode. Min-max hold. Memory. Audible continuity. Data hold.

Model BK391-ND: 4-1/2 Digit .6"LCD Display (20,000 count). True RMS reading. 0.05%DCV accuracy. Measures voltage to 1,000VDC and 750VAC; amps to 20ADC and AC; and ohms to 20M. Data hold. Logic probe function. Duty cycle measurement.

BK388A-ND	$119.00
BK390-ND	$159.00
BK389-ND	$139.00
BK391-ND	$179.00
LC-29A-ND Carrying Case for use with Test Bench Multimeter (1 year warranty)	$10.00

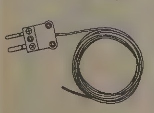
Temperature Adapter



Type K thermocouple. Measures from -200° to +1000°C. 1mV per degree. Measures temperature of any surface, liquid or gas. Converts any voltmeter to measure temperature. Open probe warning. **Power:** Standard 9V battery (Digi-Key Part No. P104-ND). Dimensions: 3-1/2 x 2 x 1-1/8". **Cable Length:** 3'. **Accessories Supplied:** TP-29.

TP-30-ND $125.00

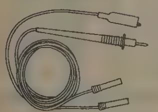
Thermocouple Probe



Type K bead probe, Teflon tape insulated. **Maximum Insulation Temperature:** 500°F. **Probe Accuracy:** ±4°F or ±0.75% of reading, whichever is greater, from 32° to 1500°F. For Models 390, 2706, and other digital temperature meters.

TP-29-ND $15.00

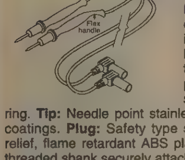
Test Leads



This banana plug lead is shrouded by plastic sleeve for safety. Order **BKFP-28** for Models 2830, 2831, 114A, 214, 2700 Series and Model 377.

BKFP-28-ND $10.00

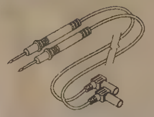
Deluxe Test Leads



Fits: B&K Precision "Test Bench", "Tool Kit" and "Survivor" series DMMs, most other multimeters. **Insulation:** Silicon insulation withstands soldering iron burns, very pliable even at low temperature. **Probe:** Flexible PVC plastic handle provides the ultimate in strain relief, 3/4" diameter finger guard ring. **Tip:** Needle point stainless steel tip pierces contamination and coatings. **Plug:** Safety type shrouded banana plug 90° with strain relief, flame retardant ABS plastic insulation. **Acc. Connector:** 8-32 threaded shank securely attaches screw-on accessory tips. **Length:** 4 feet. **Volt Rating:** 1000 volts. **Current Rating:** 10 amps. **Cable:** 18 gauge copper stranded. **Items Supplied:** 1 test lead, red; 1 test lead, black; 1 alligator clip, black; 1 storage pouch. **Optional Accs:** Model TL-3 Accessory Tips Kit.

TL-2-ND $20.00

DMM Test Leads



Safety type shrouded banana plug. Fits all B&K Precision "Tool Kit", "Test Bench", "Survivor", bench DMMs, and most other brands. 1000V 3A rating. PVC Insulation, 3' length.

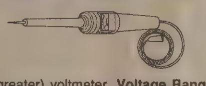
TL-1-ND $8.00

Accessory Tips Kit

Fits: B&K Precision Model TL-2 Deluxe Test Leads. **Attachment Method:** 8-32 threaded connector securely attaches screw-on tips to probe handle of TL-2 **Insulation:** PVC. **Items Supplied:** 1 alligator clip, red; 2 component clips, 1 red, 1 black; 2 #10 spade lugs, 1 red, 1 black; 2 3-inch extension tips, 1 red, 1 black; 1 storage pouch.

TL-3-ND $12.00

High-Voltage Probes

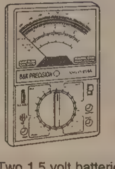


Model PR-28-ND: Accessory for DMM'S Multiplies instrument ranges by 1000 (40 V becomes 40,000 V). PR-28 for use with any high impedance (10 MΩ or greater) voltmeter. **Voltage Range:** 40kVDC and 20kVAC (60Hz). **Frequency Range:** DC-80Hz 20kVAC max. 60Hz. **Impedance:** 600 MΩ. Accuracy: ±3% plus instrument accuracy. **Calibration:** Internal; factory cal. at 25kV. **Size:** 14" long x 2.25 dia. (max.) x 30" cord. **Connector:** Dual banana.

Model BKHV-44-ND: Built in meter for stand alone operation (No DMM required) Measures voltages up to 40,000 VDC. Factory calibrated at 25 kV (±2% accuracy); full scale ±3% accuracy. Supplied with two tips: conventional round needle type and flat spring type for easy access to CRT anode. **Positive Polarity Only** — *Not for Microwave Ovens.*

PR-28-ND	$59.00
BKHV-44-ND	$109.04
BKLC-32-ND Carrying Case	$19.00

Analog Multimeter

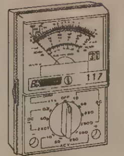


Model BK114A-ND: 20,000Ω/Volt Multimeter. 28 ranges. 31/2" mirrored scale. Tests batteries under load. Test transistors. **Power Source:** Two 1.5 volt batteries (Digi-Key Part No. P103-ND) and one 9V battery (Digi-Key Part No. P104-ND). **Dimensions:** 5-3/4 x 3-7/8 x 1-3/8". **Accessories Supplied:** Batteries, Test Leads (1 red & 1 black), Transistor test leads, Instruction Manual.

Model BK214A-ND: 30,000Ω/Volt Multimeter. 24 ranges. 31/2" mirrored scale. Measures AC current. Taut band movement. **Power Source:** Two 1.5 volt batteries (Digi-Key Part No. P103-ND). **Dimensions:** 5-3/4 x 3-7/8 x 1-1/4". **Accessories Supplied:** Batteries, Test Leads (1 red & 1 black), Instruction Manual.

BK114A-ND	$42.00
BK214A-ND	$55.00

Pocket Size Multimeter

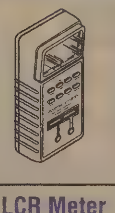


Measures DC & AC Voltage: 0-10, 50, 250, and 500 volt scales with ±5% accuracy (full scale). 2,000 Ω/V sensitivity. **Measures DC current:** 0.5, 50, and 250mA scales with ±4% accuracy (full scale). **Measures resistance:** R x 1kΩ ±4% degree arc of scale length. Measures decibels -20dB to +56dB on AC voltage ranges. **Power Source:** one 1.5V, AA battery (Digi-Key Part No. P103-ND). **Dimensions:** 1-3/16 x 2-3/8 x 3-1/2". **Accessories Supplied:** Battery, Test Leads, Instruction Manual.

BK117-ND $13.00

Component Testers

Dual-Display LCR Bridge



Measures inductance, resistance, capacitance, DF & Q. Auto ranging. 4-digit LCD display. Auto calibrate. Tests at 120Hz or1kHz. Relative Mode. Tolerance Mode. Basic accuracy 0.7%. **Dimensions:** 1.5 x 3.5 x 7.6". **Accessories Included:** Test leads, AC Adapter, Instruction Manual.

BK878-ND	$275.00
LC-29A-ND Carrying Case (1 year warranty)	$10.00

LCR Meter

Measures capacitance, resistance and inductance. Measures dissipation factor of capacitors and 1/Q of inductors. 3-1/2 digit LCD display. Low battery and overload indicator. **Power Source:** Single standard 9V battery, Digi-Key Part No. P104-ND. **Dimensions:** 1-3/8 x 3-1/2 x 7-1/2". **Accessories Included:** Test Clips, Battery, Spare Fuse, Instruction Manual.

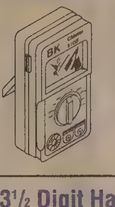
BK875A-ND	$198.99
LC-29A-ND Carrying Case (1 year warranty)	$10.00

Auto Ranging Capacitance Meter

3-1/2 digit LCD display. Measures capacitance to 199.9mF. 10 ranges from 199.9pF to 199.9 mF. **Power Source:** 4 "C" size cells (Digi-Key Part No. 106-ND). **Dimensions:** 6.4 x 4.4 x 2.4".

BK830-ND $337.83

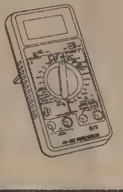
Capacitance Meter



3½ digit LCD display. Nine ranges from 200pF to 20mF. 0.1pF resolution. Low battery and overrange indicator. **Power Source:** Single 9V battery (Digi-Key Part No. P104-ND). **Dimensions:** 5.7 x 3.0 x 1.6". **Accessories Included:** Test Leads, Battery, and Manual.

BK810B-ND ***NEW!***	$99.00
LC-29A-ND Carrying Case (1 year warranty)	$10.00

3½ Digit Hand-Held Parts Tester

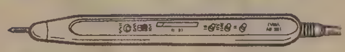


26 user ranges for versatile test selection. Tests capacitance from 0.1pF through 20mF. Tests resistance from 0.1Ω through 20MΩ. Tests transistors, SCRs, diodes and LEDs. Tests batteries under actual loaded conditions. **Power:** Single, 9V transistor battery (Digi-Key Part No. P104-ND). **Dimensions:** 6-7/8 x 3-5/8 x 1-1/4". **Accessories Included:** Test Leads, Spare Fuse, Battery, Instruction Manual.

BK815-ND	$97.96
LC-29A-ND Carrying Case (1 year warranty)	$10.00

Logic Probes

20MHz and 50MHz Logic Probes



20MHz Logic Probe (Model DP-21-ND): Tests TTL, DTL, RTL, HTL, CMOS AND MOS. Displays pulse presence and logic states. Memory mode "freezes" pulse display. Catches pulses to 30 ns or pulses trains to 20 MHz. 1MΩ input impedance. **Operating Supply Voltage Range:** TTL–5V, CMOS 5-15V. **Dimensions:** .7 x .7 x 8.2".

50MHz Logic Probe (Model BKDP52-ND): Tests TTL, and CMOS. Displays DC to 50MHz. Detects 10ns pulse width. Overload protected. 120kΩ input impedance. **Operating Supply Voltage Range:** 4-18VDC. **Dimensions:** .7 x .7 x 8.2".

DP-21-ND	$34.00
BKDP52-ND	$45.00

Pulser Probe

For TTL and CMOS. Produces 10µS pulse signal at 100mA. External square wave terminal. **Output Current:** Pulser mode-100mA sink/source square wave mode-5mA sink/source. **Operating Supply Voltage Range:** 5-15VDC. **Sync Input Impedance:** 1MΩ. **Dimensions:** .7 x .7 x 8.2".

DP-31A-ND $35.00

SEALED UNIT PARTS CO., INC!

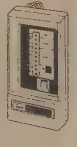
Digital Capacitor Tester

The MFD-10 will also check for open and short conditions and can be used as a continuity tester. For out-of-circuit use only. Cap must be discharged prior to testing.

Specifications: Case Material: Hi-impact thermoplastic. **Batteries:** (4)AA 1.5V (P107 Not Supplied). **Dimensions:** 2-5/8" x 1-3/8" x 4-1/4" .**Display:** 5/16" high, light emitting diodes. **Switch Range:** From 0.01 to 10 MFD and 10 to 10,000 MFD. **Test Wires:** Furnished complete with alligator clips. **Back panel:** Removable for test wire storage.

DCT-ND $79.95

Solid State Megohmmeter

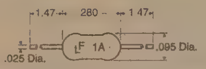


Specifically designed as an inexpensive alternative to costly taut band, (swing needle), megohmmeters. This reliable battery operated instrument, complete with LED indicators, will accurately measure insulation values up to 1000 megohms at 500 volts and also indicate the condition of insulation on the zone scale. **Specifications: Indicator range:** 20 to 1000 Megohms. **Display:** Light emitting diodes. **Back panel:** Removable for test lead storage. **Case:** Hi-impact thermoplastic. **Dimensions:** 3 3/8" x 6 3/8" x 1 3/4". **Carrying case:** Vinyl, zippered (furnished). **Batteries:** (2) "C" size 1.5 Volt (P106 not supplied).

MGM-ND $129.66

Littelfuse®

PICO II™ Very Fast-Acting Pico Fuses



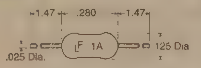
Approvals: Recognized under the Components Program of Underwriters Laboratories through 10 amperes. Certified by CSA through 7 amperes. **Patents:** U.S. Patent #2,385,281. **Optional Color-Coded Version:** PICO II™ Fuses can be color-coded. The first three bands indicate current rating in milliamperes. The fourth and wider band designates the time-current characteristics of the fuse (red is fast-acting).

Electrical Characteristics:

Rating	Amperage	Blow Time
100%	1/16 — 15	4 hours, minimum
200%	1/16 — 10	5 seconds, maximum
200%	12 — 15	10 seconds, maximum

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing		
			5	100	1,000
251 Series — Non Color-Coded Type					
.0625	125	F820-ND	'5.08	92.96	540.80
.125	125	F821-ND	4.54	83.06	483.20
.250	125	F822-ND	4.54	83.06	483.20
.375	125	F823-ND	4.54	83.06	483.20
.500	125	F824-ND	4.54	83.06	483.20
.750	125	F825-ND	3.55	64.91	377.60
1.000	125	F826-ND	3.55	64.91	377.60
1.500	125	F827-ND	3.55	64.91	377.60
2.000	125	F828-ND	3.55	64.91	377.60
2.500	125	F829-ND	3.55	64.91	377.60
3.000	125	F830-ND	3.55	64.91	377.60
3.500	125	F831-ND	3.55	64.91	377.60
4.000	125	F832-ND	3.55	64.91	377.60
5.000	125	F833-ND	3.55	64.91	377.60
7.000	125	F834-ND	3.80	69.58	404.80
10.000	125	F835-ND	3.55	64.91	377.60
12.000	32	F836-ND	6.15	112.75	656.00
15.000	32	F837-ND	6.15	112.75	656.00

PICO II™ Slo-Blo® Pico Fuses



Construction Materials: Body-UL94VO Epoxy Coating, Gold. Leads-Solder Coated Copper Wire. **Operating Temperature Range:** -55°C to 125°C. **Voltage Rating:** 125V

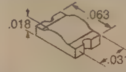
Electrical Characteristics:

Rating	Blow Time	Rating	Blow Time
100%	4 hrs., min.	200%	60 sec., max.
300%	3 sec., max.	800%	0.1 sec., max.

Amp. Rating	Digi-Key Part No.	Pricing		Tape/Reel*
		5	100	4,000
R473 Series - Non-Color Coded Type				
.500	F1200CT-ND	6.10	111.66	588.70/M
.750	F1201CT-ND	6.10	111.66	588.70/M
1.000	F1202CT-ND	6.10	111.66	588.70/M
1.500	F1203CT-ND	6.10	111.66	588.70/M
2.000	F1204CT-ND	6.10	111.66	588.70/M
2.500	F1205CT-ND	6.10	111.66	588.70/M
3.000	F1206CT-ND	6.10	111.66	588.70/M
3.500	F1207CT-ND	6.10	111.66	588.70/M
4.000	F1208CT-ND	6.10	111.66	588.70/M
5.000	F1209CT-ND	6.10	111.66	588.70/M

* For tape & reel part number, change "CT" to "TR".

NEW! "0603" SMF Very Fast Acting Thin-Film Fuse



R431 Series

% of Ampere Rating	Opening Time at 25°C
100%	4 Hours, Min.
200%	5 Seconds, Max.
300%	0.2 Seconds, Max.

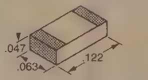
Specifications: • **Construction Materials:** Body: Epoxy Substrate, Terminations: Copper/Nickel/Tin-Lead (95/5). Cover Coat: Conformal Coating • **Interrupting Rating:** 35 Amps at 24V AC/DC or 50 Amps at 32V AC/DC • **Operating Temperature Range:** -55°C to +125°C.

Tape and Reel Specifications: Supplied on 8mm wide reels that are in compliance with EIA-RS481. Packaged 5,000 fuses per reel.

Amp Rate	Volt Rate	Digi-Key Part No.	Pricing			T & R* Pricing
			1	10	100	5000
R431 Series						
.500	32	F1240CT-ND	.74	6.83	63.00	304.50/M
1.00	32	F1241CT-ND	.74	6.83	63.00	304.50/M
1.50	24	F1242CT-ND	.74	6.83	63.00	304.50/M
2.00	24	F1243CT-ND	.74	6.83	63.00	304.50/M

* For tape and reel part number, change "CT" to "TR".

"1206" SMF Very Fast Acting Thin-Film Fuse



ALF™

% of Ampere Rating	Opening Time at 25°C
100%	4 Hours, Min.
200%	5 Seconds, Max.
300%	0.2 Seconds, Max.

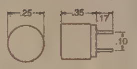
Specifications: • **Construction Materials:** Body: Epoxy Substrate, Terminations: Copper/Nickel/Tin-Lead (95/5). Cover Coat: Conformal Coating • **Operating Temperature Range:** -55°C to +125°C • **Solderability:** Withstands 60 seconds above 200°C up to 260°C max.

Tape and Reel Specifications: Supplied on 8mm wide reels that are in compliance with EIA-RS481. Packaged 3,000 fuses per reel.

Amp Rate	Volt Rate	Digi-Key Part No.	Pricing			T & R* Pricing
			1	10	100	3000
R429 Series						
.250	125	F1230CT-ND	.88	7.50	62.50	400.00/M
.375	125	F1231CT-ND	.88	7.50	62.50	400.00/M
.500	63	F1232CT-ND	.88	7.50	62.50	400.00/M
.750	63	F1233CT-ND	.88	7.50	62.50	400.00/M
1.00	63	F1234CT-ND	.83	7.08	59.00	377.60/M
1.25	63	F1235CT-ND	.83	7.08	59.00	377.60/M
1.50	63	F1236CT-ND	.83	7.08	59.00	377.60/M
1.75	63	F1237CT-ND	.83	7.08	59.00	377.60/M
2.00	63	F1238CT-ND	.83	7.08	59.00	377.60/M

* For tape & reel part number, change "CT" to "TR".

Microfuse Very Fast-Acting Type



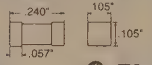
Approvals: Recognized under the Components Program of Underwriters Laboratories and Certified by CSA

Electrical Characteristics:

Rating	Amperage	Opening Time	Oper. Temp
100%	1/500 — 5	4 hrs., min.	55°C to 85°C
200%	1/500 — 3/10	5 sec., max.	
200%	4/10 — 5	2 sec., max.	

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing		
			5	100	500
273 Series — Fast-Acting Type					
.002	125	F850-ND	28.99	514.25	2337.50
.005	125	F851-ND	28.99	514.25	2337.50
.010	125	F852-ND	28.99	514.25	2337.50
.015	125	F853-ND	28.99	514.25	2337.50
.031	125	F854-ND	28.99	514.25	2337.50
050	125	F855-ND	10.85	192.50	875.00
.062	125	F856-ND	10.85	192.50	875.00
.100	125	F857-ND	10.85	192.50	875.00
.125	125	F858-ND	10.85	192.50	875.00
.200	125	F859-ND	10.85	192.50	875.00
.250	125	F860-ND	10.85	192.50	875.00
.300	125	F861-ND	10.85	192.50	875.00
.400	125	F862-ND	10.85	192.50	875.00
.500	125	F863-ND	10.85	192.50	875.00
.600	125	F864-ND	10.85	192.50	875.00
.700	125	F865-ND	10.85	192.50	875.00
.750	125	F866-ND	10.85	192.50	875.00
.800	125	F867-ND	10.85	192.50	875.00
1.000	125	F868-ND	10.85	192.50	875 00
1.500	125	F869-ND	10.85	192.50	875.00
2.000	125	F870-ND	10.85	192.50	875.00
3.000	125	F871-ND	10.85	192.50	875.00
4.000	125	F872-ND	10.85	192.50	875.00
5.000	125	F873-ND	10.85	192.50	875.00

Nano² SMF Very Fast-Acting Fuses



Nano² Surface Mount Fuses incorporate proven Picofuse performance and dependability in a flat top design which permits efficient pick and place assembly. **Recommended Soldering Para-meters:** Infrared Reflow: 500°F (260°C) max., Wave Solder: 500°F (260°C) max. for 10 sec. max. **Construction Materials:** Body is ceramic, Caps are tin-lead alloy plated brass. **Operating Temperature Range:** -55°C to 125°C. **Voltage Rating:** 125V

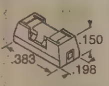
Rating	Amps	Blow Time
100%	1/16-15	4 hrs., min.
200%	1/16-10	5 sec., max.
200%	12-15	20 sec., max.

Amp. Rating	Digi-Key Part No.	Pricing		Tape/Reel*
		5	100	1,000
R451 Series				
.250	F1140CT-ND•	6.25	107.10	571.00
.500	F1141CT-ND•	6.25	107.10	571.00
.750	F1142CT-ND•	6.25	107.10	571.00
1.000	F1143CT-ND•	6.25	107.10	571.00
1.500	F1144CT-ND•	6.25	107.10	571.00
2.000	F1145CT-ND•	6.25	107.10	571.00
2.500	F1146CT-ND•	6.25	107.10	571.00
3.000	F1147CT-ND•	6.25	107.10	571.00
4.000	F1148CT-ND•	6.25	107.10	571.00
5.000	F1149CT-ND•	6.25	107.10	571.00
10.000	F1150CT-ND•	6.25	107.10	571.00
15.000	F1151CT-ND	7.54	129.30	690.00

* For tape & reel part number, change "CT" to "TR".

SMF-KIT-ND — 5 each of Nano² SMF Fuses parts indicated and 5 each of Pico SMD Fuses indicated in the chart to the right **$99.95**

SMF Omni-Blok® Fuse Block with Nano² Fast Acting Fuses



The SMF Omni-Blok® Fuseholder permits quick and easy replacement of Nano²™ SMF surface mount fuses. The fuse block and pre-installed fuse combination can be placed on the PC board in one efficient manufacturing operation.

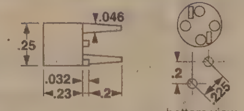
Specifications: • **Electricals:** 7 Amperes, 125 Volts • **Molded Parts:** Thermoplastic (94V0) • **Ambient Temperature:** -55°C to +125°C • **Soldering Parameters:** Infrared — 445°F(230°C), 30 sec. • **Packaging:** 16mm wide Tape and Reel per EIA Standard 481. 1500 per reel.

Installed fuses have silver plated end caps, installed to accommodate solder reflow process. Use 451 Series with tin/lead alloy plated end caps for replacement purposes.

Amp Rate	Volt Rate	Digi-Key Part No.	Pricing			Tape & Reel* Pricing
			1	10	100	1500
R154 Series						
.250	125	F1219CT-ND	1.82	15.60	130.00	832.00/M
.500	125	F1220CT-ND	1.82	15.60	130.00	832.00/M
.750	125	F1221CT-ND	1.56	13.38	111.50	713.60/M
1.00	125	F1222CT-ND	1.56	13.38	111.50	713.60/M
1.50	125	F1223CT-ND	1.56	13.38	111.50	713.60/M
2.00	125	F1224CT-ND	1.56	13.38	111.50	713.60/M
2.50	125	F1225CT-ND	1.56	13.38	111.50	713.60/M
3.00	125	F1226CT-ND	1.56	13.38	111.50	713.60/M
4.00	125	F1227CT-ND	1.56	13.38	111.50	713.60/M
5.00	125	F1228CT-ND	1.56	13.38	111.50	713.60/M

* For Tape & Reel part no., change part number from CT to TR-ND

Microfuse Fuseholder



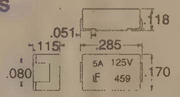
bottom view

Fuseholder will accept Littel-fuse Microfuses and PICO II™ fuses (rated to 5 amperes) with .025" di-ameter leads. **Electrical:** Rated at 5 amperes for any voltage up to 125 volts. **Molded Parts:** White thermoplastic. **Terminals:** Copper alloy. **Ambient Temperature:** -40°C to +100°C. Silver terminal plating.

Mounting	Digi-Key Part No.	Pricing		
		5	100	500
Vertical	F060-ND	7.72	136.95	622.50
Horizontal	F061-ND	7.25	128.70	585.00

Pico SMD Very Fast-Acting and Slo-Blo® SMT Fuses

EIA Case Code 7343



Laser etched for ease of identification; **Operating Temperature:** -55°C to +125°C. **Soldering Methods:** *Infrared Reflow* is 500°F (260°C) max. temperature for Very Fast-Acting, 446°F (230°C) max. temperature for Slo-Blo® *Thru the wave soldering* is 500°F(260°C),10 sec. max. **Voltage Rating:** 125

Rating	Fast-Acting Blow Time	Slo-Blo® Blow Time
100%	4 hrs. min.	4 hrs., min.
200%	1 sec. max.	60 sec., max.
300%	—	3 sec., max.
800%	—	0.1 sec. max.

Amp. Rating	Digi-Key Part No.	Pricing		Tape/Reel*
		5	100	500
Very Fast-Acting R459 Series				
.125	F1160CT-ND	7.51	128.70	386.00
.250	F1161CT-ND	7.51	128.70	386.00
.375	F1162CT-ND•	7.51	128.70	386.00
.500	F1163CT-ND•	7.51	128.70	386.00
.750	F1164CT-ND•	7.51	128.70	386.00
1.000	F1165CT-ND•	7.51	128.70	386.00
1.500	F1166CT-ND•	7.51	128.70	386.00
2.000	F1167CT-ND•	7.51	128.70	386.00
2.500	F1168CT-ND•	7.51	128.70	386.00
3.000	F1169CT-ND•	7.51	128.70	386.00
3.500	F1170CT-ND•	7.51	128.70	386.00
4.000	F1171CT-ND•	7.51	128.70	386.00
5.000	F1172CT-ND•	7.51	128.70	386.00
Slo-Blo® R460 Series				
.375	F1180CT-ND•	7.95	136.20	408.50
.500	F1181CT-ND•	7.95	136.20	408.50
.750	F1182CT-ND	7.95	136.20	408.50
1.000	F1183CT-ND•	7.95	136.20	408.50
1.500	F1184CT-ND•	7.95	136.20	408.50
2.000	F1185CT-ND•	7.95	136.20	408.50
2.500	F1186CT-ND	7.95	136.20	408.50
3.000	F1187CT-ND•	7.95	136.20	408.50
3.500	F1188CT-ND	7.95	136.20	408.50
4.000	F1189CT-ND•	7.95	136.20	408.50
5.000	F1190CT-ND•	7.95	136.20	408.50

* For tape & reel part number, change "CT" to "TR".

SMF-KIT-ND — 5 each of Pico SMD Fuses parts indicated and 5 each of Nano² SMF Fuses indicated in the chart to the left **$99.95**

2AG Subminiature Fast-Acting Fuses

Pigtail Material: Tinned copper wire.

Electrical Characteristics:

Rating	Blow Time
110%	4 hr., min.
135%	1 hr., max.
200%	1 sec., max.

Approvals: Listed by Underwriters Laboratories and Certified by CSA. **Patent:** Pending **Dimensions: Cartridge:** .177 dia.; .57 length. **Pigtail:** .19 dia.; .60 length. **Leads:** .025 dia.; 1.50 length typ.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing		
			5	100	1,000
225 Series — Cartridge Type					
.125	250	F640-ND	3.71	67.93	395.20
.250	250	F641-ND	3.71	67.93	395.20
375	250	F642-ND	3.71	67.93	395.20
.500	250	F643-ND	1.46	26.68	155.20
.750	250	F644-ND	1.46	26.68	155.20
1.000	250	F645-ND	1.46	26.68	155.20
1.500	250	F646-ND	1.46	26.68	155.20
2.000	250	F647-ND	1.46	26.68	155.20
2.500	250	F648-ND	1.46	26.68	155.20
3.000	250	F649-ND	1.46	26.68	155.20
3.500	250	F650-ND	1.46	26.68	155.20
4.000	125	F651-ND	1.46	26.68	155.20
5.000	125	F652-ND	1.46	26.68	155.20
7.000	125	F653-ND	1.46	26.68	155.20
224 Series — Pigtail Type					
.125	250	F620-ND	4.69	85.81	499.20
.250	250	F621-ND	4.69	85.81	499.20
.375	250	F622-ND	4.69	85.81	499.20
.500	250	F623-ND	2.39	43.73	254.40
.750	250	F624-ND	2.39	43.73	254.40
1.000	250	F625-ND	2.39	43.73	254.40
1.500	250	F626-ND	2.39	43.73	254.40
2.000	250	F627-ND	2.39	43.73	254.40
2.500	250	F628-ND	2.39	43.73	254.40
3.000	250	F629-ND	2.39	43.73	254.40
3.500	250	F630-ND	2.39	43.73	254.40
4.000	125	F631-ND	2.39	43.73	254.40
5.000	125	F632-ND	2.39	43.73	254.40
7.000	125	F633-ND	2.39	43.73	254.40

2AG Subminiature Slo-Blo® Fuses

Pigtail Material: Tinned copper wire.

Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	3 sec., min./20 sec., max.

Approvals: Listed by Underwriters Laboratories and Certified by CSA through 3.5 amperes. Recognized under the Components Program of Underwriters Laboratories from 4 through 7 amperes. **Patents:** U.S. Patents #4,409,729 and #4,445,106. **Dimensions: Cartridge:** .177 dia.; .57 length. **Pigtail:** .19 dia.; .60 length. **Leads:** .025 dia.; 150 length type.

Littelfuse®

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
229 Series — Cartridge Type					
.250	250	F660-ND	1.97	36.03	209.60
.375	250	F661-ND	1.97	36.03	209.60
.500	250	F662-ND	1.97	36.03	209.60
.750	250	F663-ND	1.97	36.03	209.60
1.000	250	F664-ND	1.97	36.03	209.60
1.500	250	F665-ND	1.97	36.03	209.60
2.000	250	F666-ND	1.97	36.03	209.60
2.500	250	F667-ND	1.97	36.03	209.60
3.000	250	F668-ND	1.97	36.03	209.60
3.500	250	F669-ND	1.97	36.03	209.60
4.000	125	F670-ND	1.97	36.03	209.60
5.000	125	F671-ND	1.97	36.03	209.60
7.000	125	F672-ND	1.97	36.03	209.60
230 Series — Pigtail Type					
.250	250	F680-ND	3.25	59.41	345.60
.375	250	F681-ND	3.25	59.41	345.60
.500	250	F682-ND	3.25	59.41	345.60
.750	250	F683-ND	3.25	59.41	345.60
1.000	250	F684-ND	3.25	59.41	345.60
1.500	250	F685-ND	3.25	59.41	345.60
2.000	250	F686-ND	3.25	59.41	345.60
2.500	250	F687-ND	3.25	59.41	345.60
3.000	250	F688-ND	3.25	59.41	345.60
3.500	250	F689-ND	3.25	59.41	345.60
4.000	125	F690-ND	3.25	59.41	345.60
5.000	125	F691-ND	3.25	59.41	345.60
7.000	125	F692-ND	3.25	59.41	345.60

3AB Ceramic Body Slo-Blo® Fuses

Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	5 sec., min.

Dimensions: 326 Series: Diameter: 1/4"; Length: 1-1/4". **Patents:** U.S. Patents #4,409,729 and #4,445,106. **Approvals:** Listed by UL through 10 amperes. Recognized under the Components Program of Underwriters Laboratories from 12 through 30 amperes. Certified by CSA from 1/4 through 10 amperes.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
326 Series — Cartridge Type					
.010	250	F450-ND	10.11	185.35	1078.40
.0312	250	F451-ND	7.64	139.98	814.40
.062	250	F452-ND	7.64	139.98	814.40
.100	250	F453-ND	6.88	125.96	732.80
.125	250	F454-ND	6.88	125.96	732.80
.150	250	F455-ND	6.88	125.96	732.80
.175	250	F456-ND	9.14	167.48	974.40
.1875	250	F457-ND	9.14	167.48	974.40
.200	250	F458-ND	9.14	167.48	974.40
.250	250	F459-ND	6.82	124.86	726.40
.300	250	F460-ND	6.82	124.86	726.40
.375	250	F461-ND	6.82	124.86	726.40
.400	250	F462-ND	6.82	124.86	726.40
.500	250	F463-ND	6.82	124.86	726.40
.600	250	F464-ND	6.82	124.86	726.40
.700	250	F465-ND	6.82	124.86	726.40
.750	250	F466-ND	6.82	124.86	726.40
.800	250	F467-ND	6.82	124.86	726.40
1.000	250	F468-ND	6.82	124.86	726.40
1.200	250	F469-ND	6.82	124.86	726.40
1.250	250	F470-ND	6.82	124.86	726.40
1.500	250	F471-ND	6.82	124.86	726.40
1.600	250	F472-ND	6.82	124.86	726.40
2.000	250	F473-ND	6.82	124.86	726.40
2.500	250	F474-ND	4.75	86.91	505.60
2.800	250	F475-ND	4.75	86.91	505.60
3.000	250	F476-ND	4.75	86.91	505.60
3.200	250	F477-ND	4.75	86.91	505.60
4.000	250	F478-ND	4.75	86.91	505.60
5.000	250	F479-ND	4.75	86.91	505.60
6.250	250	F480-ND	4.75	86.91	505.60
7.000	250	F481-ND	4.75	86.91	505.60
8.000	250	F482-ND	4.75	86.91	505.60
10.000	250	F483-ND	4.75	86.91	505.60
12.000	250	F484-ND	4.75	86.91	505.60
15.000	250	F485-ND	4.75	86.91	505.60
20.000	250	F486-ND	4.75	86.91	505.60
25.000	125	F487-ND	4.75	86.91	505.60
30.000	125	F488-ND	4.75	86.91	505.60

3AB Ceramic Body Fast Acting Fuses

Electrical Characteristics:

Rating	Amperage	Blow Time
110%	1/8 — 30	4 hrs., min.
135%	1/8 — 30	1 hr., max.
200%	1/8 — 12	15 sec., max.
200%	15 — 30	60 sec., max.

Dimensions: 314 Series: Diameter: 1/4"; Length: 1-1/4". **Approvals:** Listed by UL and Certified by CSA through 15 amperes. Recognized under the Components Program of Underwriters Laboratories from 20 through 30 amperes.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
314 Series — Cartridge Type					
.125	250	F150-ND	4.39	80.31	467.20
.250	250	F151-ND	3.34	61.06	355.20
.375	250	F152-ND	3.34	61.06	355.20
.500	250	F153-ND	3.34	61.06	355.20
.75	250	F154-ND	3.34	61.06	355.20
1.000	250	F155-ND	3.13	57.21	332.80
2.000	250	F156-ND	3.13	57.21	332.80
3.000	250	F157-ND	3.13	57.21	332.80
4.000	250	F158-ND	3.13	57.21	332.80
5.000	250	F159-ND	2.96	54.18	315.20
6.000	250	F160-ND	2.96	54.18	315.20
7.000	250	F161-ND	2.96	54.18	315.20
8.000	250	F162-ND	2.96	54.18	315.20
10.000	250	F163-ND	2.96	54.18	315.20
12.000	250	F164-ND	2.96	54.18	315.20
15.000	250	F165-ND	2.96	54.18	315.20
20.000	250	F166-ND	4.41	80.85	470.40
25.000	125	F167-ND	4.41	80.85	470.40
30.000	125	F168-ND	4.41	80.85	470.40

3AG Glass Body Fast-Acting Fuses

Approvals: Listed by Underwriters Laboratories and Certified by CSA. **Dimensions: 312 Series:** Diameter: 1/4"; Length: 1-1/4". **318 Series:** Diameter: .275"; Length: 1.275"; Pigtail Diameter: .032"; Pigtail Length: 1.50"; Pigtail Material: Tinned copper wire.

Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	5 sec., max.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
312 Series — Cartridge Type					
.010	250	F100-ND	17.40	319.00	1856.00
.031	250	F101-ND	17.40	319.00	1856.00
.062	250	F102-ND	4.37	80.03	465.60
.100	250	F103-ND	4.37	80.03	465.60
.125	250	F104-ND	4.37	80.03	465.60
.150	250	F105-ND	4.37	80.03	465.60
.175	250	F106-ND	4.37	80.03	465.60
.187	250	F107-ND	4.37	80.03	465.60
.200	250	F108-ND	4.37	80.03	465.60
.250	250	F109-ND	2.70	49.50	288.00
.300	250	F110-ND	2.70	49.50	288.00
.375	250	F111-ND	2.70	49.50	288.00
.500	250	F112-ND	1.86	34.10	198.40
.600	250	F113-ND	1.86	34.10	198.40
.750	250	F114-ND	1.86	34.10	198.40
1.000	250	F115-ND	1.17	21.45	124.80
1.250	250	F116-ND	1.17	21.45	124.80
1.500	250	F117-ND	1.17	21.45	124.80
1.600	250	F118-ND	1.17	21.45	124.80
2.000	250	F119-ND	1.17	21.45	124.80
2.500	250	F120-ND	1.17	21.45	124.80
3.000	250	F121-ND	1.17	21.45	124.80
4.000	250	F122-ND	1.83	33.55	195.20
5.000	250	F123-ND	1.83	33.55	195.20
6.000	250	F124-ND	1.83	33.55	195.20
7.000	250	F125-ND	1.83	33.55	195.20
8.000	250	F126-ND	2.49	45.65	265.60
10.000	250	F127-ND	2.49	45.65	265.60
318 Series — Pigtail Type					
.125	250	F208-ND	6.00	110.00	640.00
.250	250	F209-ND	3.68	67.38	392.00
.300	250	F210-ND	3.68	67.38	392.00
.375	250	F211-ND	3.68	67.38	392.00
.500	250	F212-ND	3.68	67.38	392.00
1.000	250	F215-ND	2.66	48.68	283.20
1.500	250	F217-ND	2.66	48.68	283.20
1.600	250	F218-ND	2.66	48.68	283.20
2.000	250	F219-ND	2.66	48.68	283.20
2.500	250	F220-ND	2.66	48.68	283.20
3.000	250	F221-ND	2.66	48.68	283.20
4.000	250	F222-ND	2.86	51.43	299.20
5.000	250	F223-ND	2.86	51.43	299.20
6.000	250	F224-ND	2.86	51.43	299.20
7.000	250	F225-ND	2.86	51.43	299.20
8.000	250	F226-ND	2.86	51.43	299.20

3AG Glass Body Slo-Blo® Fuses

Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	5 sec., min.

Patents: U.S. Patents #4,409,729 and #4,445,106. **Approvals:** Listed by Underwriters Laboratories and Certified by CSA through 8 amperes. Recognized under the Components Program of U.L. from 9 through 30 amperes. **Dimensions: 313 Series:** Diameter: 1/4"; Length: 1-1/4". **315 Series:** Diameter: .275"; Length: 1.275"; Pigtail Diameter: .032" (1/100—15A), .040" (20—30A); Pigtail Length: 1.50"; Pigtail Material: Tinned copper wire.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
313 Series — Cartridge Type					
.010	250	F300-ND	8.77	160.61	934.40
.031	250	F301-ND	8.77	160.61	934.40
.040	250	F302-ND	8.77	160.61	934.40
.062	250	F303-ND	6.95	127.33	740.80
.100	250	F304-ND	6.95	127.33	740.80
.125	250	F305-ND	6.95	127.33	740.80
.150	250	F306-ND	6.95	127.33	740.80
.175	250	F307-ND	6.95	127.33	740.80
.187	250	F308-ND	6.95	127.33	740.80
.200	250	F309-ND	6.95	127.33	740.80
.250	250	F310-ND	4.20	77.00	448.00
.300	250	F311-ND	4.20	77.00	448.00
.375	250	F312-ND	4.20	77.00	448.00
.400	250	F313-ND	4.20	77.00	448.00
.500	250	F314-ND	4.01	73.43	427.20
.600	250	F315-ND	4.01	73.43	427.20
.700	250	F316-ND	4.01	73.43	427.20
.750	250	F317-ND	4.01	73.43	427.20
.800	250	F318-ND	4.01	73.43	427.20
1.000	250	F319-ND	4.01	73.43	427.20
1.200	250	F320-ND	3.05	55.83	324.80
1.250	250	F321-ND	3.05	55.83	324.80
1.500	250	F322-ND	3.05	55.83	324.80
1.600	250	F323-ND	3.05	55.83	324.80
1.800	250	F324-ND	3.05	55.83	324.80
2.000	250	F325-ND	3.05	55.83	324.80
2.250	250	F326-ND	3.05	55.83	324.80
2.500	250	F327-ND	3.05	55.83	324.80
2.800	250	F328-ND	3.05	55.83	324.80
3.000	250	F329-ND	3.05	55.83	324.80
3.200	250	F330-ND	3.05	55.83	324.80
4.000	250	F331-ND	3.05	55.83	324.80
5.000	250	F332-ND	3.05	55.83	324.80
6.250	250	F333-ND	3.05	55.83	324.80
7.000	250	F334-ND	3.05	55.83	324.80
8.000	250	F335-ND	3.05	55.83	324.80
10.000	32	F336-ND	4.08	74.80	435.20
12.000	32	F337-ND	4.08	74.80	435.20
15.000	32	F338-ND	4.08	74.80	435.20
20.000	32	F339-ND	4.08	74.80	435.20
25.000	32	F340-ND	4.08	74.80	435.20
30.000	32	F341-ND	4.08	74.80	435.20
315 Series — Pigtail Type					
.100	250	F409-ND	9.06	165.84	964.80
.250	250	F410-ND	5.27	96.53	561.60
.300	250	F411-ND	5.27	96.53	561.60
.375	250	F412-ND	5.27	96.53	561.60
.500	250	F414-ND	4.13	75.63	440.00
.600	250	F415-ND	4.13	75.63	440.00
.750	250	F417-ND	4.13	75.63	440.00
1.000	250	F419-ND	4.13	75.63	440.00
1.500	250	F422-ND	4.13	75.63	440.00
1.600	250	F423-ND	4.13	75.63	440.00
2.000	250	F425-ND	4.13	75.63	440.00
2.500	250	F427-ND	4.13	75.63	440.00
3.000	250	F429-ND	4.13	75.63	440.00
3.200	250	F430-ND	4.07	74.53	433.60
4.000	250	F431-ND	4.07	74.53	433.60
5.000	250	F432-ND	4.07	74.53	433.60
7.000	250	F434-ND	4.07	74.53	433.60

3AG Low Voltage Normal-Blo Fuses

Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	10 sec., max.

311 Series: Dimensions: Dia.: 1/4"; Length: 1-1/4". **Approvals:** Listed by UL and Certified by CSA through 30 amperes. **Design Standards:** U.L. Standard 275.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
311 Series — Normal-Blo Type					
12.000	32	F140-ND	1.18	21.46	124.80
15.000	32	F141-ND	1.18	21.46	124.80
25.000	32	F142-ND	1.18	21.46	124.80
30.000	32	F143-ND	1.18	21.46	124.80
35.000	32	F144-ND	1.18	21.46	124.80

8AG Normal-Blo Fuses

0.25" X 1.00"

Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	10 sec., max.

Approvals: Listed by UL through 5 amperes. Certified by CSA from 0.25 through 5 amperes. Sold in multiples of 5.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
362 Series — Normal-Blo Type					
.125	250	F600-ND	3.98	72.88	424.00
.250	250	F601-ND	2.45	44.83	260.80
.500	250	F602-ND	2.45	44.83	260.80
1.000	250	F603-ND	1.43	26.13	152.00
1.500	250	F604-ND	1.43	26.13	152.00
2.000	250	F605-ND	1.43	26.13	152.00
2.500	125	F606-ND	1.43	26.13	152.00
3.000	125	F607-ND	1.43	26.13	152.00
5.000	125	F608-ND	1.04	18.98	110.40
6.000	125	F609-ND	1.04	18.98	110.40
8.000	32	F610-ND	1.04	18.98	110.40
10.000	32	F611-ND	1.04	18.98	110.40
15.000	32	F612-ND	1.04	18.98	110.40
20.000	32	F613-ND	1.04	18.98	110.40

8AG Fast-Acting Instrument Fuses

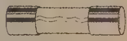
0.25" X 1.00"
Sold in multiples of 5.

Electrical Characteristics:

Rating	Blow Time
100%	4 hrs., min.
200%	5 sec., max.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
361 Series — Fast-Acting Type					
.002	250	F500-ND	31.50	577.50	3360.00
.005	250	F501-ND	19.50	357.50	2080.00
.010	250	F502-ND	18.00	330.00	1920.00
.031	250	F503-ND	16.65	305.25	1776.00
.062	250	F504-ND	5.88	107.80	627.20
.125	250	F505-ND	4.38	80.30	467.20
.250	250	F506-ND	2.70	49.50	288.00
.375	250	F507-ND	2.70	49.50	288.00
.500	250	F508-ND	2.70	49.50	288.00
.750	250	F509-ND	2.70	49.50	288.00
1.000	250	F510-ND	1.58	28.88	168.00
1.500	250	F511-ND	1.58	28.88	168.00
2.000	250	F512-ND	1.58	28.88	168.00
3.000	125	F513-ND	1.64	29.98	174.40
4.000	125	F514-ND	1.64	29.98	174.40
5.000	125	F515-ND	1.64	29.98	174.40

Metric (5x20mm) Fuses



Fast-Acting High-Interrupting 216 Series
Fast-Acting 217 Series
Slo-Blo® 218 Series

Electrical Characteristics:

Amp. (%)	216 Series .05-3.15A	216 Series 4-10A	217 Series .032-.100A	217 Series .125-10A	218 Series .032-.100A	218 Series .125-10A
150	60 min. min.	60 min. min.	60 min. min.	60 min. min.	60 min. min.	60 min. min.
210	30 min. max.	30 min. max.	30 min. max.	30 min. max.	2 min. max.	2 min. max.
275	0.01-2 sec.	0.01-3 sec.	0.01-0.5 sec.	0.05-2 sec.	0.2-10 sec.	0.6-10 sec.
400	0.003-0.3 sec.	0.003-0.3 sec.	0.003-0.1 sec.	0.01-0.3 sec.	0.04-3 sec.	0.15-3 sec.
1000	0.02 sec. max.	0.02 sec. max.	0.02 sec. max.	0.02 sec max.	0.01-0.3 sec.	0.02-0.3 sec.

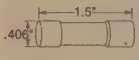
Approvals: 216 Series: SEMKO approved thru 6.3 amps; **217 Series:** SEMKO approved thru 6.3 amps; BEAB approved .050-6.3 amps; **218 Series:** SEMKO approved and BEAB approved thru 6.3 amps. **Interrupting Capacity: 216 Series:** 1500 Amperes; **217 Series:** 35 Amperes or 10 x rated current, whichever is greater; **218 Series:** 35 Amperes or 10 x rated current, whichever is greater.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
216 Series ***Fast-Acting Interrupting Type*** ***Ceramic Body***					
.050	250	F900-ND	6.10	111.66	649.60
.080	250	F902-ND	6.10	111.66	649.60
.100	250	F903-ND	4.87	89.11	518.40
.125	250	F904-ND	4.87	89.11	518.40
.160	250	F905-ND	4.87	89.11	518.40
.200	250	F906-ND	4.87	89.11	518.40
.250	250	F907-ND	4.87	89.11	518.40
.315	250	F908-ND	4.87	89.11	518.40
.400	250	F909-ND	4.87	89.11	518.40
.500	250	F910-ND	4.87	89.11	518.40
.630	250	F911-ND	4.87	89.11	518.40
.800	250	F912-ND	4.87	89.11	518.40
1.000	250	F913-ND	4.87	89.11	518.40
1.250	250	F914-ND	4.87	89.11	518.40
1.600	250	F915-ND	4.87	89.11	518.40
2.000	250	F916-ND	4.87	89.11	518.40
2.500	250	F917-ND	4.87	89.11	518.40
3.150	250	F918-ND	4.87	89.11	518.40
4.000	250	F919-ND	4.87	89.11	518.40
5.000	250	F920-ND	4.87	89.11	518.40
6.300	250	F921-ND	4.87	89.11	518.40
8.000	250	F922-ND	5.73	105.05	611.20
10.000	250	F923-ND	5.73	105.05	611.20

Littelfuse®

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 5	100	1,000
217 Series— Fast-Acting Type					
.032	250	F930-ND	5.69	104.23	606.40
.040	250	F931-ND	5.69	104.23	606.40
.050	250	F932-ND	5.69	104.23	606.40
.063	250	F933-ND	5.69	104.23	606.40
.080	250	F934-ND	5.69	104.23	606.40
.100	250	F935-ND	5.69	104.23	606.40
.125	250	F936-ND	5.69	104.23	606.40
.160	250	F937-ND	3.50	64.08	372.80
.200	250	F938-ND	3.50	64.08	372.80
.250	250	F939-ND	3.50	64.08	372.80
.315	250	F940-ND	3.50	64.08	372.80
.400	250	F941-ND	3.50	64.08	372.80
.500	250	F942-ND	1.02	18.70	108.80
.630	250	F943-ND	1.02	18.70	108.80
.800	250	F944-ND	1.02	18.70	108.80
1.000	250	F945-ND	1.02	18.70	108.80
1.250	250	F946-ND	1.02	18.70	108.80
1.600	250	F947-ND	1.02	18.70	108.80
2 000	250	F948-ND	1.02	18.70	108.80
2.500	250	F949-ND	1.02	18.70	108.80
3.150	250	F950-ND	1.02	18.70	108.80
4.000	250	F951-ND	1.02	18.70	108.80
5.000	250	F952-ND	1.02	18.70	108.80
6.300	250	F953-ND	1.02	18.70	108.80
8 000	250	F954-ND	4.15	75.91	441.60
10.000	250	F955-ND	4.15	75.91	441.60
218 Series — Slo-Blo® Type					
032	250	F960-ND	7.31	133.93	779.20
.040	250	F961-ND	7.31	133.93	779.20
.050	250	F962-ND	7.31	133.93	779.20
.063	250	F963-ND	7.31	133.93	779.20
.080	250	F964-ND	7.31	133.93	779.20
.100	250	F965-ND	4.44	81.40	473.60
.125	250	F966-ND	4.44	81.40	473.60
.160	250	F967-ND	4.44	81.40	473.60
.200	250	F968-ND	4.44	81.40	473.60
.250	250	F969-ND	4.44	81.40	473.60
.315	250	F970-ND	4.44	81.40	473.60
.400	250	F971-ND	4.44	81.40	473.60
.500	250	F972-ND	3.18	58.30	339.20
.630	250	F973-ND	3.18	58.30	339.20
.800	250	F974-ND	3.18	58.30	339.20
1.000	250	F975-ND	3.18	58.30	339.20
1.250	250	F976-ND	3.18	58.30	339.20
1.600	250	F977-ND	3.18	58.30	339.20
2 000	250	F978-ND	3.18	58.30	339.20
2.500	250	F979-ND	3.18	58.30	339.20
3.150	250	F980-ND	3.18	58.30	339.20
4.000	250	F981-ND	3.18	58.30	339.20
5.000	250	F982-ND	3.18	58.30	339.20
6 300	250	F983-ND	3.18	58.30	339.20
8.000	250	F984-ND	4.58	83.88	488.00
10.000	250	F985-ND	4.58	83.88	488.00

Midget Slo-Blo® Fuses



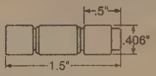
Electrical Characteristics:

Rating	Blow Time
110%	4 hrs., min.
135%	1 hr., max.
200%	12 sec., min.

Excellent Slo-Blo fuse for supplemental protection of small motors, control circuit transformers and other circuits with high in-rush currents. **Volt. Rating:** FLM Series is 250V, FLQ Series is 500V. **Interrupting Rating:** FLM Series is 10,000 amperes at 250VAC, FLQ Series is 10,000 amperes at 500 VAC. **Approvals:** Listed by UL and Certified by CSA.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
FLM Series					
.500	250	F1000-ND	3.76	32.73	277.22
1.000	250	F1001-ND	3.65	31.75	268.92
1.600	250	F1002-ND	3.76	32.73	277.22
2.000	250	F1003-ND	3.38	29.40	249.00
2.500	250	F1004-ND	3.76	32.73	277.22
3.200	250	F1005-ND	3.49	30.38	257.30
4.000	250	F1006-ND	3.38	29.40	249.00
6.250	250	F1008-ND	3.49	30.38	257.30
8.000	250	F1009-ND	3.49	30.38	257.30
10.000	250	F1010-ND	3.38	29.40	249.00
12.000	250	F1011-ND	3.49	30.38	257.30
15.000	250	F1012-ND	3.38	29.40	249.00
20.000	250	F1013-ND	3.38	29.40	249.00
30.000	250	F1014-ND	3.38	29.40	249.00
FLQ Series					
.125	500	F1040-ND	9.34	81.73	695.83
.250	500	F1041-ND	8.80	77.00	655.60
.500	500	F1042-ND	8.56	74.90	637.72
1.000	500	F1043-ND	8.56	74.90	637.72
1.600	500	F1044-ND	8.56	74.90	637.72
2.000	500	F1045-ND	8.56	74.90	637.72
2.500	500	F1046-ND	8.56	74.90	637.72
3.000	500	F1047-ND	8.56	74.90	637.72
3.200	500	F1048-ND	8.56	74.90	637.72
5.000	500	F1049-ND	8.56	74.90	637.72
6.250	500	F1050-ND	9.34	81.73	695 83
8.000	500	F1051-ND	8.56	74.90	637.72
10.000	500	F1052-ND	8.56	74.90	637.72
12.000	500	F1053-ND	8.56	74.90	637.72
15.000	500	F1054-ND	8.56	74.90	637.72
20.000	500	F1055-ND	8.56	74.90	637.72
30.000	500	F1056-ND	8.56	74.90	637.72

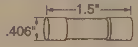
Class CC Slo-Blo® Fuses



KLDR fuses provide superior protection to motor branch circuits containing IEC or NEMA rated motor controllers or contractors. A rejection feature has been added to one fuse cap to prevent the insertion of fuses that are not current limiting. **Voltage Rating:** 600VAC only. **Interrupting Rating:** AC= 200,000 amperes rms symmetrical. **Approvals:** UL listed Time-Delay and Fast-Acting Class CC fuses per UL 198C. Class CC fuses have basic midget fuse dimensions (13/32" x 1-1/2").

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
KLDR Series					
.125	600	F1060-ND	12.06	102 60	897.75
.200	600	F1061-ND	12.06	102 60	897.75
.250	600	F1062-ND	12.06	102.60	897.75
.500	600	F1063-ND	12.64	107 60	941.50
1.000	600	F1064-ND	10.97	93.40	817 25
1.500	600	F1065-ND	11.28	96.00	840 00
2.000	600	F1066-ND	11.28	96.00	840 00
3.000	600	F1067-ND	11.28	96.00	840.00
3.500	600	F1068-ND	12.64	107.60	941.50
4.000	600	F1069-ND	12.06	102.60	897 75

Midget Fast-Acting Fuses



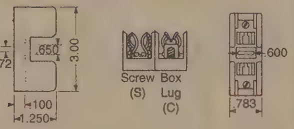
Fast-acting, current limiting type fuse suited for control circuits, computers, street lighting, and H.I.D. lighting. Provides supplementary over current protection. **Voltage Rating:** UL listed per 198G. **Approvals:** Listed by Underwriters Laboratories and Certified by CSA. **Interrupting Rating:** 100,000 amperes (capable of 200,000) at 600VAC.

Electrical Characteristics:

Rating	Amps	Blow Time
110%	1/10-30	4 hrs., min.
135%	1/10-30	1 hr., max.
200%	1/10-4	2 sec., max.
200%	5-12	15 sec., max.
200%	15-30	2 min., max.

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
KLK Series — AC Fast-Acting Type					
.250	600	F1070-ND	7.30	63.88	543.85
.500	600	F1071-ND	7.24	63.35	539.38
1.000	600	F1072-ND	7.24	63.35	539.38
2.000	600	F1074-ND	7.24	63.35	539.38
3.000	600	F1075-ND	7.24	63.35	539.38
4.000	600	F1076-ND	7.24	63.35	539.38
5.000	600	F1077-ND	7.24	63.35	539.38
6.000	600	F1078-ND	7.24	63.35	539.38
8.000	600	F1079-ND	7.24	63.35	539.38
10.000	600	F1080-ND	7.24	63.35	539.38
15.000	600	F1081-ND	7.24	63.35	539.38
20.000	600	F1082-ND	7.48	65.45	557.26
25.000	600	F1083-ND	7.48	65.45	557.26
30.000	600	F1084-ND	7.48	65.45	557.26

Midget and Class CC Fuse Blocks



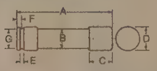
Space-saving, gangable, molded base fuse block. Constructed out of high temp. flexible thermoplastic material with side barriers for added isolation and to help minimize block breakage during handling and installation.

Ampere Ratings: Screw and Box Lug Terminals rated for 30 amperes. **Ambient Temp.:** 105°C max. **Clip/Terminals:** Tin plated copper alloy. **Box Lug:** Copper. **Screw:** Zinc-plated steel. **Base:** Thermoplastic, UL 94VO flammability rating. **Approvals:** Midget Blocks are Recognized by Underwriters Laboratories. Class CC Blocks are UL Listed. Both Certified by CSA.

No. of Poles	Max. Wire Size	Digi-Key Part No.	Pricing 1	10	100
Midget (600V)					
1	#6 CU	F1110-ND•	5.33	49.60	446.40
2	#6 CU	F1111-ND•	10.66	99.20	892.80
3	#6 CU	F1112-ND•	16.00	148.80	1339.20
2	#10 CU	F1114-ND†	4.45	41.40	372.60
3	#10 CU	F1115-ND†	5.87	54.60	491 40
Class CC, W/ Rejection Feature, (600V)					
1	#10 CU	F1116-ND†	3.29	30.60	275.40
2	#10 CU	F1117-ND†	5.33	49.60	446.40
3	#10 CU	F1118-ND†	7.12	66.20	595.80

• Box Lug Connector
† Screw/Q.C. Terminal Connector

Dual-Element Slo-Blo® Fuses

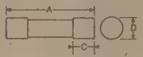


Excellent for circuits with high in-rush currents: fluorescent lights, motors, transformers, and solenoids. Its low resistance design reduces power consumption and utility bills. It has faster short-circuit protection than any non-current limiting mechanical protective device. The dual-element construction is separately spring loaded, and the thermal overload element is non-fatiguing and thermally reversible. **Voltage Ratings:** AC=250V, DC=125V. **Interrupting Ratings:** AC=200,000 rms symmetrical amperes, DC= 20,000 amperes. **Approvals:** AC is UL listed Class RK5 fuse per UL 198E, CSA Certified HRCI-R. DC is UL listed 125V per UL 198L.

Amperes	Dimensions (In.) A	B	C	D	E	F	G
1/10-30	2	1/2	1/2	9/16	5/64	5/32	3/8
35-60	3	3/4	5/8	13/16	3/32	3/16	5/8

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
FLN-R Series					
1.000	250	F1020-ND	4.88	42.53	360.22
1.600	250	F1021-ND	5.02	43.71	370.18
2.000	250	F1022-ND	4.88	42.53	360.22
3.000	250	F1023-ND	4.52	39.40	333.66
4.000	250	F1024-ND	4.52	39.40	333.66
5.000	250	F1025-ND	4.52	39.40	333.66
6.250	250	F1026-ND	4.52	39.40	333.66
8.000	250	F1027-ND	4.52	39.40	333.66
10.000	250	F1028-ND	4.52	39.40	333.66
20.000	250	F1030-ND	3.65	31.75	268.92
25.000	250	F1031-ND	3.65	31.75	268.92
40.000	250	F1032-ND	6.75	58.80	498.00
50.000	125	F1033-ND	6.75	58.80	498.00
60.000	125	F1034-ND	6.75	58.80	498.00

"One Time" Class K5 Fuses

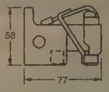


Economical protection when cost is a major consideration. Excellent protection of general purpose feeder or branch circuits. These fuses have limited interrupting rating and should only be used where short circuit current is known to be less than fuse interrupting rating. **Voltage Rating:** AC=250V. **Interrupting Rating:** AC=1-60 amps: 50,000 rms symmetrical amperes. **Approvals:** 1-60 amps UL Listed Class K5 fuse per UL 198D, CSA Certified per Spec 59.1.

Amperes	Dimensions (In.) A	B	C	D
1-30	2	1/2	1/2	9/16
35-60	3	3/4	5/8	13/16

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
NLN Series					
1.000	250	F1120-ND	1.26	10.98	92.96
3.000	250	F1121-ND	1.26	10.98	92.96
5.000	250	F1122-ND	1.26	10.98	92.96
6.000	250	F1123-ND	1.26	10.98	92.96
8.000	250	F1124-ND	1.51	13.13	111.22
10.000	250	F1125-ND	1.24	10.78	91.30
15 000	250	F1126-ND	1.13	9.80	83.00
20.000	250	F1127-ND	1.13	9.80	83.00
25.000	250	F1128-ND	1.22	10.58	89.64
35.000	250	F1130-ND	1.89	16.46	139.44
40.000	250	F1131-ND	1.82	15.88	134.46
45.000	250	F1132-ND	1.89	16.46	139.44
50.000	250	F1133-ND	1.89	16.46	139.44
60.000	250	F1134-ND	1.82	15.88	134.46

Alarm Indicating Fuses



125 VAC, 60 VDC
.585" x .775"

Electrical Characteristics:

Rating	Blow Time
100%	10 min., min.
150%	5 min., max.

For telecommunications equipment and similar applications. **Approvals:** recognized under the Components Program of Underwriters Laboratories at 60 VDC. Color-coded by amperage. Blown fuse indicating flag can activate alarm circuit. Multiple panel mounting in limited space. Black phenolic body with 94VO flammability rating. Bright alloy-plated beryllium contacts.

Amp. Rating	Color Code	Digi-Key Part No.	Pricing 1	10	100
401 Series — Alarm Indicating Type					
.180	Yellow	F700-ND	1.65	15.21	139.43
.250	Violet	F701-ND	1.65	15.21	139.43
.500	Red	F702-ND	1.65	15.21	139.43
.600	Black	F703-ND	1.65	15.21	139.43
.750	Brown	F704-ND	1.65	15.21	139.43
1.000	Gray	F705-ND	1.65	15.21	139.43
1.333	White	F706-ND	1.65	15.21	139.43
2.000	Orange	F707-ND	1.65	15.21	139.43
3 000	Blue	F708-ND	1.65	15.21	139.43
5.000	Green	F709-ND	1.65	15.21	139.43
7.500	Blk/Wht	F710-ND	1.65	15 21	139.43
10.000	Red/Wht	F711-ND	1.65	15.21	139.43

Very Fast-Acting Semiconductor Fuses

Fig. 1

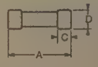
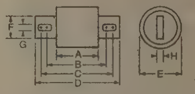


Fig. 2



Semiconductor fuses may be used wherever extremely fast-acting, current limiting fuses with no time delay are necessary. Designed for supplementary protection of semiconducting devices such as SCR's, diodes, thyristors, triacs, transistors and similar solid-state devices. **AC Interrupting Rating:** 200,000 rms amperes. **Approvals:** UL Recognized.

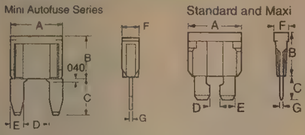
Amperes	Fig.	Dimensions (In.) A	B	C	D
1-30	1	2	—	1/2	9/16
31-60	2	1-5/8	2-1/4	2-1/2	3-3/16
61-200	2	1-5/8	2-5/16	2-7/16	3-1/8

Amperes	Fig.	Dimensions (In.) E	F	G	H
1-30	1	—	—	—	—
31-60	2	13/16	23/32	11/32	1/8
61-200	2	1-7/32	1	5/16	3/16

Amp. Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
L25S Series					
1.000	250	F1090-ND	9.42	80.20	701.75
2.000	250	F1091-ND	9.42	80.20	701.75
3.000	250	F1092-ND	9.42	80.20	701.75
4.000	250	F1093-ND	9.42	80.20	701.75
5.000	250	F1094-ND	8.88	75.60	661.50
6.000	250	F1095-ND	8.37	71.20	623.00
8.000	250	F1096-ND	8.88	75.60	661.50
10.000	250	F1097-ND	8.37	71.20	623.00
15.000	250	F1098-ND	8.37	71.20	623.00
20.000	250	F1099-ND	8.37	71.20	623.00
25.000	250	F1100-ND	8.88	75.60	661.50
30.000	250	F1101-ND	8.37	71.20	623.00
60 000	250	F1102-ND	28.76	244.80	2142.00
70.000	250	F1103-ND	36.90	314.00	2747.50
80.000	250	F1104-ND	36.90	314.00	2747.50
125.000	250	F1105-ND	41.45	352.80	3087.00
150.000	250	F1106-ND	36.90	314.00	2747.50

Littelfuse®

ATO Fuse: Mini, ATO and Maxi

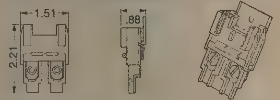


Designed and originated by Littelfuse for the automotive industry, the ATO fuse has become the original equipment circuit protection standard for foreign and domestic automobiles and trucks. This fuse can also be specified for a variety of low voltage electronic applications.

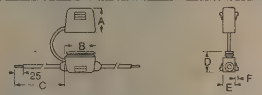
Design Standards: UL Standard for Automotive Blade Type Fuses. SAE (Society of Automotive Engineers) J1284. **Color-Coding:** Autofuse fuses are color-coded for easy amperage identification.

Fuse Type	Dimensions (In.) A	B	C	D	E	F	G
Mini-Fuse	.43	.34	29	.21	.11	.15	.032
ATO Fuse	.75	.48	.25	.16	.205	.20	.026
Maxi-Fuse	1 15	85	.50	.51	.32	.35	.032

Amp. Rtg.	Volt. Rating	Color Code	Digi-Key Part No.	Pricing 5	100	500
297 Series — Mini Fuses						
2	32	Grey	F986-ND	1.64	29.23	132.48
3	32	Violet	F987-ND	1.64	29.23	132.48
4	32	Pink	F988-ND	1.64	29.23	132.48
5	32	Tan	F989-ND	1.64	29.23	132.48
7.5	32	Brown	F990-ND	1.64	29.23	132.48
10	32	Red	F991-ND	1.64	29.23	132.48
15	32	Blue	F992-ND	1.64	29.23	132.48
20	32	Yellow	F993-ND	1.64	29.23	132.48
25	32	Natural	F994-ND	1.64	29.23	132.48
30	32	Green	F995-ND	1.64	29.23	132.48
257 Series — Fuses						
3	32	Violet	F996-ND	1.44	25.58	115.92
4	32	Pink	F997-ND	1.44	25.58	115.92
5	32	Tan	F998-ND	1.44	25.58	115.92
7.5	32	Brown	F999-ND	1.44	25.58	115.92
10	32	Red	F1015-ND	2.36	37.80	126.00
15	32	Blue	F1016-ND	2.36	37.80	126.00
20	32	Yellow	F1017-ND	2.36	37.80	126.00
25	32	Natural	F1018-ND	2.36	37.80	126.00
30	32	Green	F1019-ND	2.36	37.80	126.00
299 Series — Maxi Fuses						
20	32	Yellow	F1035-ND	4.50	80.19	363.40
30	32	Green	F1036-ND	4.50	80.19	363.40
40	32	Amber	F1037-ND	4.50	80.19	363.40
50	32	Red	F1038-ND	4.50	80.19	363.40
60	32	Blue	F1039-ND	4.50	80.19	363.40

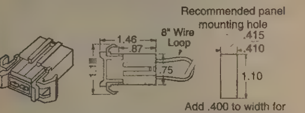


MAXIFUSE BLOCK: • Rated to 60 amperes at 32 volts. • Interlocking block feature. • Built in mounting bracket.



IN-LINE FUSEHOLDERS:
• Rated at 32 volts. • Protective cover included.

Fuse Type	Dimensions (In.) A	B	C	D	E	F
MINI	.52	.97	4.0	.60	.41	.06
ATO	.97	1.00	4.0	.67	.43	.06
MAXI	1.35	3.36	6.0	1.39	1.12	—



Add .400 to width for each additional fuseholder

PANEL MOUNT ATO FUSEHOLDER:
• Assembled with 8" wire loop, no fuse. • #14 wire/terminals rated to 20A. • #10 wire/terminals rated to 30A • Snap mounting to panel. • Fuseholders interlock for multiple mounting.

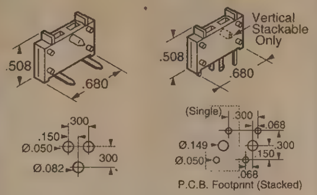
Description	Digi-Key Part No.	Pricing 1	100	500
In-line Mini Holder*	F1057-ND	1.73	150.80	702.00
In-line Mini Holder†	F1058-ND	2.00	174.00	810.00
In-line Maxi Holder‡	F1059-ND	11.32	986.00	4590.00
Maxi Fuse Block	F1085-ND	9.66	841.00	3915.00
In-line ATO Holder•	F1086-ND	1.43	124.41	579 15
In-line ATO Holder†	F1087-ND	1.65	143.84	669.60
Panel Mount Holder*	F1088-ND	1.18	102.37	476.55
Panel Mount Holder	F1089-ND	1.70	148.48	691.20

* 14AWG wire, 20 Amp max rating.
† 12AWG wire. 30 Amp max rating.
‡ 6AWG wire, 60 Amp max rating.
• 16AWG wire, 20 Amp max rating.

ATO Fuseholders

1- Horizontal Mount

2 - Vertical Mount

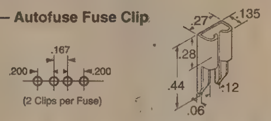


Mini Fuse PC Board Fuseholder

Specifications: • **Terminals:** Copper Alloy. Tin Plated. • **Body:** Black thermoplastic (UL 94VO)

Electrical: Recognized under the Components Program of Underwriters Laboratory for 15 amperes and Certified by CSA for 10 amperes. Three fuseholders can be mounted side by side (stacked) and operated at rated current. Contact factory for applications where more than three fuseholders will be stacked. • **Voltage:** 32 Volts DC • **Temperature Range:** -40°C to +85°C • **PC Board Compatibility:** Designed for use with standard .062" circuit board.

3 — Autofuse Fuse Clip



4 — Mini Fuse Easy-Crimp Fuseholder

Materials:
- **Body:** Black Thermoplastic
- **Terminals:** Tin plated copper alloy
- **Op. Temperature:** -40°C to 105°C

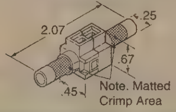


Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	100
1	Horizontal Mini Holder	F064-ND	.91	8.51	68.10
2	Single or End Cap Mini Holder	F065-ND	.91	8.51	68.10
2	Stackable Mini Holder	F066-ND	.91	8.51	68.10
3	ATO Fuse Clip	F067-ND	.24	2.29	18.30
4	In-line Mini Holder	F068-ND*	.85	7.99	63.90
4	In-line Mini Holder	F069-ND†	.85	7.99	63.90
—	Removal/ Replacement Tool	F070-ND‡	.50	4.13	33.00

*20A max. rating terminals accept #16-22AWG
†30A max. rating, terminals accept #10-14AWG
‡Mini & ATO Removal/Replacement Tool

3AG Fuse Clips

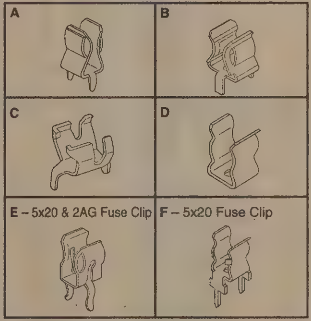
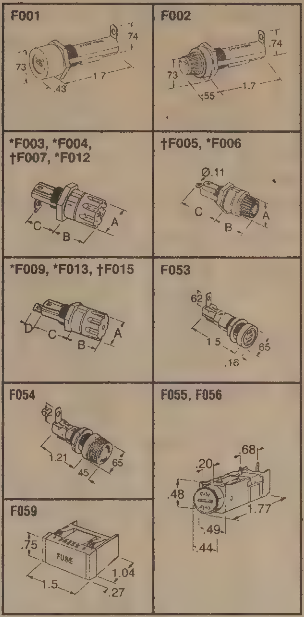


Fig.	Digi-Key Part No.	Pricing 10	100	1,000	Mfg. Part No.
D	F038-ND	1.35	12.38	72.00	101002
A	F040-ND	1.23	11.28	65.60	102071
A	F041-ND†	1.47	13.48	78.40	102074
B	F042-ND†	1.95	17.88	104.00	102078
A	F046-ND*	4.02	36.85	214.40	122083
C	F048-ND*	3.66	33.55	195.20	122090
B	F052-ND	1.95	17.88	104.00	102079
E	F058-ND	1.47	13.48	78.40	111501
F	F063-ND	1.76	14.10	94.00	100056

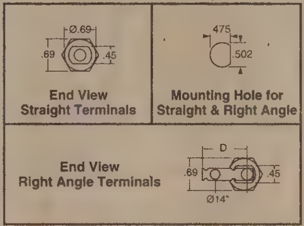
* Beryllium Copper (all others are Spring Brass).
† Fuse clip without fuse stops.

3AG and 5x20mm Panel Fuseholders

UL Recognized and Certified by CSA



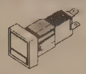
* Fluted Knob, † Knurled Knob


Ø.69
.69
.45
End View Straight Terminals
475
.502
Mounting Hole for Straight & Right Angle
End View Right Angle Terminals
D
.69
.45
Ø14"

Digi-Key Part No.	Dimensions A	B	C	D
F003	.69	.70	1.0	.63
F004	.69	.70	1.0	.63
F005	.69	.78	1.31	—
F006	.69	.70	1.31	—
F007	.69	.78	1.0	.63
F009	.69	.70	1.0	.30
F012	.69	.70	1.0	.59
F013	.69	.70	1.0	.40
F015	.69	.78	1.0	.40

Description	Digi-Key Part No.	Pricing 1	10
3AG, Panel Mtg. Screw Slot	F001-ND	3.04	28.08
3AG, Panel Mtg. Finger Grip	F002-ND	3.08	28.44
3AG, Drip Prf. Rt. Ang., Solder.	F003-ND	2.13	19.65
3AG, Rt. Angle Term., Solder	F004-ND	2.00	18.45
3AG, Straight Term., Solder	F005-ND	2.00	18.45
3AG, Straight Term., Solder	F006-ND	2.00	18.45
3AG, Rt. Angle Term., Solder	F007-ND	2.10	19.38
3AG, 3/16" Q-Conn. Straight Term.	F009-ND	2.24	20.70
3AG, 1/4" Q-Conn. Rt. Angle Term	F012-ND	2.59	23.91
3AG, 1/4" Q-Conn. Straight Term.	F013-ND	2.47	22.77
3AG, 1/4" Q-Conn. Straight Term.	F015-ND	2.47	22.77
5x20mm Low-Profile Front Mnt Holder	F053-ND	2.79	25.74
5x20mm High-Profile Front Mnt Holder	F054-ND	2.79	25.74
1/4"x1-1/4" P.C. Board Type Holder	F055-ND	2.28	21.00
5x20mm P.C. Board Type Holder	F056-ND	2.86	26.40
3AG Flip-Top, Shock Safe Panel Mount Holder	F059-ND	2.39	22.02

3AG Low Profile Fuseholders



Note: Purchase Body & Cap Separately. UL Recognized and Certified by CSA. Snap onto .625" sq. chassis or panel hole, no hardware required. Quick connect and solder type terminal.

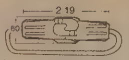
Description	Digi-Key Part No.	Pricing 1	10	100
348 Series				
Black, 3/16" Term (Body)	F020-ND	2.44	22.50	206.25
Black, 1/4" Term. (Body)	F023-ND	2.44	22.50	206.25
Red, Cap only	F024-ND	.81	7.50	68.75
White, Cap only	F025-ND	.81	7.50	68.75
Black, Cap only	F026-ND	.81	7.50	68.75

In-Line Fuseholder

150145 In-Line Universal Fuseholder, supplied with a 15-inch loop of 14-gauge vinyl covered wire and three springs in different lengths to adapt the holder to SFE 7-1/2, 9, 14, 20 amp and 3AG fuses.

F049-ND..........2.32/ea.; 21.45/10; 196.63/100

Universal In-Line Fuseholder

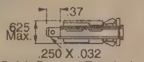


155100 Supplied with 8" loop of #14 AWG red vinyl insulated wire and two springs. **Electrical:** Intended for use at 32 volts or less with fuses rated up to 20 amperes when the proper spring is installed for fuse size. **Molded Parts:** Black thermoplastic (UL 94V2). Body halves have a .14" diameter hole for insulated wire. **Ambient Temperature:** -40° to +75°C.

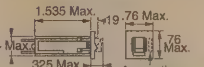
F062-ND 1.62/1; 14.41/10; 131.00/100

Potter & Brumfield

Fuseholder-Type Thermal Circuit Breakers, W28 Series



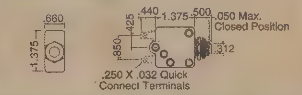
.250 X .032
Quick Connect Terminals



Amp rating

Rtg. (A)	Digi-Key Part No.	Pricing 1	10	100	P. & B. Part No.
4.5-28 sec. trip time rating					
0.25	PB180-ND	5.21	48.20	385.60	W28-XQ1A-0.25
0.5	PB181-ND	5.21	48.20	385.60	W28-XQ1A-0.50
1	PB182-ND	5.21	48.20	385.60	W28-XQ1A-1
2	PB183-ND	5.42	50.20	401.60	W28-XQ1A-2
2.2-15 sec. trip time rating					
3	PB184-ND	2.89	26.80	214.40	W28-XQ1A-3
4	PB185-ND	2.89	26.80	214.40	W28-XQ1A-4
5	PB186-ND	2.89	26.80	214.40	W28-XQ1A-5
6	PB187-ND	2.89	26.80	214.40	W28-XQ1A-6
7	PB188-ND	2.89	26.80	214.40	W28-XQ1A-7
8	PB189-ND	2.89	26.80	214.40	W28-XQ1A-8
10	PB190-ND	2.89	26.80	214.40	W28-XQ1A-10
12	PB191-ND	2.89	26.80	214.40	W28-XQ1A-12
15	PB192-ND	2.89	26.80	214.40	W28-XQ1A-15

Thermal Circuit Breakers With Recessed Button, W58 Series

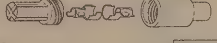

.660
1.375
.440
1.375
.500
.050 Max. Closed Position
.425
.850
.312
.250 X .032 Quick Connect Terminals

Rtg. (A)	Digi-Key Part No.	Pricing 1	10	100	P. & B. Part No.
10-45 sec. trip time rating					
1	PB193-ND	7.91	73.20	585.60	W58-XB1A4A-1
2	PB194-ND	7.91	73.20	585.60	W58-XB1A4A-2
3	PB195-ND	7.91	73.20	585.60	W5B-XB1A4A-3
4	PB196-ND	7.91	73.20	585.60	W58-XB1A4A-4
6-30 sec. trip time rating					
5	PB197-ND	5.05	46.80	374.40	W58-XB1A4A-5
6	PB198-ND	5.05	46.80	374.40	W58-XB1A4A-6
7	PB199-ND	5.05	46.80	374.40	W58-XB1A4A-7
8	PB200-ND	5.05	46.80	374.40	W58-XB1A4A-8
10	PB201-ND	5.05	46.80	374.40	W58-XB1A4A-10
12	PB202-ND	5.05	46.80	374.40	W58-XB1A4A-12
15	PB203-ND	5.05	46.80	374.40	W58-XB1A4A-15
20	PB204-ND	5.05	46.80	374.40	W58-XB1A4A-20
25	PB205-ND	5.05	46.80	374.40	W58-XB1A4A-25
30	PB206-ND	5.05	46.80	374.40	W58-XB1A4A-30
35	PB207-ND	5.05	46.80	374.40	W58-XB1A4A-35

AMP

Tool-Less Fuseholder

For .250 dia. fuses - .625-1.25 length.



- Radio
- Home entertainment equipment
- CB radio
- Automotive accessories
- Appliance
- Electronic controls and circuits
- Low voltage circuits requiring protection from high current.

Current Rating @ 32 Volts AWG	Amps
14	20
16	14
18	10
20	7.5
22	5
24	5

A1090-ND..............1.11/ea.; 23.14/25; 74.06/100

KEYSTONE
ELECTRONICS CORP.

Fuseholder Boards

For 1/4" (.250) Assembled with .125 Thick Black Phenolic

Fig. 1

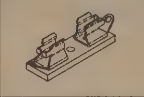


Fig. 2

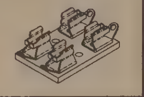


Fig. 3

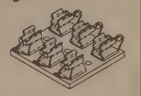
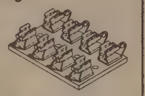


Fig. 4



Auto Fuse Holders

Fig. 5

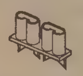


Fig. 6

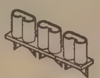


Fig. 7
PC 5mm
Fuse Holder
Order cover separately below: 4527CK-ND

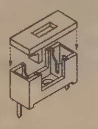
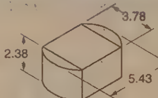


Fig. No.	Digi-Key Part No.	Pricing 1		1,000
1	3536K-ND	.77		462.31
2	3537K-ND	1.40		840.79
3	3538K-ND	2.08		1250.81
4	3539K-ND	2.74		1649.21
5	3522-2K-ND	.57		268.42
6	3522-3K-ND	.75		356.49
7	4527K-ND	.20		142.80
—	4527CK-ND	.77/10	7.06/100	59.50/1000

Wickmann

NEW! SM2 / IEC 127-4 Very Fast-Acting Fuse SMT



Electrical Characteristics:

Series / Rated Curent		Pre-arcing Rating 125%	200%	1000%
19425	250mA - 2.5A	> 1 hr.	< 2 min.	< 1ms

Tape and Reel Specifications:

Blister tape with 700 pieces wound on reels with tape width of 12mm.

Specifications:

- **Materials:** Housing:ceramic. Terminals: metallized frontal area, tinned.
- **Soldering Conditions:** Reflow and wave-solderings.

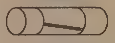
Amp Rtg.	Volt Rtg.	Digi-Key Part No.	Pricing 1	10	100	T & R* Pricing 700
Fast Acting 19425 Series						
.250	75	WK4635CT-ND	.93	8.53	62.00	271.25
.315	75	WK4637CT-ND	.93	8.53	62.00	271.25
.400	75	WK4640CT-ND	.93	8.53	62.00	271.25
.500	75	WK4641CT-ND	.93	8.53	62.00	271.25
.630	75	WK4643CT-ND	.93	8.53	62.00	271.25
.800	75	WK4646CT-ND	.93	8.53	62.00	271.25
1.00	75	WK4648CT-ND	.93	8.53	62.00	271.25
1.25	75	WK4650CT-ND	.93	8.53	62.00	271.25
1.60	75	WK4653CT-ND	.93	8.53	62.00	271.25
2.00	75	WK4657CT-ND	.93	8.53	62.00	271.25
2.50	75	WK4658CT-ND	.93	8.53	62.00	271.25

* For Tape & Reel part no., change part number from CT to TR-ND.

Wickmann

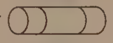
IEC 127-2 Metric (5x20mm) Fuses

Glass



19193 & 19195 Series

Ceramic



19181 & 19194 Series

Approvals:

19181 Series: SEMKO, BSI, VDE, IMQ approved and UL Recognized 1.0–6.3 amps.

19193 Series: SEMKO, BEAB, and VDE approved .032 thru 6.3 amps.

19194 Series: SEMKO approved .080–6.3 amps, .063 amp is applied for. BEAB approved .315–6.30 amps, with exceptions of 1.25 and 2.50 amps. VDE approved .100–.125 amps and .200–6.30 amps, .063, .080, and .160 amps are applied for.

19195 Series: SEMKO, BSI, BEAB, VDE, and IMQ approved .032–6.30 amps.

Electrical Characteristics:

Series / Rated Current		Pre-arcing Rating 150%	210%	275%	400%	1000%
19181	1.00-3.15A	> 1 hr.	< 30 min.	1-80 sec.	95ms-5sec.	10-100ms
	4.00-6.3A	> 1 hr.	< 30 min.	1-80 sec.	150ms-5sec.	20-100ms
19193	0.32-.100A	> 1 hr.	< 30 min.	10-500ms	3-100 ms	<20 ms
	.125 6.3A	> 1 hr.	< 30 min.	50ms-2 sec.	10-300ms	<20 ms
19194	0.50-3.15A	> 1 hr.	< 30 min.	10ms-2 sec.	3-300 ms	<20 ms
	4.0-6.3A	> 30 min.	< 30 min.	10ms-3 sec.	3-300 ms	<20 ms
	8.0 10.0A	> 30 min.	< 30 min.	10ms-3 sec.	3-300 ms	<20 ms
19195	0.32-.100A	> 1 hr.	< 2 min.	200ms-10 sec.	40ms-3 sec.	10-300 ms
	.125-6.3A	> 1 hr.	< 2 min.	600ms-10 sec.	150 ms-3 sec.	20-300 ms
	8.0 16.0A	> 30 min.	< 10 min.	600ms-10 sec.	150 ms-3 sec.	20-300 ms

Breaking Capacity

19193 & 19195 Series: 35A at 250VAC
19194 & 19181Series: 1500A at 250VAC

Amp Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	10	100
NEW! Time Lag High Breaking Capacity 19181 Series (IEC 127-2V)					
1.00	250	WK2248-ND	.53	4.81	35.00
1.25	250	WK2250-ND	.35	3.19	23.20
1.60	250	WK2253-ND	.35	3.19	23.20
2.00	250	WK2257-ND	.35	3.19	23.20
2.50	250	WK2258-ND	.35	3.19	23.20
3.15	250	WK2224-ND	.35	3.19	23.20
4.00	250	WK2262-ND	.35	3.19	23.20
5.00	250	WK2263-ND	.35	3.19	23.20
6.30	250	WK2266-ND	.35	3.19	23.20
Fast-Acting 19193 Ser. (IEC 127-2/II)					
.032	250	WK1019-ND	1.45	13.31	96.80
.040	250	WK1021-ND	1.45	13.31	96.80
.050	250	WK1022-ND	1.18	10.84	78.80
.063	250	WK1025-ND	1.18	10.84	78.80
.080	250	WK1026-ND	.65	6.00	43.60
.100	250	WK1027-ND	.26	2.37	17.20
.125	250	WK1028-ND	.26	2.37	17.20
.160	250	WK1030-ND	.26	2.37	17.20
.200	250	WK1034-ND	.26	2.37	17.20
.250	250	WK1035-ND	.26	2.37	17.20
.315	250	WK1037-ND	.26	2.37	17.20
.400	250	WK1040-ND	.26	2.37	17.20
.500	250	WK1041-ND	.26	2.37	17.20
.630	250	WK1043-ND	.26	2.37	17.20
.800	250	WK1046-ND	.26	2.37	17.20
1.00	250	WK1048-ND	.26	2.37	17.20
1.25	250	WK1050-ND	.26	2.37	17.20
1.60	250	WK1053-ND	.26	2.37	17.20
2.00	250	WK1057-ND	.26	2.37	17.20
2.50	250	WK1058-ND	.26	2.37	17.20
3.15	250	WK1124-ND	.27	2.48	18.00
4.00	250	WK1062-ND	.27	2.48	18.00
5.00	250	WK1063-ND	.27	2.48	18.00
6.30	250	WK1066-ND	.27	2.48	18.00
Fast Acting, High Breaking Capacity 19194 Series (IEC 127-2/I)					
.050	250	WK2022-ND	1.74	15.95	116.00
.063	250	WK2025-ND	1.75	16.03	116.60
.080	250	WK2026-ND	1.21	11.06	80.40
.100	250	WK2027-ND	1.04	9.49	69.00
.125	250	WK2028-ND	1.04	9.49	69.00
.160	250	WK2030-ND	1.04	9.49	69.00
.200	250	WK2034-ND	1.04	9.49	69.00
.250	250	WK2035-ND	1.04	9.49	69.00
.315	250	WK2037-ND	1.04	9.49	69.00
.400	250	WK2040-ND	.50	4.57	33.20
.500	250	WK2041-ND	.50	4.57	33.20
.630	250	WK2043-ND	.50	4.57	33.20
.800	250	WK2046-ND	.50	4.57	33.20
1.00	250	WK2048-ND	.50	4.57	33.20
1.25	250	WK2050-ND	.50	4.57	33.20
1.60	250	WK2053-ND	.50	4.57	33.20
2.00	250	WK2057-ND	.50	4.57	33.20
2.50	250	WK2058-ND	.50	4.57	33.20
3.15	250	WK2124-ND	.53	4.81	35.00
4.00	250	WK2062-ND	.53	4.81	35.00
5.00	250	WK2063-ND	.53	4.81	35.00
6.30	250	WK2066-ND	.53	4.81	35.00
8.00	250	WK2069-ND	.56	5.09	37.00
10.00	250	WK2071-ND	.56	5.09	37.00
Time-Lag 19195 Series (IEC 127-2/III)					
.032	250	WK5019-ND	1.35	12.38	90.00
.040	250	WK5021-ND	.92	8.42	61.20
.050	250	WK5022-ND	.92	8.42	61.20
.100	250	WK5027-ND	.66	6.05	44.00
.063	250	WK5025-ND	.76	6.99	50.80
.080	250	WK5026-ND	.78	7.12	51.80
.125	250	WK5028-ND	.61	5.56	40.40
.160	250	WK5030-ND	.61	5.56	40.40
.200	250	WK5034-ND	.50	4.57	33.20
.250	250	WK5035-ND	.45	4.10	29.80
.315	250	WK5037-ND	.43	3.91	28.40
.400	250	WK5040-ND	.39	3.60	26.20
.500	250	WK5041-ND	.39	3.60	26.20
.630	250	WK5043-ND	.39	3.60	26.20
.800	250	WK5046-ND	.38	3.47	25.20
1.00	250	WK5048-ND	.38	3.47	25.20
1.25	250	WK5050-ND	.38	3.47	25.20
1.60	250	WK5053-ND	.38	3.47	25.20
2.00	250	WK5057-ND	.29	2.67	19.40
2.50	250	WK5058-ND	.38	3.47	25.20
3.15	250	WK5124-ND	.29	2.67	19.40
4.00	250	WK5062-ND	.31	2.86	20.80
5.00	250	WK5063-ND	.31	2.86	20.80
6.30	250	WK5066-ND	.31	2.86	20.80
8.00	250	WK5069-ND	.31	2.86	20.80
10.00	250	WK5071-ND	.36	3.30	24.00
12.50	250	WK5126-ND	.36	3.30	24.00
16.00	250	WK5074-ND	.43	3.96	28.80

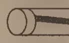
Wickmann

NEW! UL / CSA Fuses Metric (5x20mm) - UL 248-14

Glass

19197 Series

Glass



19198 Series

Approvals:

19197 Series: UL CSA approved. 1.00A - 7.00A.
19198 Series: UL, CSA approved .250A - 3.50A. MITI approved 1.00A - 3.50A.

Electrical Characteristics:

Series / Rated Curent		Pre-arcing Rating 135%	200%
19197	1.00A-7.00A	< 1 hr.	< 120sec
19198	.250A -3.00A	< 1 hr	5-120sec
	3.50A	< 1 hr	12-120sec

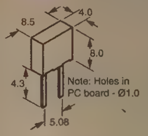
Breaking Capacity

19197 Series: 35A at 250VAC (1A)
100A at 250VAC (1.25A - 3.50A)
10000A at 125VAC (1.00A - 7.00A)
19198 Series: 35A at 250VAC (.250A -1.00A)
100A at 250VAC (1.25A - 3.50A)
10000A at 125VAC (.250A - 3.50A)

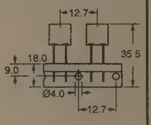
Amp Rating	Volt. Rtg.	Digi-Key Part No.	Pricing 1	10	100
NEW! Fast-Acting 19197 Series					
1.00	250	WK4748-ND	.27	2.48	18.00
1.25	250	WK4750-ND	.27	2.48	18.00
1.60	250	WK4753-ND	.27	2.48	18.00
2.00	250	WK4757-ND	.27	2.48	18.00
2.50	250	WK4758-ND	.27	2.48	18.00
3.00	250	WK4760-ND	.27	2.48	18.00
3.50	250	WK4723-ND	.27	2.48	18.00
4.00	125	WK4762-ND	.27	2.48	18.00
5.00	125	WK4763-ND	.27	2.48	18.00
6.00	125	WK4764-ND	.27	2.48	18.00
7.00	125	WK4767-ND	.27	2.48	18.00
NEW! Time Lag 19198 Series					
.250	250	WK4835-ND	.64	5.89	42.80
.300	250	WK4836-ND	.60	5.50	40.00
.400	250	WK4840-ND	.57	5.25	38.20
.500	250	WK4841-ND	.77	7.04	51.20
.600	250	WK4842-ND	.68	6.24	45.40
.700	250	WK4844-ND	.68	6.24	45.40
.800	250	WK4846-ND	.72	6.57	47.80
1.00	250	WK4848-ND	.69	6.33	46.00
1.25	250	WK4850-ND	.69	6.33	46.00
1.60	250	WK4853-ND	.69	6.33	46.00
2.00	250	WK4857-ND	.69	6.33	46.00
2.50	250	WK4858-ND	.69	6.33	46.00
3.00	250	WK4860-ND	.74	6.79	49.40
3.50	250	WK4823-ND	1.02	9.35	68.00

Wickmann

NEW! TE5 Sub-Miniature Fuses - UL 248-14



Short Leads



Ammopack

Approvals:

19395 Series: UL Listed and CSA Certified for .050A - 6.30A.

19396 Series: UL Listed, and CSA Certified for .050A - 6.30A. MITI approved for 1.00A - 5.00A.

• Fast-acting and Time-lag. • Material: Black Thermoplastic UL 94-VO. Round Pins: Copper alloy, tin-plated. • Soldering Heat Resistance: 260°C, 10s (IEC 68-2-20). • Plug-in holes available.

Electrical Characteristics:

Series/ Rated Current		Pre-arcing Rating 100%	150%	200%
19395	50mA-6.3A	> 4 hr.	< 10 min.	< 5sec
19396	50mA-6.3A	> 4 hr.	< 10 min.	< 60sec

Breaking Capacity

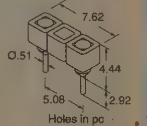
19395 & 19396 Series: 100A at 125VAC

Amp Rtg.	Volt. Rtg.	Digi-Key Part No.	Pricing 1	10	*Tape & Ammo-pk. Pricing 1250
Fast-Acting 19395 Series					
.050	125	WK4322BK-ND	2.12	19.39	862.51/M
.063	125	WK4325BK-ND	1.71	15.65	692.51/M
.080	125	WK4326BK-ND	1.67	15.32	677.51/M
.100	125	WK4327BK-ND	1.64	14.99	662.51/M
.125	125	WK4328BK-ND	.56	5.14	215.00/M
.160	125	WK4330BK-ND	.56	5.14	215.00/M
.200	125	WK4334BK-ND	.56	5.14	215.00/M
.250	125	WK4335BK-ND	.56	5.14	215.00/M
.315	125	WK4337BK-ND	.56	5.14	215.00/M
.400	125	WK4340BK-ND	.56	5.14	215.00/M
.500	125	WK4341BK-ND	.56	5.14	215.00/M
.630	125	WK4343BK-ND	.56	5.14	215.00/M
.800	125	WK4346BK-ND	.56	5.14	215.00/M
1.00	125	WK4348BK-ND	.56	5.14	215.00/M
1.25	125	WK4350BK-ND	.56	5.14	215.00/M
1.60	125	WK4353BK-ND	.56	5.14	215.00/M
2.00	125	WK4357BK-ND	.56	5.14	215.00/M
2.50	125	WK4358BK-ND	.56	5.14	215.00/M
3.15	125	WK4324BK-ND	.56	5.14	215.00/M
4.00	125	WK4362BK-ND	.56	5.14	215.00/M
5.00	125	WK4363BK-ND	.56	5.14	215.00/M
6.30	125	WK4366BK-ND	.56	5.14	215.00/M
Time-Lag 19396 Series					
.050	125	WK4422BK-ND	1 08	9.93	432.51/M
.063	125	WK4425BK-ND	1.17	10.75	470.00/M
.080	125	WK4426BK-ND	.94	8.61	372.51/M
.100	125	WK4427BK-ND	.81	7.45	320.00/M
.125	125	WK4428BK-ND	.79	7.23	310.00/M
.160	125	WK4430BK-ND	.72	6.57	280.00/M
.200	125	WK4434BK-ND	.72	6.57	280.00/M
.250	125	WK4435BK-ND	.68	6.22	263.76/M
.315	125	WK4437BK-ND	.68	6.22	263.76/M
.400	125	WK4440BK-ND	.68	6.22	263.76/M
.500	125	WK4441BK-ND	.65	5.94	251.25/M
.630	125	WK4443BK-ND	.62	5.64	237.51/M
.800	125	WK4446BK-ND	.62	5.64	237.51/M
1.00	125	WK4448BK-ND	.62	5.64	237.51/M
1.25	125	WK4450BK-ND	.62	5.64	237.51/M
1.60	125	WK4453BK-ND	.62	5.64	237.51/M
2.00	125	WK4457BK-ND	.62	5.64	237.51/M
2.50	125	WK4458BK-ND	.62	5.64	237.51/M
3.15	125	WK4424BK-ND	.62	5.64	237.51/M
4.00	125	WK4462BK-ND	.62	5.64	237.51/M
5.00	125	WK4463BK-ND	.62	5.64	237.51/M
6.30	125	WK4466BK-ND	.62	5.64	237.51/M

* For Tape & Ammopack part no., change part number from BK to TB-ND.

NEW! TE5 Fuseholder

- Material: Black Thermo-plastic UL 94-VO. Terminals; Brass, tin-plated for soldering.
- Rated Values: 250V; 6.3A

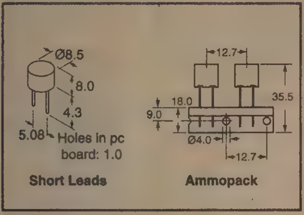


Holes in pc board: Ø1.0

WK0009-ND ....**.41/ea.; 3.71/10; 27.00/100**

Wickmann

NEW! TR5 Sub-Miniature Fuses - IEC 127-3



Short Leads **Ammopack**

Approvals:

19370 Series: UL Recognized (.050A - 4.00A), Semko approved (.063A - 4.00A), VDE approved (.080A, .100A, .200A, .315A, .400A, .630A, 1.00A - 2.50A and 4.00A).

19372 Series: UL Recognized, Semko & VDE approved, (.050A - 5.00A).

• Fast-acting and Time-lag. • Material: Base and cap: Black Thermoplastic UL 94-VO, insulated. Round Pins: Copper alloy, tin-plated. • Soldering Heat Resistance: acc. to IEC 68, part 2-20, 260°C, 10s. • Plug-in holders available.

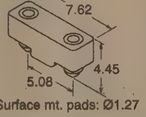
Electrical Characteristics:

Series/ Rated Current		Pre-arcing Rating				
		150%	210%	275%	400%	1000%
19370	50mA-4.0A	>1 hr.	<30 min.	10ms - 3sec	3-300 ms	<20 ms
19372	40mA-5.00A	>1 hr.	<2 min.	400ms-10sec	150ms-3sec	20-150 ms

Amp Rating	Volt. Rating	Digi-Key Part No.	Pricing 1	Pricing 10	*Tape & Ammo-pk. Pricing 1000
Fast-Acting 19370 Series					
.050	250	WK4922BK-ND	1.16	10.62	501.25
.063	250	WK4925BK-ND	1.13	10.31	487.50
.080	250	WK4926BK-ND	1.13	10.31	487.50
.100	250	WK4927BK-ND	1.13	10.31	487.50
.125	250	WK4928BK-ND	1.13	10.31	487.50
.160	250	WK4930BK-ND	.45	4.13	168.75
.200	250	WK4934BK-ND	.45	4.13	168.75
.250	250	WK4935BK-ND	.45	4.13	168.75
.315	250	WK4937BK-ND	.45	4.13	168.75
.400	250	WK4940BK-ND	.45	4.13	168.75
.500	250	WK4941BK-ND	.45	4.13	168.75
.630	250	WK4943BK-ND	.45	4.13	168.75
.800	250	WK4946BK-ND	.45	4.13	168.75
1.00	250	WK4948BK-ND	.45	4.13	168.75
1.25	250	WK4950BK-ND	.45	4.13	168.75
1.60	250	WK4953BK-ND	.45	4.13	168.75
2.00	250	WK4957BK-ND	.45	4.13	168.75
2.50	250	WK4958BK-ND	.45	4.13	168.75
3.15	250	WK4924BK-ND	.45	4.13	168.75
4.00	250	WK4962BK-ND	.45	4.13	168.75
Time-Lag 19372 Series					
.050	250	WK4222BK-ND	.68	6.27	266.25
.063	250	WK4225BK-ND	.65	6.00	253.75
.080	250	WK4226BK-ND	.59	5.36	225.00
.100	250	WK4227BK-ND	.59	5.36	225.00
.125	250	WK4228BK-ND	.53	4.90	203.75
.160	250	WK4230BK-ND	.53	4.90	203.75
.200	250	WK4234BK-ND	.51	4.68	193.75
.250	250	WK4235BK-ND	.51	4.68	193.75
.315	250	WK4237BK-ND	.51	4.68	193.75
.400	250	WK4240BK-ND	.51	4.68	193.75
.500	250	WK4241BK-ND	.51	4.68	193.75
.630	250	WK4243BK-ND	.51	4.68	193.75
.800	250	WK4246BK-ND	.51	4.68	193.75
1.00	250	WK4248BK-ND	.51	4.68	193.75
1.25	250	WK4250BK-ND	.51	4.68	193.75
1.60	250	WK4253BK-ND	.51	4.68	193.75
2.00	250	WK4257BK-ND	.51	4.68	193.75
2.50	250	WK4258BK-ND	.51	4.68	193.75
3.15	250	WK4224BK-ND	.51	4.68	193.75
4.00	250	WK4262BK-ND	.54	4.98	207.50
5.00	250	WK4263BK-ND	.54	4.98	207.50

* For Tape & Ammopack part no., change part number from BK to TB-ND.

NEW! TR5 / TE5 SMT Fuseholder



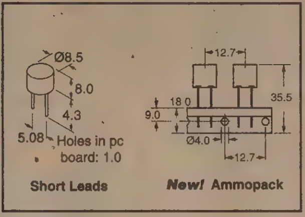
Surface mt. pads: Ø1.27

- **Material:** Black Thermo-plastic UL 94-VO. Terminals; Brass, tin-plated.
- **Rated Values:** 250V; 6.3A.

WK0010-ND..........54/ea.; 4.95/10; 36.00/100

Wickmann

TR5 Sub-Miniature Fuses UL 248-14



Short Leads ***New!* Ammopack**

Approvals:

19373 & 19374 Series: UL Listed, CSA Certified Approved (.050A - 6.30A).

• Fast-acting and Time-lag. • Material: Base and cap: Black Thermoplastic UL 94-VO, insulated. Round Pins: Copper alloy, tin-plated. • Soldering Heat Resistance: acc. to IEC 68, part 2-20, 260°C, 10sec. • Plug-in holders available.

Electrical Characteristics:

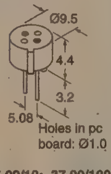
Series/ Rated Current		Pre-arcing Rating		
		100%	150%	200%
19373 & 19378	50mA-10.A	4 hr. min.	10 min. max.	5 sec. max.
19374 & 19379	50mA-10.00A	4 hr. min.	10 min. max.	60 sec. max.

Amp Rtg.	Volt. Rtg.	Digi-Key Part No.	Pricing 1	Pricing 10	*Tape & Ammo-pk. Pricing 1000
Fast-Acting 19373 Series					
.050	250	WK3022BK-ND	2.24	20.49	912.50
.063	250	WK3025BK-ND	1.70	15.62	691.25
.080	250	WK3026BK-ND	1.67	15.26	675.00
.100	250	WK3027BK-ND	1.64	14.99	662.50
.125	250	WK3028BK-ND	.55	5.06	211.25
.160	250	WK3030BK-ND	1.42	13.01	572.50
.200	250	WK3034BK-ND	1.42	13.01	572.50
.250	250	WK3035BK-ND	.55	5.06	211.25
.315	250	WK3037BK-ND	.55	5.06	211.25
.400	250	WK3040BK-ND	.55	5.06	211.25
.500	250	WK3041BK-ND	.55	5.06	211.25
.630	250	WK3043BK-ND	.55	5.06	211.25
.800	250	WK3046BK-ND	.55	5.06	211.25
1.00	250	WK3048BK-ND	.55	5.06	211.25
1.25	250	WK3050BK-ND	.55	5.06	211.25
1.60	250	WK3053BK-ND	.55	5.06	211.25
2.00	250	WK3057BK-ND	.55	5.06	211.25
2.50	250	WK3058BK-ND	.55	5.06	211.25
3.15	250	WK3024BK-ND	.55	5.06	211.25
4.00	250	WK3062BK-ND	.55	5.06	211.25
5.00	250	WK3063BK-ND	.55	5.06	211.25
6.30	250	WK3066BK-ND	.55	5.06	211.25
Fast-Acting 19378 Series					
10.00	250	WK3071BK-ND†	.57	5.20	217.50
Time-Lag 19374 Series					
.050	250	WK4022BK-ND	1.13	10.40	453.75
.063	250	WK4025BK-ND	1.20	10.97	480.00
.080	250	WK4026BK-ND	.96	8.83	382.50
.100	250	WK4027BK-ND	.84	7.67	330.00
.125	250	WK4028BK-ND	.82	7.51	322.50
.160	250	WK4030BK-ND	.73	6.68	285.00
.200	250	WK4034BK-ND	.73	6.68	285.00
.250	250	WK4035BK-ND	.68	6.19	262.50
.315	250	WK4037BK-ND	.68	6.19	262.50
.400	250	WK4040BK-ND	.68	6.19	262.50
.500	250	WK4041BK-ND	.62	5.64	237.50
.630	250	WK4043BK-ND	.62	5.64	237.50
.800	250	WK4046BK-ND	.62	5.64	237.50
1.00	250	WK4048BK-ND	.62	5.64	237.50
1.25	250	WK4050BK-ND	.62	5.64	237.50
1.60	250	WK4053BK-ND	.62	5.64	237.50
2.00	250	WK4057BK-ND	.62	5.64	237.50
2.50	250	WK4058BK-ND	.62	5.64	237.50
3.15	250	WK4024BK-ND	.62	5.64	237.50
4.00	250	WK4062BK-ND	.62	5.64	237.50
5.00	250	WK4063BK-ND	.62	5.64	237.50
6.30	250	WK4066BK-ND	.63	5.75	242.50
Fast-Acting 19379 Series					
10.00	250	WK4071BK-ND†	.67	6.13	260.00

* For Tape & Ammopack part no., change part number from BK to TB-ND.

† Does not carry UL/CSA approvals.

TR5 Fuseholder



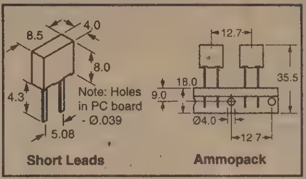
- **Material:** Black Thermo-plastic UL 94-VO. Terminals; brass, tin-plated.
- **Rated Values:** 250V; 6.3A.

WK0001-ND 56/ea.; 5.09/10; 37.00/100

Wickmann

NEW! T²CP Sub-Miniature Fuses - UL 248-14

Transient Tolerant Circuit Protector



Short Leads **Ammopack**

Approvals:

19397 Series: UL Listed, CSA Certified Approved (.350A - 1.50A).

Description: Used in telcom applications for line protection, this fuse has a higher melting integral than a standard time-lag fuse. Can be utilized in conjuction with across line surge protection for added protection of sensitive telecom equipment.

• Material: Base and Cap: Black Thermoplastic UL 94-VO. Round Pins: Copper alloy, tin-plated. • Soldering Heat Resistance: 260°C, 10s (IEC 68-2-20). • Plug-in holders available

Electrical Characteristics:

Series/ Rated Current		Pre-arcing Rating				
		100%	150%	200%	570%	1700%
19397	350mA-1.50A	>4 hr.	<10 min.	<60 sec	80ms-2sec	<200 ms

Amp Rtg.	Volt. Rtg.	Digi-Key Part No.	Pricing 1	Pricing 10	*Tape & Ammo-pack 1250
Time Lag 19397 Series					
.350	125	WK4538BK-ND	.71	6.49	276.25/M
.500	125	WK4541BK-ND	.71	6.49	276.25/M
1.00	125	WK4548BK-ND	.71	6.49	276.25/M
1.25	125	WK4550BK-ND	.71	6.49	276.25/M
1.50	125	WK4552BK-ND	.71	6.49	276.25/M

* For Tape & Ammopack part no., change part number from BK to TB-ND.

Wickmann

Shock-Safe Fuseholders

Shock-Safe fuseholders for 1/4 x 1-1/4" (3AG) or 5 x 20mm fuses built according to UL 512 and IEC 257. Rated for use up to 250 Volts and 16 Amps (UL, CSA) and 10 Amps (VDE, SEMKO). Casing made of Thermoplastic with UL-94VO ratings. Injection-molded terminals prevent intermittent connections. PC-Mount versions include additional pin(s) for added stability from torsional forces seen during fuse removal. Panel-Mount versions have combination 3/16" quick-connect/solderable tabs. Order number includes holder and carrier. PC Board Mount: Body Material; White themoplastic, (UL 94-V1 rated). Rated Current; 6.3A

Vertical PC Mount

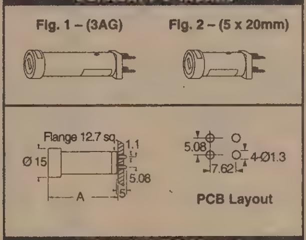


Fig. 1 – (3AG) **Fig. 2 – (5 x 20mm)**

PCB Layout

Horizontal PC Mount

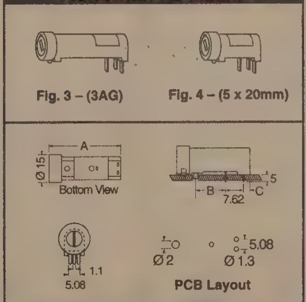


Fig. 3 – (3AG) **Fig. 4 – (5 x 20mm)**

PCB Layout

Panel Mount

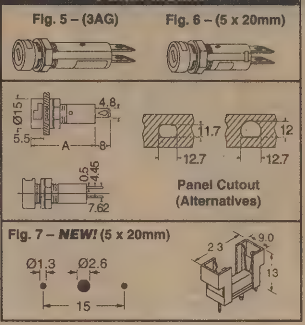


Fig. 5 – (3AG) **Fig. 6 – (5 x 20mm)**

Panel Cutout (Alternatives)

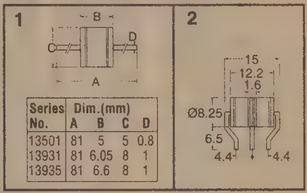
Fig. 7 – *NEW!* (5 x 20mm)

Fig. No.	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	10	100
Vertical PC Mount							
1	46.3	—	—	WK0004-ND	2.40	22.00	160.00
2	32.6	—	—	WK0007-ND	2.04	18.70	136.00
Horizontal PC Mount							
3	45.7	27.94	1.9	WK0003-ND	2.40	22.00	160.00
4	32	12.7	1.8	WK0006-ND	2.04	18.70	136.00
Panel Mount							
5	45.7	—	—	WK0002-ND	2.40	22.00	160.00
6	32	—	—	WK0005-ND	2.04	18.70	136.00
NEW! PC Board Mount (5x20mm)							
7	—	—	—	WK0011-ND	.32	2.89	21.00

Wickmann

Gas Tube Arrestors

Features: • High peak surge current capability • Fast response time • Low interelectrode capacitance (<1pF) • Very high insulation resistance (>10¹⁰Ω) • Sealed ceramic construction • **Applications:** • Data lines • Process control loops • Modems • Telephone lines • Ignition Circuits • Instrumentation • AC loads • Power supplies • **Approvals:** National & International standards of CCITT K. 12, VDE 0845, also 600V rated part has UL1449.



Series No.	Dim.(mm) A	B	C	D
13501	81	5	5	0.8
13931	81	6.05	8	1
13935	81	6.6	8	1

Electrical Characteristics:

Typical Application:

Data Lines, Control Circuits, Telephone Lines, AC Line Protect. Power Supplies, Line Cards, Repeaters, and Modems.

DC Series No.	Nominal DC Sparkover Voltage	AC(RMS) Dis-charge Current (A)	Surge 8x20μs Wave (KA)
13501	90 +25%/-20%	2.5	2.5
	230 ±20%	2.5	2.5
	350 ±20%	2.5	2.5
13931	90 +25%/-20%	20	10
	230 ±20%	20	10
	350 ±20%	20	10
13935	600 +35%/-20%	20	10
13942	90 +25%/-20%	10	10
	230 ±20%	10	10
	350 ±20%	10	10

Fig. No.	DC SparkOver (V)	Digi-Key Part No.	Pricing 1	Pricing 10	T & R* Pricing 1000
Light Duty, 2 Electrode, Mini Style (13501 Series)					
1	90	WK6001CT-ND	3.90	35.75	1950.00
1	230	WK6002CT-ND	3.90	35.75	1950.00
1	350	WK6003CT-ND	3.90	35.75	1950.00
Medium Duty, 2 Electrode (13931 Series)					
1	90	WK6004CT-ND	3.09	28.33	1545.00
1	230	WK6005CT-ND	3.09	28.33	1545.00
1	350	WK6006CT-ND	3.09	28.33	1545.00
Medium Duty, 2 Electrode (13935 Series)					
1	600	WK6007CT-ND	3.09	28.33	1545.00

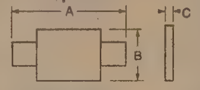
* For Tape & Reel part number, change part number from CT-ND to TR-ND.

Fig. No.	DC Spark-Over(V)	Digi-Key Part No.	Pricing 1	10	100
Medium Duty, 3 Electrode (13942 Series)					
2	90	WK6008-ND	6.27	57.48	418.00
2	230	WK6009-ND	6.27	57.48	418.00
2	350	WK6010-ND	6.27	57.48	418.00

Raychem PolySwitch® Resettable Fuses

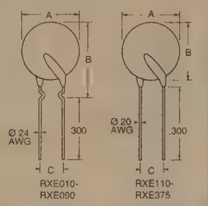
PolySwitch circuit protection devices protect electrical and electronic circuits against excessive current, voltage, and temperature. Like fuses and circuit breakers, PolySwitch devices interrupt the flow of dangerously high currents, whether due to excessive voltage or to a fault condition within the circuit. After switching, the PolySwitch device is latched into its high-resistance, protective state by the small, sustained self-heating current. The protector will reset only after it has cooled and the fault condition has been corrected, thus avoiding continuous cycling that could cause circuit damage. The protector requires no manual resetting or replacement. **Definitions:** Maxium Voltage: The highest voltage the device can withstand (in its tripped state) without damage. Hold Current: The maximum continuous current that will not cause the device to trip at 20°C. Trip Current: The minimum continuous current that will cause the device to trip at 20°C. Maxium Current: The largest fault current, at rated voltage, the device can interrupt without being damaged. Maximum R: Maximum non-tripped resistance of the device.

1 — Strap Series



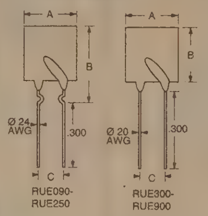
These products provide reliable, non-cycling protection for rechargeable batteries. Weldable nickel leads and a narrow, low-profile design make these devices extremely easy to install on the edges of battery packs.

2 — RXE Series



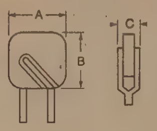
These products function as the general purpose line of circuit protectors and are well suited for power supplies, alarm systems, speakers, motors and many other applications. The RXE products range in hold currents from .10 to 3.75 amps and complement the RUE devices by providing a higher voltage rating.

3 — RUE Series



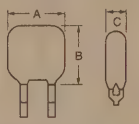
These devices are also designed to be used in a wide variety of general electronics applications. They complement the RXE line by providing a smaller form factor with lower resistance and higher hold current capability (up to 9 amps).

4 — TR Series



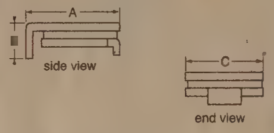
This family uses a new geometry to build high voltage (250V-600V) products for telecommunications applications.

5 — Encapsulated TR Series

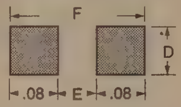


This family uses a new geometry to build high voltage (250V-600V) products for telecommunications applications.

6 — Surface Mount Series

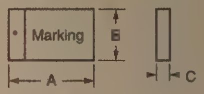


Recommended Pad Layout

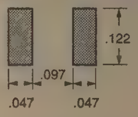


This product line is specifically designed for surface mount applications. The products range in hold currents from 0.3 amps to 2.5 amps and voltages from 15 volts to 60 volts. These devices are ideally suited for high density board applications in computer and computer peripheral products, telecommunications and general electronics applications. They are designed to be reflowed onto a PCB using standard surface mount processes. Packaged per EIA-481 standard.

7 — MiniSurface Mount Series



Recommended Pad Layout



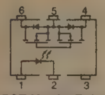
The miniSMD resettable fuses extremely small size makes them excellent choices for keyboard and mouse ports, SCSI devices, battery packs, PC cards and sockets, cellular modems and phones, and portable electronic equipment. SMT packaging for automated assembly compared to SMD the MINISMD offers: 40% reduction in size, 300% faster time to trip, 50% reduction in DC resistance, 66% reduction in profile, 80% reduction in mass and drop in repacement for the NANO 2 fuse in many applications.

Fig. No.	Max Volt.	Rated Current (20°C) (amps) Hold	Trip	Max Current	RMax Initial (Ohms)	Recognized By	Dimensions A	B	C	Digi-Key Part No.	Pricing 1	10	100	500	1000	Raychem Part No.
										Strap Series						
1	15	1.20	2.31	100	0.16	UL, TUV	.87	.20	.04	SRP120-ND	1.14	10.45	95.00	418.00	731.50	SRP120
1	15	1.75	3.44	100	0.09	UL, TUV	.91	.20	.04	SRP175-ND	1.14	10.45	95.00	418.00	731.50	SRP175
1	30	2.00	4.40	100	0.06	UL, TUV	.92	.43	.04	SRP200-ND	1.14	10.45	95.00	418.00	731.50	SRP200
1	30	3.50	6.30	100	0.03	UL, TUV	1.25	.53	.04	SRP350-ND	1.20	11.00	100.00	433.33	761.90	SRP350
1	30	4.20	7.80	100	0.02	UL, TUV	1.25	.53	.04	SRP420-ND	1.20	11.00	100.00	433.33	761.90	SRP420
										RXE Series						
2	60	0.10	0.20	40	4.50	UL, TUV, CSA	.29	.50	.2	RXE010-ND	.72	6.60	60.00	235.38	406.15	RXE010
2	60	0.17	0.34	40	5.40	UL, TUV, CSA	.29	.51	.2	RXE017-ND	.78	7.15	65.00	260.00	452.59	RXE017
2	60	0.20	0.40	40	2.84	UL, TUV, CSA	.29	.48	.2	RXE020-ND	.78	7.15	65.00	260.00	452.59	RXE020
2	60	0.25	0.50	40	1.95	UL, TUV, CSA	.29	.50	.2	RXE025-ND	.78	7.15	65.00	260.00	445.72	RXE025
2	60	0.30	0.60	40	1.36	UL, TUV, CSA	.29	.51	.2	RXE030-ND	.78	7.15	65.00	260.00	445.72	RXE030
2	60	0.40	0.80	40	0.86	UL, TUV, CSA	.30	.53	.2	RXE040-ND	.81	7.43	67.50	265.35	456.21	RXE040
2	60	0.50	1.00	40	0.77	UL, TUV, CSA	.31	.54	.2	RXE050-ND	.84	7.70	70.00	284.83	492.41	RXE050
2	60	0.65	1.30	40	0.48	UL, TUV, CSA	.38	.57	.2	RXE065-ND	.87	7.98	72.50	290.00	502.67	RXE065
2	60	0.75	1.50	40	0.40	UL, TUV, CSA	.41	.60	.2	RXE075-ND	.90	8.25	75.00	300.00	512.90	RXE075
2	60	0.90	1.80	40	0.31	UL, TUV, CSA	.46	.62	.2	RXE090-ND	.90	8.25	75.00	295.31	515.63	RXE090
2	50	1.10	2.20	40	0.25	UL, TUV, CSA	.51	.71	.2	RXE110-ND	.93	8.53	77.50	314.84	542.50	RXE110
2	50	1.35	2.70	40	0.19	UL, TUV, CSA	.57	.77	.2	RXE135-ND	.93	8.53	77.50	314.84	542.50	RXE135
2	50	1.60	3.20	40	0.14	UL, TUV, CSA	.64	.84	.2	RXE160-ND	.96	8.80	80.00	320.00	555.29	RXE160
2	50	1.85	3.70	40	0.12	UL, TUV, CSA	.70	.90	.2	RXE185-ND	.99	9.08	82.50	325.29	565.72	RXE185
2	50	2.50	5.00	40	0.08	UL, TUV, CSA	.84	1.04	.4	RXE250-ND	1.08	9.90	90.00	364.74	625.26	RXE250
2	50	3.00	6.00	40	0.06	UL, TUV, CSA	.98	1.18	.4	RXE300-ND	1.17	10.73	97.50	394.76	684.88	RXE300
2	50	3.75	7.50	40	0.05	UL, TUV, CSA	1.12	1.30	.4	RXE375-ND	1.35	12.38	112.50	455.11	787.50	RXE375
										RUE Series						
3	30	0.90	1.80	40	0.12	UL, CSA	.26	.48	.2	RUE090-ND	.87	7.98	72.50	290.00	502.67	RUE090
3	30	1.10	2.20	40	0.10	UL, CSA	.26	.56	.2	RUE110-ND	.87	7.98	72.50	290.00	502.67	RUE110
3	30	1.35	2.70	40	0.08	UL, CSA	.35	.53	.2	RUE135-ND	.87	7.98	72.50	290.00	512.33	RUE135
3	30	1.60	3.20	40	0.07	UL, CSA	.35	.60	.2	RUE160-ND	.90	8.25	75.00	300.00	515.63	RUE160
3	30	1.85	3.70	40	0.06	UL, CSA	.40	.62	.2	RUE185-ND	.96	8.80	80.00	320.00	552.73	RUE185
3	30	2.50	5.00	40	0.04	UL, CSA	.45	.72	.2	RUE250-ND	1.02	9.35	85.00	340.00	592.57	RUE250
3	30	3.00	6.00	40	0.05	UL, CSA	.45	.68	.2	RUE300-ND	1.08	9.90	90.00	360.00	615.79	RUE300
3	30	4.00	8.00	40	0.03	UL, CSA	.55	.79	.2	RUE400-ND	1.14	10.45	95.00	380.00	655.50	RUE400
3	30	5.00	10.00	40	0.03	UL, CSA	.55	.98	.4	RUE500-ND	1.20	11.00	100.00	400.00	695.24	RUE500
3	30	6.00	12.00	40	0.02	UL, CSA	.65	.98	.4	RUE600-ND	1.26	11.55	105.00	420.00	735.00	RUE600
3	30	7.00	14.00	40	0.02	UL, CSA	.75	1.05	.4	RUE700-ND	1.32	12.10	110.00	440.00	755.65	RUE700
3	30	8.00	16.00	40	0.02	UL. CSA	.85	1.15	.4	RUE800-ND	1.38	12.65	115.00	460.00	795.42	RUE800
3	30	9.00	18.00	40	0.01	UL, CSA	.95	1.17	.4	RUE900-ND	1.47	13.48	122.50	490.00	845.49	RUE900
										TR Series						
4	250	0.120	0.300	3	10.0	UL	.23	.23	.15	TR120U-ND	.81	7.43	67.50	274.50	477.00	TR250-120U
4	250	0.145	0.360	3	6.5	UL	.23	.23	.15	TR145U-ND	.81	7.43	67.50	274.50	477.00	TR250-145U
4	250	0.180	0.450	3	2.0	UL	.41	.26	.14	TR180U-ND	1.02	9.35	85.00	344.72	595.00	TR250-180U
5	250	0.120	0.300	3	8.0	UL	.25	.25	.18	TR120-ND	.90	8.25	75.00	300.00	518.18	TR250-120
5	250	0.145	0.360	3	6.0	UL	.25	.25	.18	TR145-ND	.90	8.25	75.00	300.00	518.18	TR250-145
5	600	0.150	0.375	3	12.0	UL	.53	.35	.23	TR150-ND	1.41	12.93	117.50	474.61	820.20	TR600-150

Fig. No.	Max Volt.	Rated Current (20°C) (amps) Hold	Trip	Max Current	RMax Initial (Ohms)	Recognized By	Dimensions A	B	C	D	E	F	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape & Reel Pricing 1500	2000	6000	Raychem Part No.
													Surface Mount								
6	60	0.30	0.60	10	2.40	UL, CSA, TUV	.31	.125	.21	.12	.22	.38	SMD030CT-ND	1.33	11.40	104.50	SMD030TR-ND	—	750.00/M	600.00/M	SMD030-2
6	60	0.50	1.00	10	0.70	UL, CSA, TUV	.31	.125	.21	.12	.22	.38	SMD050CT-ND	1.33	11.40	104.50	SMD050TR-ND	—	750.00/M	600.00/M	SMD050-2
6	30	0.75	1.50	40	0.50	UL, CSA, TUV	.31	.125	.21	.12	.22	.38	SMD075CT-ND	1.33	11.40	104.50	SMD075TR-ND	—	750.00/M	600.00/M	SMD075-2
6	30	1.10	2.20	40	0.24	UL, CSA, TUV	.31	.118	.21	.12	.22	.38	SMD100CT-ND	1.26	10.80	99.00	SMD100TR-ND	—	720.00/M	570.00/M	SMD100-2
6	15	1.25	2.50	40	0.14	UL,CSA,Pend TUV	.31	.118	.21	.12	.22	.38	SMD125CT-ND	1.26	10.80	99.00	SMD125TR-ND	—	720.00/M	570.00/M	SMD125-2
6	15	1.50	3.00	40	0.12	UL, CSA, TUV	.37	.118	.26	.18	.26	.42	SMD150CT-ND	1.33	11.40	104.50	SMD150TR-ND	750.00/M	—	600.00/M	SMD150-2
6	15	2.00	4.00	40	0.080	—	.37	.118	26	.18	.26	.42	SMD200CT-ND	1.33	11.40	104.50	SMD200TR-ND	750.00/M	—	600.00/M	SMD200-2
6	15	2.50	5.00	40	0.065	—	.37	.118	.26	.18	.26	.42	SMD250CT-ND	1.33	11.40	104.50	SMD250TR-ND	750.00/M	—	600.00/M	SMD250-2
													Mini-Surface Mount								
7	15	0.50	1.00	40	1.00	UL	.186	.134	.02—	—	—		MINISMD050CT-ND	1.02	8.70	79.75	MINISMD050TR-ND	522.00/M	—	449.50/M	MINISMD050-2
7	13.2	0.75	1.50	40	0.45	UL (pendig)	.186	.134	.02—	—	—		MINISMD075CT-ND	1.02	8.70	79.75	MINISMD075TR-ND	522.00/M	—	449.50/M	MINISMD075-2

OMRON. Optoisolator Mosfet Relays

Switches both AC or DC



SPST Mosfet Relay

ton/toff (ms)	Output Voltage (V)	Cont. Load Current (mA)	Digi-Key Part No.	Pricing 1	25	100	250	Omron Part No.
0.95/0.1	0~+400	200	OR521-ND	13.46	307.77	1087.94	2505.13	G3VM-4
1.4/0.1	0~+60	650	OR522-ND	13.46	307.77	1087.94	2505.13	G3VM-X

CP Clare CORPORATION OptoMOS Solid State Switches

Figure A through D are single and dual output solid state switches housed in a 6 or 8 pin dip package. Highly reliable bounce-free, arc-free switching with over 15 billion operations possible. UL, CSA approved and FCC compatible. "TS" Series Telecom Switches (Fig. E) incorporates an isolated solid state relay for hookswitch and dial pulse or loop start switching with a bi-directional Opto-coupler for ring detection and on-hook/off-hook detection. Eliminates up to eight discrete components. Cp Clare's "LDA" series current sensors (Fig. F, G) provide optical isolation between control and switching circuits. Available in a single transistor output (33hfe min) or darlington output (300 hfe min.). Applications include Telecom, Industrial Control and Instrumentation.

Industrial Control and Instrumentation: Figure H is dual linear optocouplers with a wide bandwidth and high gain (55 - 142%), available in either Dip, SMT, OR Flat package.

Cp Clare's PLCA110 (Figure I): Features a 1-Form-A Solid State Relay integrated with a Solid State Surge Arrester. The Solid State Surge Arrester is designed for secondary telecom line protection, meets FCC Part 68 and provides breakover voltage and repetitive surges with no degradation. The relay portion offers reliable bounce free switching. Ideal for handling hook switch/dial pulse functions.

Specifications: Operating temperature: -40 to 85° C. Isolation voltage input to output; 2500 vrms. Input power dissipation at 25°C; 150mW. Reverse voltage; 5V max.

Fig. A

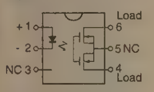


Fig. B

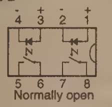


Fig. C

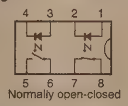


Fig. D

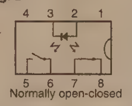


Fig. E

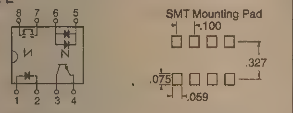


Fig. F

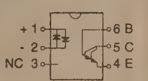


Fig. G

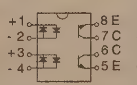


Fig. H

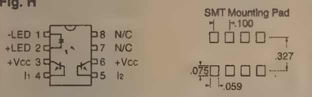


Fig. I

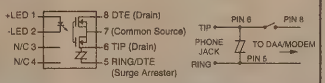


Fig. No.	Pkg.	Input* Current Min/Max	Output Current Max.	Output Load Voltage	Turn On/ Turn Off (mS)	Digi-Key Part No.	Pricing 1	25	50	Tape & Reel** Pricing 1000	CP Clare Part No.
A	6 Dip	2/100	200mA	350	5/3	CLA101-ND	4.55	96.25	157.50	—	LCA110
A	SMT-6	2/100	200mA	350	5/3	CLA102CT-ND	4.65	98.31	160.88	1776.00	LCA110S
A	6 Dip	5/100	200mA	350	3/3	CLA105-ND	4.55	96.25	157.50	—	LCB110
A	6 Dip	5/100	210mA	400	1/.25	CLA107-ND	4.97	105.19	172.13	—	PLA110
B	8 Dip	5/100	120mA	350	3/3	CLA103-ND	7.90	167.06	273.38	—	LAA110
C	8 Dip	5/100	120mA	350	3/3	CLA104-ND	7.90	167.06	273.38	—	LBA110
D	8 Dip	8/100	120mA	350	4/4	CLA106-ND	7.90	167.06	273.38	—	LCC110
E	8 Dip	2/6	120mA	350	3/3	CLA108-ND	7.57	160.19	262.13	—	TS117
E	Flat Pk.	2/6	120mA	350	3/3	CLA109CT-ND	8 71	184.25	301.50	3276.00	TS117P
E	SMT-8	2/6	120mA	350	3/3	CLA110CT-ND	7.74	163.63	267.75	2916.00	TS117S
F	6 Dip	2/6	100mA	100	3/3	CLA111-ND	3.15	66.69	109.13	—	LDA110
G	8 Dip	2/6	100mA	100	3/3	CLA112-ND	3.38	71.50	117.00	—	LDA200
H	8 Dip	1/2	120mA	350	5/2	CLA113-ND	5.23	110.69	181.13	—	LOC110
H	SMT-8	1/2	120mA	350	5/2	CLA114CT-ND	5.53	116.88	191.25	2210.00	LOC110S
H	Flat Pk.	1/2	120mA	350	5/2	CLA115CT-ND	5.69	120.31	196.88	2275.00	LOC110P
H	8 Dip	2/50	120mA	350	5/2	CLA116-ND	5.82	123.06	201.38	—	LOC111
H	SMT-8	2/50	120mA	350	5/2	CLA117CT-ND	6.11	129.25	211.50	2444.00	LOC111S
H	Flat Pk.	2/50	120mA	350	5/2	CLA118CT-ND	6.27	132.69	217.13	2509.00	LOC111P
I	8 Dip	2/50	120mA	350	5/2	CLA119-ND	7.31	154.69	253.13	—	PLCA110
I	SMT-8	2/50	120mA	350	5/2	CLA120CT-ND	7.12	150.56	246.38	2847.00	PLCA110S
I	Flat Pk.	2/50	120mA	350	5/2	CLA121CT-ND	7.44	157.44	257.63	2977.00	PLCA110ES

*Input Voltage - 1.2V Typical, 1.4V Max.

**Replace CT with TR in part number for Tape & Reel pricing.

IOR Microelectronic Power IC Relays

Fig. 1

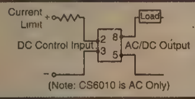


Fig. 2

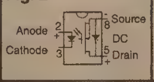


Fig. 3

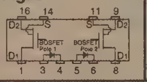


Fig. 4

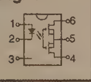
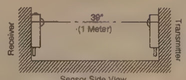


Fig. No.	Input Circuit Vf (led)	Imin (mA)	Imax	Vrange	Output Circuit Imax	Ton/ Toff	Pkg.	Digi-Key Part No.	Pricing 1	10	100
1	1.2	10	25	20-280VAC	300mA	.5 Cycle	8 Dip	CS6010-ND	5.50	44.00	385.00
1	1.2	5	25	0-100V AC/DC	300mA	300μs/50μs	8 Dip	PVA1354-ND	6.50	52.00	455.00
1	1.2	5	25	0-300V AC/DC	130mA	100μs/50μs	8 Dip	PVA3354-ND	6.50	52.00	455.00
1	1.2	10	25	0-60V AC/DC	1A	.5ms/8ms	8 Dip	PVAZ172-ND	10.00	80.00	700.00
2	1.2	5	25	0-300V DC	220mA	100μs/50μs	8 Dip	PVD3354-ND	6.88	55.00	481 25
3	1.2	10	25	0-300V AC/DC	180mA	100μs/50μs	16 Dip	PVR3300-ND	13.13	105.00	918.75
4	1.2	5	25	0-400V AC/DC	140mA	2ms/.5ms	6 Dip	PVT412-ND	3.58	28.60	250.25
4	1.2	5	25	0-400V AC/DC	120mA	2ms/.5ms	6 Dip	PVT412L-ND	3.70	29.60	259.00
4	1.2	5	25	0-400V AC/DC	140mA	500μs/200μs	6 Dip	PVU414-ND	4.55	36.40	318.50

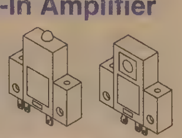
OMRON. Optical Sensor With Built-In Amplifier

1 Meter (39 Inches) Sensing Distance!

- One meter sensing distance.
- Supply voltage of 5 to 24 VDC for easy interface with TTL circuits, relays and programmable controllers.
- IP60 sealability rating. Comes with two — 2m cables with connectors



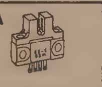
Sensor Side View



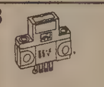
Description	Digi-Key Part No.	Price	Omron Part No.
Photo receiver/transmitter Pair - Dark on/Black colored Body	OR512-ND	71.52	EE-SPW301
Photo receiver/transmitter Pair - Light on/Black colored Body	OR513-ND	71.52	EE-SPW401
Photo receiver/transmitter Pair - Dark on/Beige colored Body	OR544-ND	75.09	EE-SPW311
Photo receiver/transmitter Pair - Light on/Beige colored Body	OR545-ND	75.09	EE-SPW411

OMRON. Optical Sensors With Built-In Amplifier

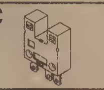
A



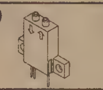
B



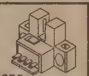
C



D

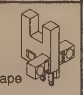


E



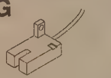
L-Shape

F

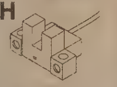


T-Shape

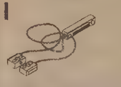
G



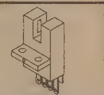
H



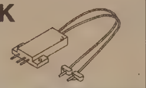
I



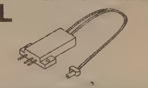
J



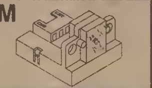
K



L



M



N

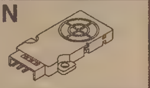
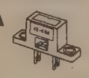


Fig. No.	Output Sensing Method	Sensing Distance	Config-uration	Freq. Response	Digi-Key Part No.	Pricing 1	25	100	Omron Part No.
B	Reflective	5mm	Light-On	50Hz	OR506-ND	11.57	264.56	935.18	EE-SB5V
B	Reflective	5mm	Dark-On	50Hz	OR507-ND	11.57	264.56	935.18	EE-SB5VC
B	Reflective	19mm	Light-On	50Hz	OR519-ND	16.17	369.89	1307.50	EE-SB5V-E
B	Reflective	5mm	Dark-On	100Hz	OR535-ND*	32.37	740.27	2616.76	EE-SPY311
B	Reflective	5mm	Light-On	100Hz	OR636-ND*	32.37	740.27	2616.76	EE-SPY411
C	Slot	13mm	Dark-On	500Hz	OR533-ND*	33.66	769.94	2721.64	EE-SPX303
C	Slot	13mm	Light-On	500Hz	OR534-ND*	33.66	769.94	2721.64	EE-SPX403
A	Slot	5mm	Light/Dark-On	1 KHz	OR528-ND	16.04	366.92	1297.02	EE-SX670
E	Slot	5mm	Light/Dark-On	1 KHz	OR529-ND	16.38	374.58	1324.11	EE-SX671
F	Slot	5mm	Light/Dark-On	1 KHz	OR530-ND	16.57	379.03	1339.84	EE-SX672
B	Reflective	5mm	Light/Dark-On	50 Hz	OR531-ND†	18.83	430.71	1522.51	EE-SY671
B	Reflective	5mm	Light/Dark-On	50 Hz	OR532-ND†	18.83	430.71	1522.51	EE-SY672
D	Reflective	200mm	Dark-On	100Hz	OR538-ND*	43.55	996.17	3521.35	EE-SPZ301A
D	Reflective	200mm	Light-On	100Hz	OR539-ND*	43.55	996.17	3521.35	EE-SPZ401A
—	IR Reflector for EE-SPZ Series, 60 x 40mm				OR540-ND	8.04	186.00	644.80	E39-R1
G	Slot	3.6mm	Dark-On	500Hz	OR541-ND	47.91	1095.81	3873.57	EE-SPX302-W2A
G	Slot	3.6mm	Dark-On	500Hz	OR542-ND	51.78	1184.33	4186.46	EE-SPX304-W2A
H	Slot	5.0mm	Dark-On	500Hz	OR543-ND	53.73	1228.83	4343.78	EE-SPX305-W2A
I	Slot	300mm	Dark-On	1000Hz	OR546-ND	144.86	3313.19	11711.75	EE-SPW321
I	Slot	300mm	Light-On	1000Hz	OR547-ND	144.86	3313.19	11711.75	EE-SPW421
J	Slot	5mm	Light/Dark-On	1KHz	OR549-ND	17.16	392.39	1387.04	EE-SX673
K	Fiber	30mm	Dark-On	100Hz	OR552-ND	59.55	1362.10	4814.87	EE-SPZ301W-01
K	Fiber	30mm	Light-On	100Hz	OR553-ND	59.55	1362.10	4814.87	EE-SPZ401W-01
L	Reflect Fiber	3mm	Dark-On	100Hz	OR554-ND	62.39	1427.09	5044.61	EE-SPZ301Y-01
L	Reflect Fiber	3mm	Light-On	100Hz	OR555-ND	62.39	1427.09	5044.61	EE-SPZ401Y-01
—	4 Pin Connector for Fig. A, B, C, E, F & J above				OR527-ND	2.14	48.96	173.05	EE-1001
—	4 Pin Conn. w/ 2 Meter Cable for A,B,C,E,F & J above				OR559-ND	10.26	234.64	829.43	EE-1006
—	3 Pin Connector for D, K & L above				OR537-ND	2.15	49.20	173.93	EE-1002
—	3 Pin Conn. w/ 2 Meter Cable for D, K & L above				OR558-ND	3.86	88.27	312.02	EE-1003
—	Converter from NPN to PNP Output for Amp Sensors				OR550-ND	21.22	485.35	1715.66	EE-2001
—	Converter from NPN to PNP Output for Amp Sensors				OR551-ND	21.22	485.35	1715.66	EE-2002
M	Reflective	7.5mm	10 bit A/D	—	OR548-ND	48.65	1112.63	3933.00	Z4D-A01
N	Inductive	5mm	N/O Output	5KHz	OR560-ND	20.00	457.41	1616.90	E2R-A01
—	3 Pin Conn. w/ 1 Meter Cable for Fig. N above				OR561-ND	5.35	122.39	432.63	E22-01

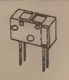
* Sensors not influenced by external light. † Built-in sensitivity adjuster.

Optical Sensors

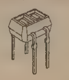
A



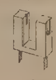
B



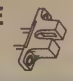
C



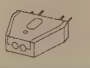
D



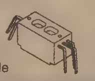
E



F

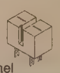


G



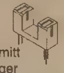
Low Profile

H



Dual Channel

I



Schmitt Trigger

Fig. No.	Sensing Method	Sensing Distance	Terminal Type	Typ. ton/toff (μsec.)	Digi-Key Part No.	Pricing 1	25	100	Omron Part No.
A	Reflective	5mm	Solder	30/30	OR500-ND	4.43	101.35	358.25	EE-SB5
A	Reflective	5mm	PC Board	30/30	OR501-ND	4.43	101.35	358.25	EE-SB5-B
B	Reflective	5mm	Solder	30/30	OR502-ND	4.35	99.41	351.41	EE-SF5
B	Reflective	5mm	PC Board	30/30	OR503-ND	4.35	99.41	351.41	EE-SF5-B
E	Slot	3.6mm	Solder	4/4	OR504-ND	3.32	75.95	268.47	EE-SG3
E	Slot	3.6mm	PC Board	4/4	OR505-ND	3.32	75.95	268.47	EE-SG3-B
F	Reflective	3mm	PC Board	10/8	OR516-ND	3.85	88.04	311.22	EE-SY148
C	Reflective	1mm	PC Board	35/25	OR520-ND	1.76	40.15	141.93	EE-SY124
C	Reflective	1mm	SMT	35/25	OR557-ND	1.76	40.15	141.93	EE-SY125
D	Slot	5mm	PC Board	4/4	OR518-ND	1.54	35.31	124.83	EE-SX1042
D	Slot	4.6mm	PC Board	500 Hz	OR556-ND	1.80	41.12	145.35	EE-SX1061
G	Reflective	5mm	PC Board	50 Hz	OR525-ND	3.19	73.05	258.21	EE-SY310
G	Reflective	5mm	PC Board	50 Hz	OR526-ND	3.19	73.05	258.21	EE-SY410
H	Slot	3.4mm	PC Board	4/4	OR523-ND	3.79	86.59	306.09	EE-SX1031
I	Slot	8mm	PC Board	3 KHz	OR524-ND	1.79	40.88	144.50	EE-SX4070

9136B-ND Omron Photo Microsensors Data Book 5.70

Photo Transistor Output Optoisolators

Diagram	Isolation Voltage	Current Transfer Ratio - Typ.	BVCEO (Min.)	Typ. ton/toff (µsec.)	Digi-Key Part No.	Pricing				Manufacturer
						1	10	100	500	
A1	1775	20%	30	3.0/3.0	4N25AQT-ND	.43	4.00	36.55	161.50	Quality Tech.
A1	2500	20%	30	2.5/2.6	4N25QT-ND	.43	4.00	36.55	161.50	Quality Tech.
A1	2500	20%	30	3.0/3.0	4N26QT-ND	.43	4.00	36.55	161.50	Quality Tech.
A1	2500	10%	30	3.0/3.0	4N27QT-ND	.40	3.76	34.40	152.00	Quality Tech.
A1	2500	10%	30	2.5/2.6	4N28QT-ND	.40	3.76	34.40	152.00	Quality Tech.
B1	2500	100%	30	5.0/40	4N29QT-ND	.43	4.00	36.55	161.50	Quality Tech.
B1	2500	100%	30	5.0/40	4N30QT-ND	.43	4.00	36.55	161.50	Quality Tech.
B1	2500	50%	30	5.0/40	4N31QT-ND	.38	3.53	32.25	142.50	Quality Tech.
B1	1500	50%	30	5.0/40	4N31IS-ND	.46	4.37	39.10	172.50	Isocom
B1	2500	500%	30	5.0/100	4N32QT-ND	.48	4.47	40.85	180.50	Quality Tech.
B1	2500	500%	30	5.0/100	4N33QT-ND	.48	4.47	40.85	180.50	Quality Tech.
A1	3550	100%	30	5.0/5.0	4N35QT-ND	.45	4.23	38.70	171.00	Quality Tech.
A1	2500	100%	30	5.0/5.0	4N36QT-ND	.45	4.23	38.70	171.00	Quality Tech.
A1	1500	100%	30	5.0/5.0	4N37QT-ND	.43	4.00	36.55	161.50	Quality Tech.
A1	2500	20%	80	8.0/7.0	4N38AIS-ND	.53	4.94	45.15	199.50	Isocom
See Pg. 423, SCR & Triac Output Optoisolators					4N40IS-ND					
B3	3000	250	7	—	4N45IS-ND	2.03	19.04	174.15	769.50	Isocom
A3	2500	7%	15V	—	6N135QT-ND	1.05	9.87	90.30	399.00	Quality Tech.
A3	2500	19%	15V	—	6N136QT-ND	1.05	9.87	90.30	399.00	Quality Tech.
F	2500	300%	7V	—	6N138QT-ND	1.45	13.63	124.70	551.00	Quality Tech.
F	2500	400%	18V	—	6N139QT-ND	1.63	15.28	139.75	617.50	Quality Tech
A1	5300	40-80%	70	2.0/11	CNY17-1ZQT-ND #	.70	6.58	60.20	266.00	Quality Tech.
A1	5300	63-125%	70	3.0/14	CNY17-2ZQT-ND #	.68	6.35	58.05	256.50	Quality Tech.
A1	5300	100-200%	70	3.0/14	CNY17-3ZQT-ND #	.68	6.35	58.05	256.50	Quality Tech.
A1	5300	160-320%	70	3.0/14	CNY17-4ZQT-ND #	.83	7.76	70.95	313.50	Quality Tech.
A1	5300	50%	30	2.0/2.0	H11A1ZQT-ND #	.70	6.58	60.20	266.00	Quality Tech.
A1	4000	100%	30	2.0/2.0	H11A5100QT-ND	.73	6.82	62.35	275.50	Quality Tech.
A1	2500	30%	30	2.0/2.0	H11A5QT-ND	.60	5.64	51.60	228.00	Quality Tech.
C	2500	20%	30	2.0/2.0	H11AA1QT-ND	1.00	9.40	86.00	380.00	Quality Tech.
C	2500	10%	30	2.0/2.0	H11AA2QT-ND	.93	8.70	79.55	351.50	Quality Tech.
C	2500	50%	30	2.0/2.0	H11AA3QT-ND	1.05	9.87	90.30	399.00	Quality Tech
C	2500	100%	30	2.0/2.0	H11AA4QT-ND	1.13	10.58	96.75	427.50	Quality Tech.
A1	4000	300%	30	5.0/5.0	H11AG1QT-ND	1.95	18.33	167.70	741.00	Quality Tech.
A1	4000	100%	70	3.0/2.5	CNW11AV-1QT-ND	1.10	10.34	94.60	418.00	Quality Tech.
A1	4000	50%	70	3.0/2.5	CNW11AV-2QT-ND	1.00	9.40	86.00	380.00	Quality Tech.
A1	5300	20%	300	5.0/5.0	H11D1ZQT-ND #	1.20	11.28	103.20	456.00	Quality Tech.
A1	5300	20%	300	5.0/5.0	H11D2ZQT-ND #	1.08	10.11	92.45	408.50	Quality Tech.
D	2250	—	30	15/15	H11F1QT-ND	3.43	32.20	294.55	1301.50	Quality Tech.
D	2250	—	30	15/15	H11F2QT-ND	2.95	27.73	253.70	1121.00	Quality Tech.
D	2250	—	15	15/15	H11F3QT-ND	1.95	18.33	167.70	741.00	Quality Tech.
B2	4000	1000%	100	5/100	H11G1QT-ND	.88	8.23	75.25	332.50	Quality Tech.
B2	4000	1000%	80	5/100	H11G2QT-ND	.80	7.52	68.80	304.00	Quality Tech.
B2	4000	250%	55	50/500	H11G45QT-ND	1.90	17.86	163.40	722.00	Quality Tech.
B2	4000	500%	55	50/500	H11G46QT-ND	2.18	20.45	187.05	826.50	Quality Tech.
A3	2500	12%	15V	—	HCPL2503QT-ND	1.75	16.45	150.50	665.00	Quality Tech.
J	2500	300%	7V	—	HCPL2730QT-ND	3.00	28.20	258.00	1140.00	Quality Tech.
J	2500	400%	18V	—	HCPL2731QT-ND	3.75	35.25	322.50	1425.00	Quality Tech.
B1	2500	200%	30	10/100	MCA231QT-ND	.68	6.35	58.05	256.50	Quality Tech.
B1	2500	100%	55	10/100	MCA255QT-ND	.68	6.35	58.05	256.50	Quality Tech.
A1	2500	150%	30	5/5	MCT210QT-ND	.73	6.82	62.35	275.50	Quality Tech.
A1	5300	20%	30	6/5	MCT2200ZQT-ND #	.75	7.05	64.50	285.00	Quality Tech.
A1	2500	20%	30	5/5	MCT26QT-ND	.60	5.64	51.60	228.00	Quality Tech.
A1	2500	50%	30	10/10	MCT270QT-ND	.65	6.11	55.90	247.00	Quality Tech.
A1	2500	45-90%	30	7/7	MCT271QT-ND	.65	6.11	55.90	247.00	Quality Tech.
A1	2500	15-60%	30	3.5/3.5	MCT276QT-ND	1.13	10.58	96.75	427.50	Quality Tech.
A1	2500	20%	30	5/5	MCT2EQT-ND	.55	5.17	47.30	209.00	Quality Tech.
A1	2500	20%	30	5/5	MCT2QT-ND	.55	5.17	47.30	209.00	Quality Tech.
A1	1000	15%	30	2/2	MCT4QT-ND	13.75	129.25	1182.50	5225.00	Quality Tech.
A1	1000	15%	30	2/2	MCT4RQT-ND	26.25	246.75	2257.50	9975.00	Quality Tech.
A1	2500	200%	30	2/17	MCT5200QT-ND	1.25	11.75	107.50	475.00	Quality Tech.
A1	2500	300%	30	6/19	MCT5201QT-ND	1.38	12.93	118.25	522.50	Quality Tech.
A1	2500	70%	30	10/12	MCT5210QT-ND	1.25	11.75	107.50	475.00	Quality Tech.
A1	2500	110%	30	20/20	MCT5211QT-ND	1.00	9.40	86.00	380.00	Quality Tech.

# Z denotes VDE approval.

A1

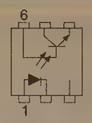
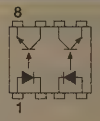


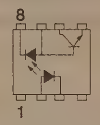
Photo-Transistor Output

A2



Dual Photo Transistor Output

A3



High-speed Transistor Output

B1

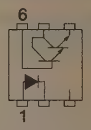
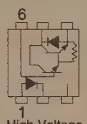


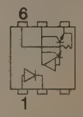
Photo-Darlington Output

B2



High Voltage Photo-Darlington Output

B3



High Gain Transistor Output

C

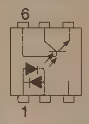
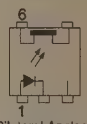


Photo-Transistor Output

D



Bilateral Analog FET Output

E1

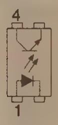
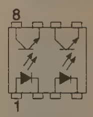


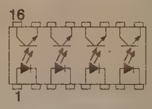
Photo-Transistor Output

E2



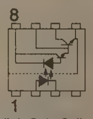
Dual Photo-Transistor Output

E4



Quad Photo-Transistor Output

F



High Gain Split Darlington Output

G1

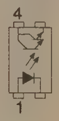
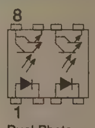


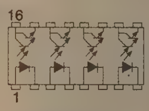
Photo Darlington Output

G2



Dual Photo Darlington Output

G3



Quad Photo Darlington Output

H1

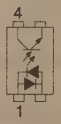
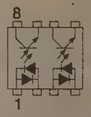


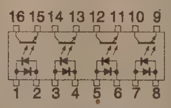
Photo Transistor Output

H2



Dual Photo Transistor Output

H3



Quad Photo Transistor Output

I1

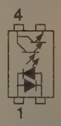
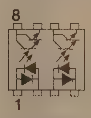


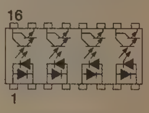
Photo Darlington Output

I2



Dual Photo Darlington Output

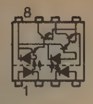
I3



Quad Photo Darlington Output

Photo-Transistor Output Optoisolators

J



Dual Split Darlington Output

K

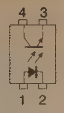
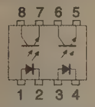


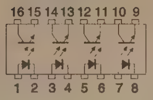
Photo-Transistor Output Surface Mount

L



Dual Photo-Transistor Output, Surface Mount

M



Quad Photo-Transistor Output, Surface Mount

N

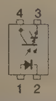
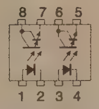


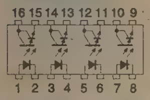
Photo-Darlington Output Surface Mount

O



Dual Photo Darlington Output, Surface Mount

P



Quad Photo Darlington Output, Surface Mount

Q

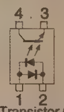
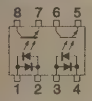


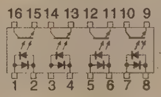
Photo-Transistor Output Surface Mount

R



Dual Photo-Transistor Output, Surface Mount

S

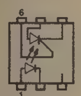


Quad Photo-Transistor Output, Surface Mount

Diagram	Isolation Voltage	Current Transfer Ratio - Typ.	BVCEO (Min.)	Typ. ton/toff (µsec.)	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer
A2	2500	50%	30	2.4/15	MCT61QT-ND	1.00	9.40	86.00	380.00	Quality Tech.
A2	2500	100%	30	2.4/15	MCT62QT-ND	1.08	10.11	92.45	408.50	Quality Tech.
A2	2500	12%	30	2.4/15	MCT6QT-ND	.88	8.23	75.25	332.50	Quality Tech.
E1	5000	80-600%	80	3/5	PS2501-1NEC-ND	.55	4.70	40.00	180.00	NEC
E2	5000	80-600%	80	3/5	PS2501-2NEC-ND	1.13	9.64	82.00	369.00	NEC
E4	5000	80-600%	80	3/5	PS2501-4NEC-ND	2.31	19.74	168.00	756.00	NEC
G1	5000	200-2000+%	40	100/100	PS2502-1NEC-ND	.88	7.52	64.00	288.00	NEC
G2	5000	200-2000+%	40	100/100	PS2502-2NEC-ND	1.73	14.81	126.00	567.00	NEC
G3	5000	200-2000+%	40	100/100	PS2502-4NEC-ND	3.52	30.08	256.00	1152.00	NEC
H1	5000	80-600%	80	3/5	PS2505-1NEC-ND	.66	5.64	48.00	216.00	NEC
H2	5000	80-600%	80	3/5	PS2505-2NEC-ND	1.38	11.75	100.00	450.00	NEC
H3	5000	80-600%	80	3/5	PS2505-4NEC-ND	2.70	23.03	196.00	882.00	NEC
I1	5000	200-2000+%	40	100/100	PS2506-1NEC-ND	.96	8.23	70.00	315.00	NEC
I2	5000	200-2000+%	40	100/100	PS2506-2NEC-ND	1.93	16.45	140.00	630.00	NEC
I3	5000	200-2000+%	40	100/100	PS2506-4NEC-ND	3.41	29.14	248.00	1116.00	NEC
K	2500	50-300%	40	3/5	PS2701-1NEC-ND	1.12	8.80	64.00	288.00	NEC
L	2500	50-300%	40	3/5	PS2701-2NEC-ND	2.31	18.15	132.00	594.00	NEC
M	2500	50-300%	40	3/5	PS2701-4NEC-ND	4.55	35.75	260.00	1170.00	NEC
N	2500	200-2000+%	40	200/200	PS2702-1NEC-ND	1.30	10.18	74.00	333.00	NEC
O	2500	200-2000+%	40	200/200	PS2702-2NEC-ND	2.52	19.80	144.00	648.00	NEC
P	2500	200-2000+%	40	200/200	PS2702-4NEC-ND	5.11	40.15	292.00	1314.00	NEC
K	2500	50-400%	120	10/10	PS2703-1NEC-ND	1.23	9.63	70.00	315.00	NEC
L	2500	50-400%	120	10/10	PS2703-2NEC-ND	2.38	18.70	136.00	612.00	NEC
M	2500	50-400%	120	10/10	PS2703-4NEC-ND	4.76	37.40	272.00	1224.00	NEC
Q	2500	50-300%	40	3/5	PS2705-1NEC-ND	1.19	9.35	68.00	306.00	NEC
R	2500	50-300%	40	3/5	PS2705-2NEC-ND	2.42	18.98	138.00	621.00	NEC
S	2500	50-300%	40	3/5	PS2705-4NEC-ND	4.59	36.03	262.00	1179.00	NEC

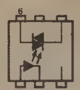
SCR & Triac Output Optoisolators

A



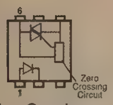
SCR Output

B



Non-zero Crossing Triac Output

C

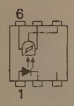


Zero Crossing Triac Output

Diagram	Isolation Voltage	Max. I_F Trigger	Min. Blocking Voltage	I_{out} (ma)	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer
A	660	14mA	400V	300	4N40IS-ND	1.63	15.28	139.75	617.50	Isocom
B	5300	30mA	250V	100	MOC3009QT-ND	1.15	10.81	98.90	437.00	Quality Tech
B	5300	15mA	250V	100	MOC3010QT-ND	1.00	9.40	86.00	380.00	Quality Tech
B	5300	10mA	250V	100	MOC3011QT-ND	.88	8.23	75.25	332.50	Quality Tech
B	5300	30mA	400V	100	MOC3020QT-ND	.80	7.52	68.80	304.00	Quality Tech
B	5300	15mA	400V	100	MOC3021QT-ND	.85	7.99	73.10	323.00	Quality Tech
B	5300	10mA	400V	100	MOC3022QT-ND	.90	8.46	77.40	342.00	Quality Tech
B	5300	10mA	400V	100	MCP3022ZQT-ND	.98	9.17	83.85	370.50	Quality Tech
B	5300	10mA	400V	100	MOC3022ZQT-ND	1.20	11.28	103.20	456.00	Quality Tech
B	5300	5mA	400V	100	MOC3023QT-ND	1.15	10.81	98.90	437.00	Quality Tech
C	7500	30mA	250V	100	MOC3030IS-ND	1.55	14.57	133.30	589.00	Isocom
C	7500	15mA	250V	100	MOC3031IS-ND	1.55	14.57	133.30	589.00	Isocom
C	7500	10mA	250V	100	MOC3032IS-ND	1.55	14.57	133.30	589.00	Isocom
C	7500	30mA	400V	100	MOC3040IS-ND	1.55	14.57	133.30	589.00	Isocom
C	7500	15mA	400V	100	MOC3041IS-ND	1.55	14.57	133.30	589.00	Isocom
C	7500	10mA	400V	100	MOC3042IS-ND	1.55	14,57	133.30	589.00	Isocom

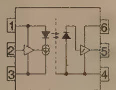
Logic Output Optoisolators

A



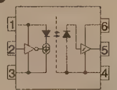
Schmitt Trigger Output

B



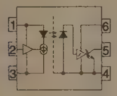
High Speed TTL Buffered Output

C



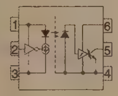
High Speed TTL Inverted Output

D



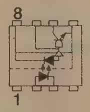
High Speed CMOS Buffered Output

E



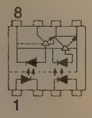
High Speed CMOS Inverted Output

F



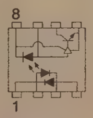
Very High Speed TTL, 5V CMOS Output

G



Dual Very High Speed TTL, 5V CMOS Output

H



AC Line Monitor TTL Output

Diagram	Function	Input: LSTTL Output	15M Baud Rt. Output Configuration	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer
B	Buff.	TTL	Totem Pole	740L6000QT-ND	3.75	35.25	322.50	1425.00	Quality Tech.
C	Inv.	TTL	Totem Pole	740L6001QT-ND	3.75	35.25	322.50	1425.00	Quality Tech.
D	Buff.	CMOS	Open Collect.	740L6010QT-ND	3.75	35.25	322.50	1425.00	Quality Tech.
E	Inv.	CMOS	Open Collect.	740L6011QT-ND	4.13	38.78	354.75	1567.50	Quality Tech.

Diagram	V_{ISO} (RMS)	I_{Fon} Current (Max.)	Max. DataRate (NRZ)	Operating Voltage Min/Max	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer
A	2500V	1.6mA	1.0MHz	3V/16V	H11L1QT-ND	1.75	16.45	150.50	665.00	Quality Tech.
A	2500V	10mA	1.0MHz	3V/16V	H11L2QT-ND	1.50	14.10	129.00	570.00	Quality Tech.
A	2500V	5mA	1.0MHz	3V/16V	H11L3QT-ND	1.63	15.28	139.75	617.50	Quality Tech.
A	2500V	1.6mA	1.0MHz	3V/16V	H11L1IS-ND	1.73	16.22	148.35	655.50	Isocom
A	2500V	10mA	1.0MHz	3V/16V	H11L2IS-ND	1.63	15.28	139.75	617.50	Isocom

Diagram	I_{in}/I_{out} (mA)	Max. Prop. Delay(ns)	Typ. CMR V/µsec.	V_{ISO} RMS	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer
F	5/13	75	10,000	2500	HCPL2601QT-ND	3.00	28.20	258.00	1140.00	Quality Tech.
G	5/13	75	10,000	2500	HCPL2630QT-ND	5.25	49.35	451.50	1995.00	Quality Tech
G	5/13	75	10,000	2500	HCPL2631QT-ND	5.63	52.88	483.75	2137.50	Quality Tech.

Diagram	Isolation Voltage	BV_{CEO} (Min.)	Typ. t_{on}/t_{off} (µsec.)	Digi-Key Part No.	Pricing 1	10	100	500	Manufacturer
H	2500	5V	1/1	MID400QT-ND	3.75	35.25	322.50	1425.00	Quality Tech.

Infrared Emitters and Detectors

photonic detectors INC.

Photodiodes

Diagram	Short Circuit Current I_{sc} (µA)	Dark Current I_D (nA)	Peak Sensitivity Wavelength (nm)	Breakdown Voltage V_{BR} (V)	Active Area (mm sq.)	Digi-Key Part No.	Price Each			
							1	25	100	250
Blue Enhanced Photovoltaic Detectors										
A	155	1.0	950	10	17	PDB-V107-ND	2.00	1.80	1.60	1.45
A	70	5	950	15	7.75	PDB-V113-ND	1.65	1.48	1.30	1.20
B	85	2	950	10	100	PDB-V110-ND	42.00	34.00	29.00	27.00
Blue Enhanced Photoconductive Detectors										
A	215	5	950	100	17	PDB-C107-ND	2.25	1.90	1.70	1.55
A	70	15	950	100	7.75	PDB-C113-ND	1.48	1.45	1.30	1.20
A	325	25	940	35	29	PDB-C140-ND	4.00	3.60	3.25	2.95
B	90	5	950	100	100	PDB-C110-ND	45.00	36.00	32.00	30.00
Blue Enhanced Solderable Photo Cells										
C	185	10	950	100	16.6	PDB-C607-2-ND	4.40	4.18	4.07	3.95
C	650	30	950	100	54	PDB-C612-2-ND	8.85	8.50	7.95	7.70
C	4200	250	950	100	243	PDB-C615-2-ND	23.00	20.90	18.65	18.50
D	400	20	950	100	44.68	PDB-C609-2-ND	7.75	7.50	7.25	7.00
D	850	0.5	950	100	90	PDB-C613-2-ND	11.00	10.45	10.15	9.90
Blue Enhanced Multi-Element Detector Arrays										
E*	60	0.5	350-1100	75	6.4	PDB-C203-ND	29.00	26.00	22.00	18.75
I	40	1.0	400-1100	35	1.8	PDB-C216-ND	45.00	38.00	28.00	24.00
J	10	20	350-1100	30	1.4	PDB-C232-ND	125.00	106.00	90.00	75.00
Detector-Amplifier Hybrid (TO-5 Package)										
F*	45	10	350-1100	10	5.1	PDB-715-100-ND	36.00	30.00	25.00	24.20

High Power Infrared Emitters

Diagram	Continuous Forward Current (mA)	Reverse Breakdown Voltage (V)	Peak Sensitivity Wavelength (nm)	Output Power mW	Beam Angle	Digi-Key Part No.	Price Each			
							1	25	100	250
E*	100	30	880	24	40°	PDI-E801-ND	2.80	2.35	2.00	1.75
F*	100	30	880	24	30°	PDI-E802-ND	2.80	2.35	2.00	1.75
F*	100	30	880	24	30°	PDI-E803-ND	2.80	2.35	2.00	1.75
G*	100	30	880	24	60°	PDI-E804-ND	2.50	2.15	1.85	1.60
H*	100	30	880	24	5°	PDI-E805-ND	3.00	2.55	2.15	1.85

* Tab denotes cathode

Panasonic Infrared Light Emitting Diode

Diagram	Pulse Forward Current	Optical Power Output	Peak Emission Wavelength	Beam Angle	Digi-Key Part No.	Pricing			
						1	10	100	500
K	1 A	4.6mW	950nm	17°	LN54PA-ND	.96	9.10	78.75	332.50
L	1.5 A	7mW	950nm	45°	LN64PA-ND	.87	8.22	71.10	300.20
P	1.5 A	3~8mW	950nm	25°	LN66-ND	68	6.47	56.03	236.55
M	2 A	12mW	900nm	115°	LN175PA-ND	2.08	19.68	170.33	719.15

Panasonic NPN Photo Transistor

Diagram	V_{CEO}	I_c	Peak Sensitivity Wavelength	tr/tf	Digi-Key Part No.	Pricing			
						1	10	100	500
N	20V	10mA	900nm	8µs	PN116PA-ND	1.74	16.46	142.43	601.35
O	20V	20mA	800nm	2.5/3.5µs	PN127-SPA-ND	1.15	10.87	94.05	397.10
K	20V	20mA	800nm	4µs	PN154PA-ND	1.34	12.64	109.35	461.70
P	30V	20mA	800nm	4µs	PN168PA-ND	.47	4.42	38.25	161.50

Panasonic Pin Photo Diode

Diagram	V_R	Peak Sensitivity Wavelength	tr/tf	Digi-Key Part No.	Pricing			
					1	10	100	500
Q	30V	960nm	50ns	PN323BPA-ND	.87	8.22	71.10	300.20
R	50V	900nm	2ns	PN334PA-ND	1.40	13.23	114.53	483.55

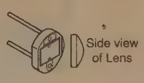
Quality Technologies Reflective Photosensors

Diagram	Circuit	Output Type	Min/Max Output Ic @ If	Optimum Sensing Distance	Termination	Digi-Key Part No.	Pricing			
							1	10	100	500
S	—	Transistor	.6/3 @ 40mA	.150	Leads	QRB1114QT-ND	2.00	18.80	172.00	760.00
S	—	Transistor	.6/3 @ 40mA	.150	Wires	QRB1134QT-ND	3.25	30.55	279 50	1235.00
T	T1	Transistor	1/5 @ 20mA	.050	Leads	QRD1114QT-ND	1.80	16.92	154.80	684.00

Quality Technologies Semiconductor Infrared Emitters (IRED LEDs)

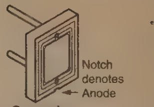
Diagram	Circuit	Forward Voltage (V)	Max. Forward Current (mA)	Max. Power Output (mW)	Beam Angle +/-	Peak Wave-Length (nm)	Digi-Key Part No.	Pricing			
								1	10	100	500
U	U1	1.7	100	6.0	10	940	1N6264QT-ND	3.00	28.20	258.00	1140.00
V	U1	1.7	100	6.0	40	940	1N6265QT-ND	3.00	28.20	258.00	1140.00
U	U1	1.7	100	25.0	10	940	1N6266QT-ND	4.15	39.01	356.90	1577.00
U	U1	1.7	100	5.4	8	940	CQX14QT-ND	1.73	16.22	148.35	655.50
V	U1	1.7	100	5.4	40	940	CQX15QT-ND	1.73	16.22	148.35	655.50
U	U1	1.7	100	12.0	10	880	F5D1QT-ND	2.53	23.74	217.15	959.50
U	U1	1.7	100	9.0	10	880	F5D2QT-ND	2.08	19.51	178.45	788.50
U	U1	1.7	100	10.5	10	880	F5D3QT-ND	2.30	21.62	197.80	874.00
V	U1	1.7	100	12.0	40	880	F5E1QT-ND	2.18	20.45	187.05	826.50
V	U1	1.7	100	9.0	40	880	F5E2QT-ND	1.73	16.22	148 35	655.50
V	U1	1.7	100	10.5	40	880	F5E3QT-ND	1.93	18.10	165.55	731.50
W	W1	1.7	60	0.28	30	940	F5F1QT-ND	.88	8.23	75.25	332.50
W	W1	1.85	50	0.6	30	880	F5G1QT-ND	1.33	12.46	113 95	503.50
U	U1	1.7	100	1.5	8	940	LED56QT-ND	1.63	15.28	139.75	617.50
V	U1	1.7	100	3.5	40	940	LED55BFQT-ND	1.60	15.04	137 60	608.00
U	U1	1.7	100	3.5	8	940	LED55BQT-ND	1.60	15.04	137.60	608.00
X	W1	1.7	50	0.07	8	940	QEC113QT-ND	.60	5.64	51.60	228.00
Y	W1	1.5	100	0.24	12	880	QED123QT-ND	.73	6.82	62.35	275.50
Y	W1	1.5	100	0.075	18	940	QED233QT-ND	.38	3.53	32 25	142.50
Z	W1	1.7	100	0.1	25	880	QED423QT-ND	.60	5.64	51 60	228.00
Z	W1	1.7	100	0.15	15	880	QED522QT-ND	.60	5.64	51.60	228.00
Z	W1	1.7	100	0.2	15	880	QED523QT-ND	.60	5.64	51.60	228.00
AA	W1	1.5	50	0.015	25	940	QEE113QT-ND	.60	5.64	51.60	228.00
AA	W1	1.7	50	0.04	25	880	QEE123QT-ND	.65	6.11	55.90	247.00

A



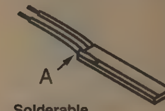
Ceramic, Epoxy Globe

B



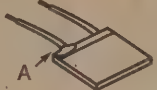
Ceramic, Epoxy Filled

C



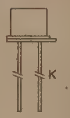
Solderable Photo Cell

D



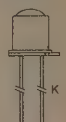
Solderable Photo Cell

E



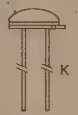
TO-46 Flat Window

F



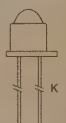
TO-46 Lens Window

G



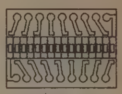
TO-46 Epoxy Globe

H



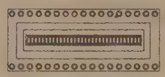
TO-46 Plastic Lens

I



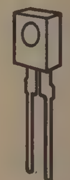
16 Element Array

J

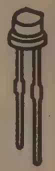


32 Element Array

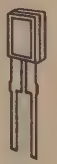
K



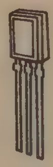
L



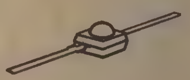
M



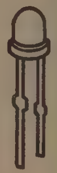
N



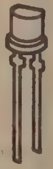
O



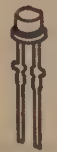
P



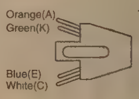
Q



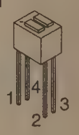
R



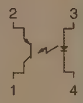
S



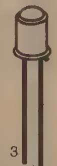
T



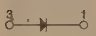
T1



U

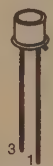


U1



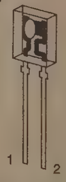
TO-18 2 Lead

V



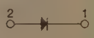
TO-18 Flat Window 2 Lead

W

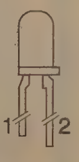


Side Look

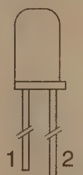
W1



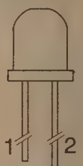
X



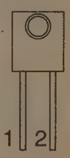
Y



Z



AA



Infrared Emitters and Detectors

Isocom Interrupter Module

Diagram	Circuit	Output Type	Output Current I_F @ mA	BV_{CEO}	Typ. t_{on}/t_{off} (µsec.)	Digi-Key Part No.	Pricing 1	10	100	500
B	C1	Transistor	20 @ 1.0	30	8/50	H21A1IS-ND	1.66	15.77	141.10	622.50

Quality Technologies Semiconductor Interrupter Modules

Diagram	Circuit	Output Type	Gap Current I_C @ I_f (mA)	Slot Width (in.)	Lead Spacing (in.)	Digi-Key Part No.	Pricing 1	10	100	500
E	A1	Darlington	3/15 @ 5mA	.157	.400	QCK4QT-ND	1.43	13.40	122.55	541.50
C	C1	Transistor	1/4 @ 20mA	.125	.220	QVA11134QT-ND	1.75	16.45	150.50	665.00
C	C1	Transistor	1/4 @ 20mA	.125	.300	QVA11234QT-ND	1.75	16.45	150.50	665.00
C	C1	Transistor	1/4 @ 20mA	.125	.320	QVA11334QT-ND	1.75	16.45	150.50	665.00
B	C1	Transistor	1/4 @ 20mA	.125	.220	QVB11134QT-ND	1.75	16.45	150.50	665.00
B	C1	Transistor	1/4 @ 20mA	.125	.300	QVB11234QT-ND	1.75	16.45	150.50	665.00
B	C1	Transistor	1/4 @ 20mA	.125	.320	QVB11334QT-ND	1.75	16.45	150.50	665.00
B	C1	Transistor	1/4 @ 20mA	.125	(Wires)	QVB11434QT-ND	3.28	30.79	281.65	1244.50
D	D1	Transistor	.5/- @ 20mA	.150	.300	QVE11233QT-ND	1.68	15.75	144.05	636.50
A	C1	Transistor	1.9/3.0 @ 30mA	.119	.285	H21A1QT-ND	1.58	14.81	135.45	598.50
C	C1	Transistor	1.9/3.0 @ 30mA	.119	.285	H22A1QT-ND	1.58	14.81	135.45	598.50
A	A1	Darlington	7.5/- @ 10mA	.119	.285	H21B1QT-ND	1.93	18.10	165.55	731.50
C	A1	Darlington	7.5/- @ 10mA	.124	.285	H22B1QT-ND	1.95	18.33	167.70	741.00

Quality Technologies Semiconductor Matched Emitter Detector Pairs

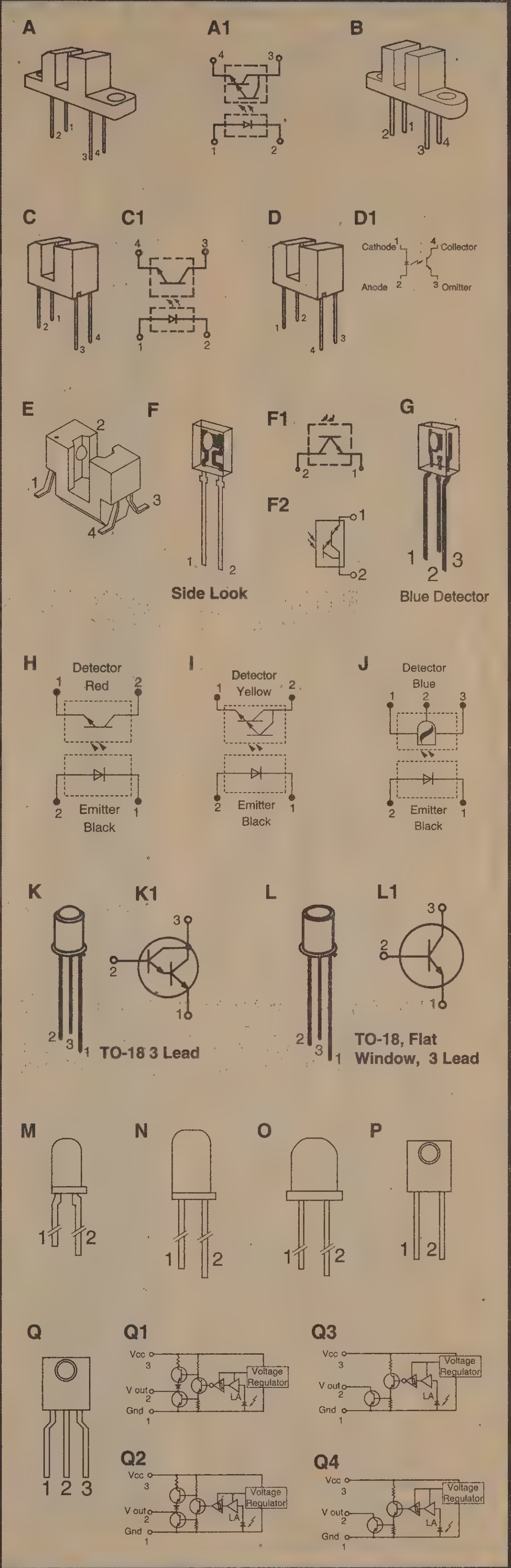
Diagram	Circuit	Output Type	Ic Min (mA)	Forward Voltage	Separation (in.)	Digi-Key Part No.	Pricing 1	10	100	500
F	H	Transistor	16	1.7	.155	H23A1QT-ND	1.30	12.22	111.80	494.00
F	I	Darlington	7.5	1.7	.155	H23B1QT-ND	1.40	13.16	120.40	532.00
F,G	J	Schmitt	16	1.7	.155	H23L1QT-ND	2.40	22.56	206.40	912.00

Quality Technologies Semiconductor Infrared Photo Detectors

Diagram	Circuit	BV_{CEO} (V)	Min. Ic @ 5Vce (mA)	Rise/Fall (µ sec)	Reception Angle +/-	Peak Wave-Length Sensitivity	Digi-Key Part No.	Pricing 1	10	100	500
K	L1	45	6	8/7	—	880	BPW36QT-ND	2.10	19.74	180.60	798.00
K	L1	45	3	8/7	—	880	BPW37QT-ND	1.93	18.10	165.55	731.50
L	L1	50	1	5/5	60	880	L14C1QT-ND	1.75	16.45	150.50	665.00
L	L1	50	0.5	5/5	60	880	L14C2QT-ND	1.65	15.51	141.90	627.00
K	L1	45	6	8/7	—	880	L14G1QT-ND	1.80	16.92	154.80	684.00
K	L1	45	3	8/7	—	880	L14G2QT-ND	1.93	18.10	165.55	731.50
K	L1	45	12	8/7	—	880	L14G3QT-ND	2.28	21.39	195.65	864.50
L	L1	30	3	10/12	30	880	L14N1QT-ND	2.10	19.74	180.60	798.00
L	L1	30	6	14/16	30	880	L14N2QT-ND	2.45	23.03	210.70	931.00
K	L1	30	4	10/12	12	880	L14P1QT-ND	2.10	19.74	180.60	798.00
K	L1	30	8	14/16	12	880	L14P2QT-ND	2.45	23.03	210.70	931.00
F	F1	30	1	8/50	—	880	L14Q1QT-ND	.50	4.70	43.00	190.00
K	K1	25	3	300/250	8	880	BPW38QT-ND	2.73	25.62	234.35	1035.50
K	K1	25	3	300/250	8	880	L14F1QT-ND	2.63	24.68	225.75	997.50
K	K1	25	1	300/250	8	880	L14F2QT-ND	1.93	18.10	165.55	731.50
F	F2	30	5	45/250	—	880	L14R1QT-ND	.55	5.17	47.30	209.00
M	F1	30	1	5/5	8	880	QSC112QT-ND	.48	4.47	40.85	180.50
M	F1	30	2	5/5	8	880	QSC113QT-ND	.50	4.70	43.00	190.00
M	F1	30	4	5/5	8	880	QSC114QT-ND	.53	4.94	45.15	199.50
N	F1	30	1.6	7/7	12	880	QSD122QT-ND	.68	6.35	58.05	256.50
N	F1	30	3.2	7/7	12	880	QSD123QT-ND	.70	6.58	60.20	266.00
N	F1	30	7.5	7/7	12	880	QSD124QT-ND	.73	6.82	62.35	275.50
O	F1	30	0.3	8/8	25	880	QSD422QT-ND	.68	6.35	58.05	256.50
O	F1	30	0.8	8/8	25	880	QSD423QT-ND	.70	6.58	60.20	266.00
O	F1	30	1.6	8/8	25	880	QSD424QT-ND	.73	6.82	62.35	275.50
O	F1	30	1.2	8/8	12	880	QSD722QT-ND	.68	6.35	58.05	256.50
O	F1	30	3	8/8	12	880	QSD723QT-ND	.70	6.58	60.20	266.00
P	F1	30	0.32	8/8	8	880	QSE112QT-ND	.60	5.64	51.60	228.00
P	F1	30	0.64	8/8	8	880	QSE113QT-ND	.63	5.88	53.75	237.50
P	F1	30	1.28	8/8	8	880	QSE114QT-ND	.65	6.11	55.90	247.00

Quality Technologies Logic Detectors

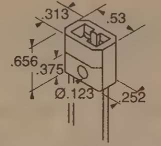
Diagram	Circuit	Output Type	VCC	Isink (mA)	Isource (mA)	Rise/Fall (ns)	Reception Angle +/-	Peak Wavelength Sensitivity	Digi-Key Part No.	Pricing 1	10	100	500
Q	Q1	T.P. BUFF	4.5 - 16	50	10	70	25	935	QSE156QT-ND	1.63	15.28	139.75	617.50
Q	Q2	T.P. INV.	4.5 - 16	50	10	70	25	935	QSE157QT-ND	1.63	15.28	139.75	617.50
Q	Q3	O.C. BUFF	4.5 - 16	50	—	100	25	935	QSE158QT-ND	1.63	15.28	139.75	617.50
Q	Q4	O.C. INV.	4.5 - 16	50	—	100	25	935	QSE159QT-ND	1.63	15.28	139.75	617.50

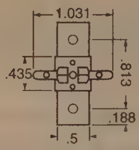


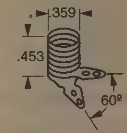
SHORE HOLDERS Incandescent Lamp Holders

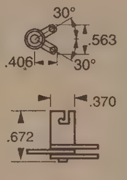
Fig. No.	Brkt	Description	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Mfg. Part No.
		T31/4 Wedge Base Holder					
1	E	2 Wire (22AWG)/Plug, Insulated Nylon Housing	SH1001-ND	1.58	12.60	104.58	4677-036
2	—	2 Lugs/Brkt, Insulated Vulcoid	SH1002-ND	1.08	8.60	71.38	4272-003
		Minature Screw Base					
3	E	1 Lug/Up Plug, Conducting Brass	SH1004-ND	1.00	8.00	66.40	4071-034
		Minature Bayonet Base					
4	A	2 Lugs/Down Brkt, Insulated Steel	SH1005-ND	1.65	13.20	109.56	4081-308
4	B	2 Lugs/Up Brkt, Insulated Steel	SH1006-ND	1.65	13.20	109.56	4081-014
4	B	2 Lugs/Down Brkt, Insulated Steel	SH1007-ND	1.65	13.20	109.56	4081-314
5	—	2 Lugs, Conducting Steel	SH1008-ND	1.50	12.00	99.60	4091-001
5	E	1 Lug/Up Plug, Conducting Steel	SH1009-ND	1.50	12.00	99.60	4091-034
5	B	1 Lug/Up Brkt, Conducting Steel	SH1010-ND	1.50	12.00	99.60	4091-014
5	B	1 Lug/Down Brkt, Conducting Steel	SH1011-ND	1.50	12.00	99.60	4091-314
5	A	1 Lug/Down Brkt, Conducting Steel	SH1012-ND	1.50	12.00	99.60	4091-308
6	A	2 Lugs/Down Brkt, Insulated Steel	SH1014-ND	1.50	12.00	99.60	4151-308
6	B	2 Lugs/Up Brkt, Insulated Steel	SH1015-ND	1.50	12.00	99.60	4151-014
7	—	2 Lugs/Up Brkt, Insulated Steel	SH1017-ND	2.38	19.00	157.70	4151-ST
8	—	2 Wire (22AWG), Insulated Steel, Nylon	SH1018-ND	1.90	15.20	126.16	4157-001
9	—	2 Wire (22AWG), THD End, Insulated Steel,Nylon	SH1019-ND	2.63	21.00	174.30	4157-032
8	E	2 Wire (22AWG)/Up Plug, Insulated Steel, Nylon	SH1020-ND	1.90	15.20	126.16	4157-034
8	C	2 Wire (22AWG)/Brkt, Insulated Steel, Nylon	SH1021-ND	1.90	15.20	126.16	4157-003
8	B	2 Wire (22AWG)/Up Brkt, Insulated Steel, Nylon	SH1022-ND	1.90	15.20	126.16	4157-014
8	B	2 Wire (22AWG)/Down Brkt, Insulated Steel, Nylon	SH1023-ND	1.90	15.20	126.16	4157-314
		Candelabra Screw Base					
10	C	2 Lugs/Brkt, Insulated Brass	SH1024-ND	1.30	10.40	86.32	4301-003
10	B	2 Lugs/Up Brkt, Insulated Brass	SH1025-ND	1.30	10.40	86.32	4301-014
10	B	2 Lugs/Down Brkt, Insulated Brass	SH1026-ND	1.30	10.40	86.32	4301-314
11	—	2 Lugs, Conducting Brass	SH1027-ND	1.20	9.60	79.68	4311-052
11	C	1 Lug/Brkt, Conducting Brass	SH1028-ND	1.20	9.60	79.68	4311-003
11	B	1 Lug/Up Brkt, Conducting Brass	SH1029-ND	1.20	9.60	79.68	4311-014
11	B	1 Lug/Down Brkt, Conducting Brass	SH1030-ND	1.20	9.60	79.68	4311-314
		Double Contact Bayonet Lampholders					
12	F	2 Wire (18AWG)/Down Brkt, Insulated Steel	SH1043-ND	1.95	15.60	129.48	4365-306
12	E	2 Wire (18AWG)/Up Plug, Insulated Steel	SH1044-ND	1.95	15.60	129.48	4365-034
12	—	2 Wire (18AWG), Insulated Steel	SH1045-ND	1.95	15.60	129.48	4365-001
12	B	2 Wire (18AWG)/Up Brkt, Insulated Steel	SH1046-ND	1.95	15.60	129.48	4365-014
13	—	2 Wire (18AWG),Threaded End, Insulated Steel	SH1048-ND	3.20	25.60	212.48	4365-032
12	F	2 Wire (18AWG)/Up Brkt, Insulated Steel	SH1049-ND	1.95	15.60	129.48	4365-006
12	—	2 Wire (18AWG), Insulated Nickel Plated Steel	SH1050-ND*	5.05	40.40	335.32	4385-001
12	E	2 Wire (18AWG)/Up Plug Insul. Nick. Pltd Steel	SH1051-ND*	5.05	40.40	335.32	4385-434
12	F	2 Wire (18AWG)/Up Brkt Insul. Nick. Pltd Steel	SH1052-ND*	5.05	40.40	335.32	4385-406
12	F	2 Wire (18AWG)/Down Brkt Insul. Nick. Pltd Steel	SH1053-ND*	5.05	40.40	335.32	4385-506
12	C	2 Wire (18AWG)/Brkt Insul. Nickel Pltd Steel	SH1054-ND*	5.05	40.40	335.32	4385-403
12	B	2 Wire (18AWG)/Up Brkt Insul. Nick. Pltd Steel	SH1055-ND*	5.05	40.40	335.32	4385-414
12	E	2 Wire (18AWG)/Down Brkt Insul. Nick. Pltd Steel	SH1056-ND*	5.05	40.40	335.32	4385-514
13	—	2 Wire (18AWG), THD End, Insul. Nick. Pltd Steel	SH1057-ND*	7.30	58.40	484.72	4385-432
14	D	2 Wire (18AWG)/Down Clip Insul. Nick. Pltd Steel	SH1058-ND	2.65	21.20	175.96	4397-318
14	D	2 Wire (18AWG)/Up Clip Insul. Nick. Pltd Steel	SH1059-ND	2.65	21.20	175.96	4397-018
		Single Contact Bayonet Lampholder					
12	—	1 Wire (18AWG), Conducting Steel	SH1060-ND	1.90	15.20	126.16	4345-000
12	E	1 Wire (18AWG)/Up Plug, Conducting Steel	SH1061-ND	1.90	15.20	126.16	4345-034
12	C	1 Wire (18AWG)/Brkt, Conducting Steel	SH1062-ND	1.90	15.20	126.16	4345-003
12	B	1 Wire (18AWG)/Down Brkt, Conducting Steel	SH1063-ND	1.90	15.20	126.16	4345-314
12	B	1 Wire (18AWG)/Up Brkt, Conducting Steel	SH1064-ND	1.90	15.20	126.16	4345-014
12	F	1 Wire (18AWG)/Down Brkt, Conducting Steel	SH1065-ND	1.90	15.20	126.16	4345-306
12	F	1 Wire (18AWG)/Up Brkt, Conducting Steel	SH1066-ND	1.90	15.20	126.16	4345-006
		T 1 3/4 Wedge Base Holder Twist Lock					
15	—	"Twist-Lock" Holder, Nylon	SH1067-ND	4.40	35.20	292.16	4779-008
		Intermediate Screw Base Holder					
16	—	2 Wire (18AWG), Insulated Bronze, Phenolic	SH1068-ND	3.15	25.20	209.16	4407-001
16	C	2 Wire (18AWG)/Brkt, Insulated Bronze, Phenolic	SH1069-ND	3.15	25.20	209.16	4407-003
		Printed Circuit Board Lampholders					
17	—	Midget Groove Lampholder, Plated Steel Shell	SH1034-ND	3.15	25.20	209.16	4619-000
18	—	Midget Groove Lampholder, Plated Steel Shell	SH1035-ND	3.15	25.20	209.16	4619-001
19	—	Midget Screw Lampholder, Brass Shell	SH1036-ND	2.25	18.00	149.40	4019-008
20	—	Midget Screw Lampholder, Brass Shell	SH1037-ND	2.25	18.00	149.40	4019-023
21	—	Min Bayonet Lampholder, Plated Steel Shell	SH1039-ND	1.35	10.80	89.64	4099-033

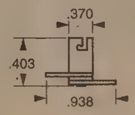
10 inch lead length on all wire versions.
*High Temperature (200°C Teflon Wire)

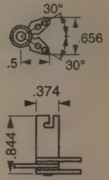
1


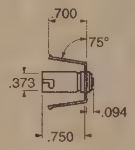
2


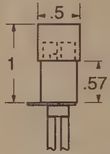
3


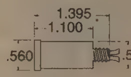
4


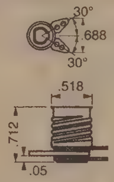
5


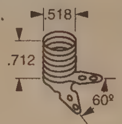
6


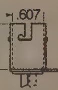
7


8


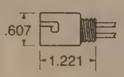
9


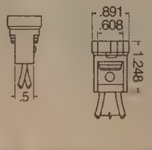
10


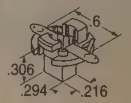
11


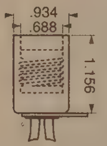
12


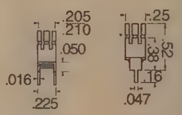
Single or Double Contact Bayonet

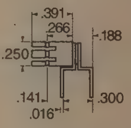
13


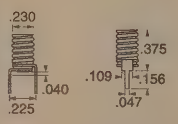
14


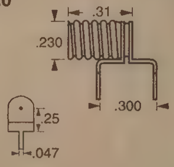
15


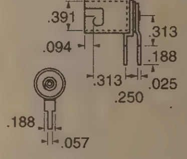
16


17


18


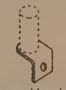
19


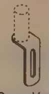
20


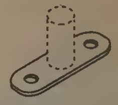
21


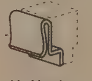
Brackets

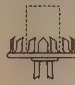
Note: "Up" numbers mean bracket is mounted alongside of lampholder — "Down" numbers below lampholder.

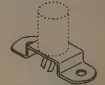
A

Down Version

B

Down Version

C


D

Up Version

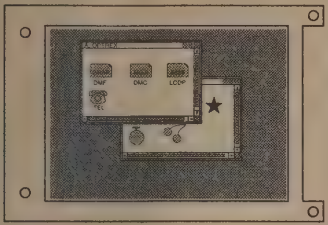
E

Up Version

F

Down Version

OPTREX Supertwist® LCD Graphic Modules

Color Display: 73-1138-ND and 73-1152-ND.

FEATURES: • Low voltage drive and Low power consumption. • Compact, light, and thin. • Graphic, Figure, and Character display. • STN fluid allows high contrast and wide viewing angle. • Large area display like CRT.



APPLICATIONS:
- Personal Computer
- Musical Instrument
- Word Processor
- Electronic Typewriter
- Copying Machine
- Instrument Device
- Telecommunication Equipment
- POS Terminal
- Fish Finder
- Oscillograph
- Medical Instrument
- Other Peripherals

Optrex Numbering System

DMF – 50000 N Y U – S E B 1
1 2 3 4 5 6 7 8 9

1. Type of Display:	Full Dot Matrix
2. Development Number:	Successive Number (3 digits to 5 digits)
3. LCD TYPE:	Nil = TN N = STN
4. Background Color:	Nil = Neutral B = Blue C = Color F = FSTN K = Dark Blue W = DSTN Y = Yellow
5. Background Color:	Nil = 6:00 U = 12:00 L = 9:00 R = 3:00
6. Display Mode:	Nil = Reflective, Transmissive with Backlight S = Transflective T = Transmissive without Backlight
7. Backlight:	Nil = Without Backlight E = EL F = CFL L = LED
8. Backlight Color:	Nil = Without Backlight B = Blue W = White Y = Yellow
9. Supplemented Specification:	Successive Number (No. 1 to 99)

Controller Needed	Inverter Needed	Dot Pixels W x H	Outline Dim. (mm) W x H x D	Viewing Area (mm) W x H	Dot Size (mm) W x H	Dot Pitch (mm) W x H	Display Type	Digi-Key Part No.*	Price Each 1	Price Each 10	Optrex Part No.
N/A	—	128 x 64	78 x 74.2 x 10.3	62 x 44	.40 x .56	.44 x .60	Reflective	73-1158-ND ***NEW!***	35.91	31.37	DMF-697N
N/A	73-1009-ND	128 x 64	78 x 74.2 x 10.3	62 x 44	.40 x .56	.44 x .60	EL Backlighting	73-1159-ND ***NEW!***	47.89	41.84	DMF-697N-EW
N/A	—	128 x 64	78 x 74.2 x 10.3	62 x 44	.40 x .56	.44 x .60	Reflective	73-1160-ND ***NEW!***	35.91	31.37	DMF-697NY
N/A	73-1009-ND	128 x 64	78 x 74.2 x 10.3	62 x 44	.40 x .56	.44 x .60	EL Backlighting	73-1161-ND ***NEW!***	47.89	41.84	DMF-697NY-EW
N/A	73-1009-ND	128 x 64	78 x 74.2 x 10.3	62 x 44	.40 x .56	.44 x .60	EL Backlighting	73-1162-ND ***NEW!***	47.89	41.84	DMF-697NYJ-SEW
E-1330BA	73-1002-ND	128 x 64	78 x 80 x 10.3	62 x 44	.40 x .56	.44 x .60	EL Backlighting	73-1123-ND ***NEW!***	50.88	44.45	DMF-50051N-SEW
E-1330BA	—	128 x 64	95 x 58 x 8.7	62 x 44	.40 x .56	.44 x .60	Reflective	73-1137-ND ***NEW!***	33.91	29.63	DMF-50202N
E-1330BA	—	128 x 64	95 x 58 x 8.7	62 x 44	.40 x .56	.44 x .60	LED Backlighting	73-1140-ND ***NEW!***	45.88	40.08	DMF-50202NY-LY
Built-in	—	128 x 112	110 x 90.6 x 12.8	77 x 66	.50 x .49	.54 x .53	Reflective	73-1116-ND ***NEW!***	77.82	67.98	DMF-5002N
Built-in	73-1111-ND	128 x 112	110 x 90.6 x 12.8	77 x 66	.50 x .49	.54 x .53	EL Backlighting	73-1124-ND ***NEW!***	85.79	74.94	DMF-5002NY-EB
Built-in	—	128 x 128	85 x 100 x 14	62 x 62	.40 x .40	.43 x .43	Reflective	73-1155-ND ***NEW!***	90.60	79.15	DMF-50549NU
E-1330BA	—	160 x 128	129 x 102 x 11.2	101 x 82	.55 x .55	.60 x .60	Reflective	73-1163-ND ***NEW!***	118.64	103.64	DMF-608N
E-1330BA	73-1005-ND	160 x 128	129 x 102 x 11.2	101 x 82	.55 x .55	.60 x .60	EL Backlighting	73-1164-ND ***NEW!***	117.71	102.82	DMF-608NY-EB
Built-in	73-1113-ND	160 x 128	152 x 112 x 23	101 x 82	.54 x .54	.58 x .58	CFL Backlighting	73-1117-ND ***NEW!***	125.70	109.80	DMF-5003NB-FW
Built-in	73-1113-ND	160 x 128	152 x 112 x 23	101 x 82	.54 x .54	.58 x .58	CFL Backlighting	73-1120-ND ***NEW!***	127.69	111.54	DMF-5003NF-FW
Built-in	73-1113-ND	160 x 128	152 x 112 x 23	101 x 82	.54 x .54	.58 x .58	CFL Backlighting	73-1125-ND ***NEW!***	125.70	109.80	DMF-5003NY-FW
Built-in	—	240 x 64	180 x 65 x 12	132 x 39	.49 x .49	.53 x .53	Reflective	73-1156-ND	77.82	67.98	DMF-5005N
Built-in	—	240 x 64	180 x 65 x 12	132 x 39	.49 x .49	.53 x .53	Reflective	73-1121-ND ***NEW!***	85.79	74.94	DMF-5005NF
Built-in	73-1111-ND	240 x 64	180 x 65 x 12	132 x 39	.49 x .49	.53 x .53	EL Backlighting	73-1118-ND ***NEW!***	91.78	80.18	DMF-5005N-EB
Built-in	73-1111-ND	240 x 64	180 x 65 x 12	132 x 39	.49 x .49	.53 x .53	EL Backlighting	73-1119-ND ***NEW!***	91.78	80.18	DMF-5005N-EW
Built-in	73-1111-ND	240 x 64	180 x 65 x 12	132 x 39	.49 x .49	.53 x .53	EL Backlighting	73-1122-ND ***NEW!***	93.77	81.92	DMF-5005NF-SEW
Built-in	—	240 x 64	180 x 65 x 17.6	132 x 39	.49 x .49	.53 x .53	LED Backlighting	73-1157-ND	93.77	81.92	DMF-5005NY-LY
Built-in	—	240 x 64	180 x 65 x 17.6	132 x 39	.49 x .49	.53 x .53	LED Backlighting	73-1126-ND ***NEW!***	93.77	81.92	DMF-5005NYJ-LY
E-1330BA	—	240 x 64	180 x 75 x 15	132 x 39	.48 x .48	.53 x .53	Reflective	73-1136-ND	107.73	94.11	DMF-633N
E-1330BA	—	240 x 64	180 x 75 x 15	132 x 39	.48 x .48	.53 x .53	LED Backlighting	73-1151-ND ***NEW!***	129.70	113.29	DMF-633N-LY
Built-in	73-1007-ND	240 x 64	200 x 66 x 23	132 x 39	.49 x .49	.53 x .53	CFL Backlighting	73-1131-ND ***NEW!***	115.72	101.08	DMF-5010NB-FW
Built-in	73-1007-ND	240 x 64	200 x 66 x 23	132 x 39	.49 x .49	.53 x .53	CFL Backlighting	73-1132-ND ***NEW!***	115.72	101.08	DMF-5010NBU-FW
Built-in	73-1007-ND	240 x 64	200 x 66 x 23	132 x 39	.49 x .49	.53 x .53	CFL Backlighting	73-1133-ND ***NEW!***	117.71	102.82	DMF-5010NF-FW
Built-in	73-1007-ND	240 x 64	200 x 66 x 23	132 x 39	.49 x .49	.53 x .53	CFL Backlighting	73-1134-ND ***NEW!***	115.72	101.08	DMF-5010NYU-FW
E-1330BA	—	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	Reflective	73-1142-ND ***NEW!***	109.74	95.86	DMF-682AN
E-1330BA	—	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	Reflective	73-1143-ND ***NEW!***	122.96	107.41	DMF-682ANF
E-1330BA	—	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	Reflective	73-1146-ND ***NEW!***	138.06	120.60	DMF-682NY
E-1330BA	73-1005-ND	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	EL Backlighting	73-1166-ND	166.00	145.00	DMF-682AN-EB
E-1330BA	73-1005-ND	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	EL Backlighting	73-1145-ND ***NEW!***	111.73	97.60	DMF-682ANY-EB
E-1330BA	73-1005-ND	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	EL Backlighting	73-1141-ND	111.73	97.60	DMF-682AN-EW
E-1330BA	73-1005-ND	256 x 128	147 x 116 x 12	127 x 70	.43 x .43	.47 x .47	EL Backlighting	73-1144-ND ***NEW!***	111.73	97.60	DMF-682ANF-EW
E-1330BA	73-1007-ND	256 x 128	167 x 116 x 24	120.28 x 60.12	.43 x .43	.47 x .47	CFL Backlighting	73-1127-ND ***NEW!***	131.69	115.03	DMF-6104NB-FW
E-1330BA	73-1007-ND	256 x 128	167 x 116 x 24	120.28 x 60.12	.43 x .43	.47 x .47	CFL Backlighting	73-1128-ND ***NEW!***	133.68	116.77	DMF-6104NF-FW
E-1330BA	73-1007-ND	320 x 240	139 x 120 x 13.2	95.97 x 71.97	.27 x .27	.30 x .30	CFL Backlighting	73-1147-ND†	132.24	115.51	DMF-50081NB-FW
E-1330BA	73-1006-ND	320 x 240	172.5 x 117 x 12.5	120 x 91	.09 x .33	.12 x .36	CFL Backlighting	73-1138-ND†‡ ***NEW!***	339.19	296.28	DMF-50268NCU-FW-11
E-1330BA	73-1007-ND	320 x 240	174 x 112 x 14	122 x 92	.33 x .33	.36 x .36	CFL Backlighting	73-1129-ND† ***NEW!***	140.22	122.49	DMF-50174NB-FW
E-1330BA	73-1007-ND	320 x 240	174 x 112 x 14	122 x 92	.33 x .33	.36 x .36	CFL Backlighting	73-1130-ND† ***NEW!***	153.17	133.80	DMF-50174NF-FW
E-1330BA	73-1006-ND	320 x 200	180 x 136 x 25	121.56 x 103.96	.34 x .48	.38 x .52	CFL Backlighting	73-1167-ND†	256.06	223.67	DMF-50045NB-FW
E-1330BA	—	640 x 200	182.6 x 89.5 x 3.0	152.2 x 66	.21 x .28	.23 x .30	Reflective	73-1148-ND ***NEW!***	174.73	152.63	DMF-50380NF
E-1330BA	73-1005-ND	640 x 200	200 x 90.1 x 8.0	175.2 x 68.2	.24 x .30	.27 x .33	EL Backlighting	73-1149-ND ***NEW!***	209.38	182.89	DMF-50357NF-SEW
E-1330BA	73-1006-ND	640 x 200	270 x 142 x 13.5	231 x 105	.32 x .46	.35 x .49	CFL Backlighting	73-1135-ND	289.30	252.71	DMF-50036NBU-FW
N/A	73-1114-ND	640 x 480	205.5 x 141 x 6.5	151 x 113.4	.21 x .21	.23 x .23	EL Backlighting	73-1150-ND§ ***NEW!***	231.44	202.16	DMF-50383NF-SEW
N/A	73-1114-ND	640 x 400	255 x 147 x 7.0	196 x 123	.27 x .27	.30 x .30	CFL Backlighting	73-1139-ND§ ***NEW!***	279.33	244.00	DMF-50262NF-FW
N/A	73-1008-ND	640 x 480	260 x 174 x 7.0	196 x 148	.27 x .27	.30 x .30	CFL Backlighting	73-1154-ND§	251.39	219.59	DMF-50260NF-FW-15
N/A	73-1112-ND	640 x 480	262.9 x 177.2 x 10	195 x 147	.075 x .275	.10 x .30	CFL Backlighting	73-1152-ND§‡ ***NEW!***	498.80	435.70	DMF-50414NCU-FW-6
N/A	73-1115-ND	1024 x 768	269 x 177.6 x 8.5	210.8 x 159.6	.175 x .175	.20 x .20	CFL Backlighting	73-1153-ND ***NEW!***	657.96	574.73	DMF-50418NF-FW

Inverters for CFL Backlighting (Converts 12 VDC to 900VAC 30 KHz)

	Digi-Key Part No.*	Price Each 1	Price Each 10	Optrex Part No.
Inverter for use with CFL Backlit Graphic Modules	73-1006-ND	21.23	18.55	CXAM10L
Inverter for use with CFL Backlit Graphic Modules	73-1007-ND	22.51	19.67	CXAL10L
Inverter for use with CFL Backlit Graphic Modules	73-1008-ND	33.28	29.08	S-12542-5M
Inverter for use with CFL Backlit Graphic Modules	73-1114-ND ***NEW!***	39.26	34.30	S-12562-6M
Inverter for use with CFL Backlit Graphic Modules	73-1115-ND ***NEW!***	33.28	29.08	S-12564
Inverter for use with CFL Backlit Graphic Modules	73-1112-ND ***NEW!***	37.63	32.88	S-12565
Inverter for use with CFL Backlit Graphic Modules	73-1113-ND ***NEW!***	28.14	24.58	CXA-1301

Inverters for EL Backlighting (Converts 5 VDC to 100VAC 400 Hz)

	Digi-Key Part No.*	Price Each 1	Price Each 10	Optrex Part No.
Inverter for use with EL Backlit Graphic Modules	73-1002-ND	13.70	11.97	D32-43
Inverter for use with EL Backlit Graphic Modules	73-1009-ND	13.08	11.43	D32-48
Inverter for use with EL Backlit Graphic Modules	73-1111-ND ***NEW!***	13.08	11.43	D32-49
Inverter for use with EL Backlit Graphic Modules	73-1005-ND	13.74	12.01	D32-50

* Data Sheet sold separately. § VGA Style. † Quarter VGA Style. ‡ Color Display.

OPTREX DOT MATRIX Type LCD Modules

FEATURES:

- Interface with 8-bit or 4-bit MPU is available.
- 192 kinds of characters, numerals, symbols and special characters can be displayed by built-in character generator (ROM).
- Other preferred characters can be displayed by character generator (RAM).
- Various functions of instruction are available by programming: clear display, cursor at home, on/off cursor, blink character, shift display, shift cursor, read/write display data, etc.
- Compact and lightweight design.
- Low power consumption.

OPTREX CORPORATION
HIGH CONTRAST LCD MODULE

Standard Pin Connections

Pin No.	Symbol	Pin No.	Symbol
1	Vss	8	DB1
2	Vcc	9	DB2
3	VEE	10	DB3
4	RS	11	DB4
5	R/W	12	DB5
6	E	13	DB6
7	DB0	14	DB7

40x4 Pin Connections

Pin No.	Symbol	Pin No.	Symbol	Pin No.	Symbol
1	DB7	7	DB1	13	Vss
2	DB6	8	DB0	14	Vcc
3	DB5	9	E1	15	E2
4	DB4	10	R/W	16	NC
5	DB3	11	RS	17	K
6	DB2	12	VEE	18	A

Optrex Numbering System

DMC – 50000 N Y H U – S E B 1

1 2 3 4 5 6 7 8 9 10

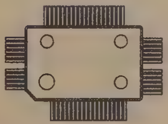
1. Type of Display:	Character Dot Matrix
2. Development Number:	Successive Number (3 digits to 5 digits)
3. LCD TYPE:	Nil = TN N = STN
4. Background Color:	Nil = Neutral Y = Yellow B = Blue K = Dark Blue
5. Operating Temp.:	Nil = Normal H = Extended
6. Viewing Direction:	Nil = 6:00 U = 12:00 L = 9:00 R = 3:00
7. Display Mode:	Nil = Reflective, Transmissive with Backlight S = Transflective T = Transmissive without Backlight
8. Backlight:	Nil = Without Backlight E = EL L = LED
9. Backlight Color:	Nil = Without Backlight W = White B = Blue Y = Yellow
10. Supplemented Specification:	Successive Number (No. 1 to 99)

Inverter Needed	Display Format	Character Format	Outline Dim. W x H x D (mm)	Viewing Area W x H (mm)	Character Size W x H (mm)	Dot Size W x H (mm)	Operating Temp. (°C)	Storage Temp. (°C)	Supply Volt. (V)	Digi-Key Part No.	Price Each			Optrex Part No.
											1	10	100	
Standard LCD Dot Matrix Modules (Data Book Sold Separately)														
—	16x1	5x8 dots	80 x 36 x 10	64.5 x 13	3.2 x 5.95	.6 x .7	0 to +50	-20 to +70	5	73-1012-ND	8.98	7.85	7.20	DMC-16117A
—	16x1	5x7 CURS	122 x 33 x 11	99 x 13	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1013-ND ***NEW!***	14.96	13.07	11.99	DMC-16128
—	16x1	5x7 CURS	122 x 33 x 11	99 x 13	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1015-ND ***NEW!***	16.97	14.82	13.60	DMC-16129
—	16x1	5x7 CURS	122 x 33 x 11	99 x 13	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1017-ND ***NEW!***	17.96	15.69	14.40	DMC-16129H
—	16x1	5x7 CURS	122 x 33 x 11	99 x 13	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1019-ND ***NEW!***	17.96	15.69	14.40	DMC-16129U
—	16x2	5x8 dots	80 x 40 x 10.9	59.5 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1033-ND ***NEW!***	14.96	13.07	11.99	DMC-16204
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .55	0 to +50	-20 to +70	5	73-1025-ND	12.37	10.81	9.91	DMC-16207
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .55	-20 to +70	-30 to +80	+5 -7	73-1036-ND ***NEW!***	14.96	13.07	11.99	DMC-16207H
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .55	0 to +50	-20 to +70	5	73-1054-ND ***NEW!***	12.37	10.81	9.91	DMC-16207U
—	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1026-ND ***NEW!***	16.97	14.82	13.60	DMC-16230
—	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92 x 1.1	-20 to +70	-30 to +80	+5 -7	73-1041-ND ***NEW!***	20.95	18.30	16.79	DMC-16230H
—	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1030-ND ***NEW!***	16.97	14.82	13.60	DMC-16230U
—	16x2	5x8 dots	80 x 36 x 11	64.5 x 13.8	2.95 x 4.35	.55 x .5	0 to +50	-20 to +70	5	73-1037-ND ***NEW!***	11.97	10.46	9.59	DMC-16249B
—	16x2	5x8 dots	80 x 36 x 11	64.5 x 13.8	2.95 x 4.35	.55 x .5	0 to +50	-20 to +70	5	73-1039-ND ***NEW!***	11.97	10.46	9.59	DMC-16249UB
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .65	-20 to +70	-30 to +80	+5 -7	73-1010-ND ***NEW!***	19.95	17.43	15.99	DMC-50097H
—	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1080-ND	26.94	23.54	21.59	DMC-16433
—	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.2	2.95 x 4.75	.55 x .55	-20 to +70	-30 to +80	+5 -7	73-1108-ND ***NEW!***	26.94	23.54	21.59	DMC-16433H
—	20x1	5x7 CURS	182 x 33.5 x 12.7	154 x 15.3	6.7 x 11.5	1.3 x 1.3	0 to +50	-20 to +70	5	73-1021-ND	30.93	27.02	24.78	DMC-20171
—	20x2	5x8 dots	116 x 37 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1056-ND	21.95	19.17	17.59	DMC-20261
—	20x2	5x8 dots	116 x 44 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1055-ND ***NEW!***	17.56	15.35	14.08	DMC-20215A
—	20x2	5x8 dots	116 x 37 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1058-ND	17.96	15.69	14.40	DMC-50218
—	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1086-ND	28.93	25.28	23.19	DMC-20434
—	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	-20 to +70	-30 to +80	+5 -7	73-1089-ND ***NEW!***	38.83	33.92	31.11	DMC-20434H
—	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1098-ND ***NEW!***	31.92	27.89	25.58	DMC-20434U
—	24x2	5x8 dots	118 x 36 x 11	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1064-ND	19.95	17.43	15.99	DMC-24227
—	40x2	5x8 dots	182 x 33.5 x 11	152 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1069-ND	32.92	28.76	26.38	DMC-40218
—	40x4	5x8 dots	190 x 54 x 11	147 x 29.5	2.78 x 4.89	.5 x .55	0 to +50	-20 to +70	5	73-1099-ND	61.85	54.03	49.56	DMC-40457
Supertwist LCD Modules (Data Book Sold Separately)														
—	8x2	5x8 dots	40 x 35.4 x 8.2	30.4 x 13.9	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1106-ND	9.88	8.63	7.92	DMC-50448N
—	16x1	5x8 dots	80 x 36 x 10	64.5 x 13	3.2 x 5.95	.6 x .7	0 to +50	-20 to +70	5	73-1016-ND ***NEW!***	11.97	10.46	9.59	DMC-16117AN
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x 65	0 to +50	-20 to +70	5	73-1044-ND	16.97	14.82	13.60	DMC-16207N
—	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92x 1.10	0 to +50	-20 to +70	5	73-1028-ND ***NEW!***	18.96	16.56	15.19	DMC-16230N
—	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92x 1.10	0 to +50	-20 to +70	5	73-1029-ND ***NEW!***	18.96	16.56	15.19	DMC-16230NY
—	16x2	5x8 dots	80 x 36 x 11	64.5 x 13.8	2.95 x 4.35	.55x .50	0 to +50	-20 to +70	5	73-1038-ND ***NEW!***	13.96	12.20	11.19	DMC-16249N
—	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1083-ND	28.93	25.28	23.19	DMC-16433N
—	20x2	5x8 dots	116 x 37 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1060-ND	23.94	20.91	19.18	DMC-20261N
—	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1091-ND	35.91	31.37	28.77	DMC-20434N
—	24x2	5x8 dots	118 x 36 x 11	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1065-ND	25.88	22.61	20.74	DMC-24227N
—	40x2	5x8 dots	182 x 33.5 x 11	152.5 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1073-ND	37.91	33.12	30.38	DMC-40218N
—	40x2	5x8 dots	182 x 33.5 x 11	152.5 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1070-ND ***NEW!***	37.91	33.12	30.38	DMC-40218NY
—	40x4	5x8 dots	190 x 54 x 10	147 x 29.5	2.78 x 4.89	.5 x .55	0 to +50	-20 to +70	5	73-1102-ND	63.84	55.77	51.16	DMC-40457N
High Contrast Supertwist LCD Modules (Data Book Sold Separately)														
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1045-ND	15.77	13.78	12.64	DMC-16207N-B
—	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1049-ND ***NEW!***	21.58	18.85	17.29	DMC-16207NY-B
—	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1084-ND	28.93	25.28	23.19	DMC-16433N-B
—	20x2	5x8 dots	116 x 37 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1061-ND	17.96	15.69	14.40	DMC-50218N-B
—	20x4	5x8 dots	98.5 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1092-ND	32.87	28.71	26.34	DMC-20434N-B
—	20x4	5x8 dots	82.5 x 48 x 9.5	71.6 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1079-ND ***NEW!***	36.92	32.25	29.58	DMC-50244N-B
—	24x2	5x8 dots	118 x 36 x 11	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1066-ND	20.95	18.30	16.79	DMC-24227N-B
—	40x2	5x8 dots	182 x 33.5 x 11	152.5 x 6.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1074-ND	32.32	28.24	25.90	DMC-40218N-B
—	40x4	5x8 dots	190 x 54 x 11	147 x 29.5	2.78 x 4.89	.5 x .55	0 to +50	-20 to +70	5	73-1103-ND	90.60	79.15	72.60	DMC-40457N-B
Standard LCD Modules With Yellow LED Backlighting (Data Book Sold Separately)														
—	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92 x 1.1	-20 to +70	-30 to +80	+5 -7	73-1042-ND ***NEW!***	27.94	24.41	22.39	DMC-16230H-LY
Supertwist LCD Modules With Yellow LED Backlighting (Data Book Sold Separately)														
—	10x4	5x7 CURS	46 x 63 x 3.6	33.1 x 20.9	2.95 x 4.85	.55 x .55	-20 to +70	-30 to +80	+5 -7	73-1107-ND ***NEW!***	30.33	26.50	24.30	DMC-50454NJ-SLY
—	16x1	5x7 CURS	122 x 33 x 15.7	99 x 13	4.84 x 9.66	.92 x 1.10	0 to +50	-20 to +70	5	73-1020-ND ***NEW!***	32.35	28.27	25.93	DMC-16128N-LY
—	16x1	5x7 CURS	122 x 33 x 15.7	99 x 13	4.84 x 9.66	.92 x 1.10	0 to +50	-20 to +70	5	73-1011-ND ***NEW!***	23.94	20.91	19.18	DMC-16128NY-LY
—	16x1	5x8 dots	80 x 36 x 15	64.5 x 13	3.2 x 5.85	.6 x .7	-20 to +70	-30 to +80	+5 -7	73-1018-ND ***NEW!***	20.95	18.30	16.79	DMC-16105NY-LY

Inverter Needed	Display Format	Character Format	Outline Dim. W x H x D (mm)	Viewing Area W x H (mm)	Character Size W x H (mm)	Dot Size W x H (mm)	Operating Temp. (°C)	Storage Temp. (°C)	Supply Volt. (V)	Digi-Key Part No.	Price Each 1	10	100	Optrex Part No.
—	16x1	5x8 dots	151 x 40 x 14.2	120 x 23	6.0 x 14.54	1.152 x 1.76	0 to +50	-20 to +70	5	73-1014-ND ***NEW!***	48.89	42.71	39.17	DMC-16188NY-LY
—	16x2	5x8 dots	84 x 45 x 15.1	61 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1048-ND	19.95	17.43	15.99	DMC-16202NY-LY
—	16x2	5x8 dots	80 x 40 x 16.1	59.5 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1034-ND ***NEW!***	16.97	14.82	13.60	DMC-16204NY-LY
—	16x2	5x8 dots	80 x 34 x 16.1	59.5 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1035-ND ***NEW!***	21.95	19.17	17.59	DMC-16205NY-LY
—	16x2	5x7 CURS	122 x 44 x 14.6	99 x 24	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1051-ND ***NEW!***	25.95	22.67	20.79	DMC-16230NY-LY
—	16x2	5x7 CURS	122 x 44 x 14.6	99 x 24	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1053-ND ***NEW!***	25.95	22.67	20.79	DMC-16230NYU-LY
—	20x1	5x7 CURS	182 x 33.5 x 14.35	154 x 15.3	6.7 x 11.5	1.3 x 1.3	0 to +50	-20 to +70	5	73-1023-ND ***NEW!***	49.88	43.58	39.97	DMC-20171NY-LY
—	20x2	5x8 dots	116 x 37 x 15.7	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1062-ND	25.95	22.67	20.79	DMC-20261NY-LY
—	20x4	5x8 dots	98.5 x 61 x 15.6	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1094-ND	33.91	29.63	27.18	DMC-20481NY-LY
—	20x4	5x8 dots	98.5 x 61 x 15.6	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1097-ND ***NEW!***	33.91	29.63	27.18	DMC-20481NYU-LY
—	40x2	5x8 dots	182 x 34.5 x 15.1	152.5 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1076-ND	53.87	47.06	43.16	DMC-40267NY-LY
—	40x2	5x8 dots	182 x 34.5 x 15.1	152.5 x 16.5	3.2 x 5.55	.6 x .65	-20 to +70	-30 to +80	+5 -7	73-1078-ND ***NEW!***	53.87	47.06	43.16	DMC-40267NYJ-LY
—	40x4	5x8 dots	190 x 54 x 13.6	147 x 29.5	2.78 x 4.89	.5 x .55	0 to +50	-20 to +70	5	73-1104-ND	83.75	73.16	67.10	DMC-40457NY-LY
—	40x4	5x8 dots	190 x 54 x 13.6	147 x 29.5	2.78 x 4.89	.5 x .55	-20 to +70	-30 to +80	+5 -7	73-1105-ND ***NEW!***	83.80	73.20	67.14	DMC-40457NYJ-LYD
High Contrast Supertwist LCD Modules with Yellow LED Backlighting (Data Book Sold Separately)														
—	16x2	5x8 dots	84 x 45 x 15.1	61 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1047-ND ***NEW!***	19.95	17.43	15.99	DMC-16202N-LY-B
—	16x2	5x8 dots	84 x 45 x 15.1	61 x 16	2.95 x 5.55	.55 x .65	0 to +50	-20 to +70	5	73-1043-ND	19.95	17.43	15.99	DMC-16202NY-LY1
—	16x2	5x8 dots	84 x 45 x 15.1	61 x 16	2.95 x 5.55	.55 x .65	-20 to +70	-30 to +80	+5 -7	73-1032-ND ***NEW!***	19.95	17.43	15.99	DMC-16202NYJ-LY-D
—	16x2	5x7 CURS	122 x 44 x 14.6	99 x 24	4.84 x 9.66	.92 x 1.10	0 to +50	-20 to +70	5	73-1052-ND ***NEW!***	26.94	23.54	21.59	DMC-16230NY-LY-B
—	16x2	5x7 CURS	122 x 44 x 14.6	99 x 24	4.84 x 9.66	.92 x 1.10	-20 to +70	-30 to +80	+5 -7	73-1050-ND ***NEW!***	27.94	24.41	22.39	DMC-16230NYJ-LYD
—	20x2	5x8 dots	116 x 37 x 15.7	83 x 18.6	3.20 x 5.55	.60 x .65	0 to +50	-20 to +70	5	73-1057-ND	25.95	22.67	20.79	DMC-20261ANY-LYB
—	20x2	5x8 dots	116 x 37 x 15.7	83 x 18.6	3.20 x 5.55	.60 x .65	-20 to +70	-30 to +80	+5 -7	73-1063-ND ***NEW!***	25.95	22.67	20.79	DMC-20261NYJ-LY-D
—	20x4	5x8 dots	98.5 x 61 x 15.6	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1095-ND	33.91	29.63	27.18	DMC-20481NY-LY-B
—	24x2	5x8 dots	118 x 36 x 16.1	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1068-ND	57.02	49.81	45.69	DMC-2074NY-LY-B
—	24x2	5x8 dots	121.5 x 33.5 x 16.1	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1024-ND ***NEW!***	35.91	31.37	28.77	DMC-50149NYU-LY-B
—	40x2	5x8 dots	172 x 33.5 x 15.5	151.6 x 14.2	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1110-ND ***NEW!***	45.30	39.58	36.30	DMC-2079-LY1
—	40x2	5x8 dots	182 x 34.5 x 15.1	152.5 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1072-ND	49.82	43.52	39.92	DMC-40267NY-SLYB
—	40x4	5x8 dots	190 x 54 x 13.6	147 x 29.5	2.78 x 4.89	.5 x .55	0 to +50	-20 to +70	5	73-1101-ND	83.80	73.20	67.14	DMC-40457NY-LY-B
Standard LCD Modules With Blue-Green EL Backlighting (must order inverter) (Data Book Sold Separately)														
73-1004-ND	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1027-ND ***NEW!***	34.51	30.15	27.66	DMC-16230E
73-1004-ND	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.5	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1081-ND	31.92	27.89	25.58	DMC-16433E
73-1003-ND	20x1	5x7 CURS	182 x 33.5 x 12.7	154 x 15.3	6.7 x 11.5	1.3 x 1.3	0 to +50	-20 to +70	5	73-1022-ND ***NEW!***	37.91	33.12	30.38	DMC-20171E
73-1004-ND	20x2	5x8 dots	116 x 37 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1168-ND	33.43	29.21	26.79	DMC-20261E
73-1004-ND	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1087-ND	36.92	32.25	29.58	DMC-20434E
73-1004-ND	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	-20 to +70	-30 to +80	+5 -7	73-1090-ND ***NEW!***	41.90	36.60	33.57	DMC-20434HE
73-1002-ND	40x2	5x8 dots	182 x 33.5 x 11	152 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1165-ND	54.18	47.33	43.42	DMC-40218E
73-1003-ND	24x2	5x8 dots	118 x 36 x 11	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1169-ND	36.89	32.22	29.56	DMC-24227E
High Contrast Supertwist LCD Modules With Blue-Green EL Backlighting (must order inverter) (Data Book Sold Separately)														
73-1003-ND	16x2	5x8 dots	84 x 44 x 11	61 x 16	2.95 x 5.55	.55 x .55	0 to +50	-20 to +70	5	73-1040-ND	22.54	19.70	18.07	DMC-16207N-EB
73-1004-ND	16x2	5x7 CURS	122 x 44 x 11	99 x 24	4.84 x 9.66	.92 x 1.1	0 to +50	-20 to +70	5	73-1046-ND ***NEW!***	26.94	23.54	21.59	DMC-16230N-EB
73-1004-ND	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.5	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1082-ND	33.91	29.63	27.18	DMC-16433N-EB
73-1004-ND	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.5	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1085-ND ***NEW!***	46.38	40.52	37.17	DMC-16433NY-SEB-B
73-1004-ND	20x2	5x8 dots	116 x 37 x 11	83 x 18.6	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1059-ND	31.92	27.89	25.58	DMC-20261N-E
73-1004-ND	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1088-ND	43.89	38.34	35.17	DMC-20434N-EB
73-1004-ND	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1096-ND ***NEW!***	56.09	49.00	44.95	DMC-20434NY-EB
73-1003-ND	24x2	5x8 dots	118 x 36 x 11	93.5 x 15.8	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1067-ND ***NEW!***	24.93	21.78	19.98	DMC-24227N-EB
73-1002-ND	40x2	5x8 dots	182 x 33.5 x 11	152 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1071-ND	43.89	38.34	35.17	DMC-40218N-EB
73-1002-ND	40x2	5x8 dots	182 x 33.5 x 11	152 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1077-ND ***NEW!***	45.88	40.08	36.77	DMC-40218NY-EB
73-1009-ND	40x4	5x8 dots	190 x 54 x 11	147 x 29.5	2.78 x 4.89	.5 x .55	0 to +50	-20 to +70	5	73-1100-ND	79.81	69.72	63.95	DMC-40457N-EB
Supertwist LCD Modules With White EL Backlighting (must order inverter) (Data Book Sold Separately)														
73-1004-ND	20x4	5x8 dots	98 x 60 x 11	76 x 25.2	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1093-ND ***NEW!***	43.89	38.34	35.17	DMC-20434N-SEW
High Contrast Supertwist LCD Modules With White EL Backlighting (must order inverter) (Data Book Sold Separately)														
73-1004-ND	16x4	5x8 dots	87 x 60 x 11	61.8 x 25.5	2.95 x 4.75	.55 x .55	0 to +50	-20 to +70	5	73-1109-ND ***NEW!***	32.92	28.76	26.38	DMC-16433N-SEW-B
73-1002-ND	40x2	5x8 dots	182 x 33.5 x 11	152 x 16.5	3.2 x 5.55	.6 x .65	0 to +50	-20 to +70	5	73-1075-ND ***NEW!***	43.89	38.34	35.17	DMC-40218N-SEW-B
Inverters For El Backlighting (Converts 5 VDC to 100 VAC 400Hz)														
Inverter for use with EL Backlit Character Modules										73-1002-ND	13.70	11.97	10.98	D32-43
Inverter for use with EL Backlit Character Modules										73-1003-ND	10.23	8.94	8.20	D32-45
Inverter for use with EL Backlit Character Modules										73-1004-ND	10.23	8.94	8.20	D32-46
Inverter for use with EL Backlit Character Modules										73-1009-ND	13.08	11.43	10.49	D32-48
Optrex Data Book										73-1001-ND ***NEW!***	2.42	—	—	—

EPSON AMERICA, INC. LCD Controllers

IC Controller For Graphic LCD



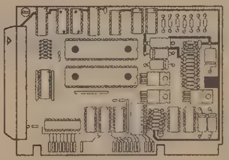
The E-1330 is a character and graphics display controller for medium-resolution dot-matrix LCD panels with up to 640 x 256 pixels. An E-1330 in combination with drivers, an LCD panel and a minimum of external components forms a complete low-power display system.

Features:

- Low power consumption-8 mA operating current and 0.05 µA standby current.
- Single 5 V ±10% supply.
- 60-pin QFPs

Description	Digi-Key Part No.	Pricing 1	25	100	Epson Part No.
IC Controller For Graphc LCD	E-1330BA-ND	11.90	223.13	773.50	E-1330BA
Controller Board For Graphic LCD	SDU-8106-ND	229.50	—	—	SDU8106
Application Manual For E1330	9250B-ND	3.95	—	—	—

Controller Board For Graphic LCD



SDU8106B0D is a VGA controller board to use with color and monochrome LCD (Liquid Crystal Display) panels. It will operate as a stand alone video adapter card with on-board video BIOS support. Also, it will operate as 16-bit on the ISA bus.

Features:

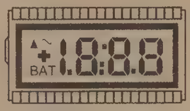
- Color/Monochrome LCD support
- 16-bit ISA Bus support
- 5 V operation
- On-board video BIOS with additional support logic provided
- 512K DRAM support (1 x 256K x 16, symmetrical)
- Configuration options for different panels
- Support for Software Power Save Modes
- On-board +23 to +40 V adjustable power supply (VDDH for color panels)
- On-board -18 to -23 V adjustable power supply (VLCD for monochrome panels).

VE Varitronix Limited LCDs

Reflective

NEW! Transflective

(Denoted by "FC" in Digi-Key Part No.)



- Long Life/High Reliability
- Excellent Optical Quality
- High Contrast Ratio
- Wide Viewing Angle
- Large Useful Viewing Area
- Fast Response
- Low Power Consumption
- Data Sheet Included

Electrical and Optical Characteristics

	Static	HV†	Units
Oper. Temp. Range	-10°→+60°	-10°→+60°	°C
Oper. Voltage, RMS	3.0	3.9 - 4.7	V-RMS
Drive Frequency	30-300	60-300	Hz
Current Consumption	15	15	nA/mm²
Turn-On Time	120	80	ms
Turn-Off Time	100	80	ms

Format	Digit Size	No. Of Digits	Type	Conn. No. Of Pins	Dual Row Spacing	Driver IC's (Not Included) (Applies to both P/N)	Digi-Key Part No.	Pricing 1	5	10	Varitronix Part No.	LED Back-light
.8.8	.5"	2	.1" Dip	18	1.3"	4543B(2); ICL7106CPL	153-1003-ND 153-1002-ND	4.30 4.50	19.89 20.81	35.69 37.35	VI-201-DP-RC-S VI-201-DP-FC-S	—
BAT 1.8:8.8	.5"	3 1/2	.1" Dip	40	1.3"	ICL7106CPL;4543B(4)	153-1005-ND 153-1004-ND	5.70 6.80	26.36 31.45	47.31 56.44	VI-322-DP-RC-S VI-322-DP-FC-S	1
8.8:8.8	.5"	4	.1" Dip	40	1.3"	4543B(4);ICL7135CPI	153-1007-ND 153-1006-ND	5.70 6.80	26.36 31.45	47.31 56.44	VI-422-DP-RC-S VI-422-DP-FC-S	1
1.8:8:8.8	.4"	4 1/2	.1" Dip	40	1.3"	4543B(5);ICL7135CPI;	153-1009-ND 153-1008-ND	5.70 6.80	26.36 31.45	47.31 56.44	VI-502-DP-RC-S VI-502-DP-FC-S	1
8.8:8.8:8.8	.5"	6	.1" Dip	50	1.3"	4543B(6);	153-1011-ND 153-1010-ND	9.30 11.30	43.01 52.26	77.19 93.79	VI-602-DP-RC-S VI-602-DP-FC-S	2
8.8:8.8:8.8:8.8	.5"	8	.1" Dip	68	1.3"	4543B(8);	153-1013-ND 153-1012-ND	13.20 15.10	61.05 69.84	109.56 125.33	VI-804-DP-RC-S VI-804-DP-FC-S	3
BAT 1.8:8.8	.7"	3 1/2	.1" Dip	40	1.6"	ICL7106CPL;4543B(4)	153-1015-ND 153-1014-ND	10.50 14.30	48.56 66.14	87.15 118.69	VI-319-DP-RC-S VI-319-DP-FC-S	2
8.8:8.8	.7"	4	.1" Dip	40	1.6"	4543B(4);ICL7135CPI;	153-1017-ND 153-1016-ND	11.80 14.30	54.58 66.14	97.94 118.69	VI-415-DP-RC-S VI-415-DP-FC-S	2
8:8:8.8.8	.4"	5	.1" Dip	40	1.3"	4543B(5);ICL7135CPI;	153-1019-ND 153-1018-ND	5.70 6.80	26.36 31.45	47.31 56.44	VI-508-DP-RC-S VI-508-DP-FC-S	2
8.8:8.8:8.8	.7"	6	.1" Dip	50	1.6"	4543B(6);	153-1021-ND 153-1020-ND	15.70 19.80	72.61 91.58	130.31 164.34	VI-607-DP-RC-S VI-607-DP-FC-S	3
LO BAT 1.8:8.8	.5"	3 1/2	.1" Dip	40	1.3"	ICL7106CPL;4543B(4)	153-1023-ND 153-1022-ND	5.70 6.80	26.36 31.45	47.31 56.44	VI-302-DP-RC-S VI-302-DP-FC-S	1
LO BAT 1.8:8:8.8	.4"	4 1/2	.1" Dip	40	1.3"	4543B(5);ICL7135CPI;	153-1025-ND 153-1024-ND	5.70 6.80	26.36 31.45	47.31 56.44	VI-509-DP-RC-S VI-509-DP-FC-S	1
8.8.8.8	.5"	4	.1" Dip	20	1.3"	ICL7129A	153-1046-ND† 153-1047-ND†	6.40 6.80	29.60 31.45	53.12 56.44	VIM-404-DP-RC-S-HV VIM-404-DP-FC-S-HV	2
LOW BATTERY CONTINUITY -1.8.8.8.8	.4"	4 1/2	.1" Dip	15	1.3"	ICL7129A	153-1054-ND† 153-1055-ND†	5.90 6.80	27.29 31.45	48.97 56.44	VIM-503-DP-RC-S-HV VIM-503-DP-FC-S-HV	2
8.8:8.8:8.8:8.8	.5"	8	.1" Dip	42	1.3"	—	153-1056-ND† 153-1057-ND†	11.70 17.00	54.11 78.63	97.11 141.10	VIM-808-DP-RC-S-HV VIM-808-DP-FC-S-HV	3

† Multiplexed Display

Backlight For Transflective LCD's

LED Backlight	Overall Size L1 x W x H	Active Size LE x WE	Forward Current mA at 4.1V Typ	Max	Digi-Key Part No.	Pricing 1	5	10	Varitronix Part No.
1	565 x 19.5 x 3.5	49.0 x 12	70	140	153-1026-ND	7.30	33.76	60.59	LED4-16264
2	75 x 26.6 x 3.8	60 x 22	135	270	153-1027-ND	11.20	51.80	92.96	LED4-20464B
3	94 x 24 x 4	84 x 19	180	360	153-1028-ND	9.50	43.94	78.85	LED4-20265

VE Varitronix Limited LCD Modules

153-1001-ND Varitronix LCD Modules Data Book **$2.98**

Display Format	Character Format	Outline Dim. (mm) W x H x D	Display Area Dim. (mm) W x H	Character Size (mm) W x H	Operating Temp. (°C)	Storage Temp. (°C)	Supply Voltage (V)	Digi-Key Part No.	Pricing 1	5	10	Varitronix Part No.
Standard LCD Module (Data Book Sold Separately)												
16 x 1	5 x 8 dots	80 x 36 x 11	64.5 x 13.8	3.15 x 6.30	-5° to +50°	-20° to +60°	5	153-1031-ND	17.60	81.40	146.08	MDL-16166-LV
16 x 2	5 x 8 dots	84 x 44 x 10	61.0 x 15.8	2.95 x 5.55	-5° to +50°	-20° to +60°	5	153-1036-ND	21.76	100.64	180.61	MDL-16265K-LV
24 x 2	5 x 8 dots	118 x 36 x 10	93.5 x 15.8	3.2 x 5.15	-5° to +50°	-20° to +60°	5	153-1041-ND	34.20	158.18	283.86	MDL-24265-LV
Supertwist LCD Module (Data Book Sold Separately)												
8 x 1	5 x 8 dots	84 x 44 x 11	61.0 x 15.8	6.45 x 10.75	-5° to +50°	-20° to +60°	5	153-1029-ND	28.70	132.74	238.21	MDLS-81809-LV-G
16 x 1	5 x 8 dots	80 x 36 x 11	64.5 x 13.8	3.15 x 6.30	-5° to +50°	-20° to +60°	5	153-1032-ND	20.10	92.96	166.83	MDLS-16166-LV-G
16 x 2	5 x 8 dots	84 x 44 x 10	61.0 x 15.8	2.95 x 5.55	-5° to +50°	-20° to +60°	5	153-1037-ND	25.00	115.63	207.50	MDLS-16265K-LV-G
16 x 4	5 x 8 dots	87 x 60 x 10	61.8 x 25.2	2.95 x 4.75	-5° to +50°	-20° to +60°	5	153-1048-ND	54.00	249.75	448.20	MDLS-16465-LV-G
20 x 1	5 x 8 dots	182 x 33.5 x 11	154 x 15.3	6.7 x 11.50	-5° to +50°	-20° to +60°	5	153-1034-ND	52.90	244.66	439.07	MDLS-20189-LV-G
20 x 2	5 x 8 dots	116 x 37 x 11	83.0 x 18.6	3.2 x 5.55	-5° to +50°	-20° to +60°	5	153-1039-ND	36.80	170.20	305.44	MDLS-20265K-LV-G
20 x 4	5 x 8 dots	98 x 60 x 12	76.0 x 25.2	2.95 x 4.75	-5° to +50°	-20° to +60°	5	153-1051-ND	54.70	252.99	454.01	MDLS-20464K-LV-G
24 x 2	5 x 8 dots	118 x 36 x 10	93.5 x 15.8	3.2 x 5.15	-5° to +50°	-20° to +60°	5	153-1042-ND	41.30	191.01	342.79	MDLS-24265-LV-G
40 x 2	5 x 8 dots	182 x 33.5 x 11	154.0 x 15.8	3.15 x 5.50	-5° to +50°	-20° to +60°	5	153-1067-ND	56.80	262.70	471.44	MDLS-40266-LV-G
40 x 4	5 x 8 dots	196 x 56 x 11	154.4 x 27.6	3.15 x 6.30	-5° to +50°	-20° to +60°	+5/-5	153-1052-ND	101.70	470.36	844.11	MDLS-40466-G-HV
Supertwist LCD Module w/LED Backlighting (Data Book Sold Separately)												
8 x 1	5 x 8 dots	84 x 44 x 15.2	61.0 x 15.8	6.45 x 10.75	-5° to +50°	-20° to +60°	5	153-1030-ND*	37.90	175.29	314.57	MDLS-81809-LV-G-LED-04
16 x 1	5 x 8 dots	80 x 36 x 14.2	64.5 x 13.8	3.15 x 6.30	-5° to +50°	-20° to +60°	5	153-1033-ND*	29.30	135.51	243.19	MDLS-16166-LV-G-LED-04
16 x 2	5 x 8 dots	84 x 44 x 13	61.0 x 15.8	2.95 x 5.55	-5° to +50°	-20° to +60°	5	153-1038-ND	36.10	166.96	299.63	MDLS-16265K-LV-G LED4G
16 x 4	5 x 8 dots	87 x 60 x 13	61.8 x 25.2	2.95 x 4.75	-5° to +50°	-20° to +60°	5	153-1049-ND*	61.70	285.36	512.11	MDLS-16465-LV-G-LED-04
20 x 1	5 x 8 dots	182 x 33.5 x 13.3	154 x 15.3	6.7 x 11.50	-5° to +50°	-20° to +60°	5	153-1035-ND*	69.00	319.13	572.70	MDLS-20189-LV-G-LED-04
20 x 2	5 x 8 dots	116 x 37 x 14.4	83.0 x 18.6	3.2 x 5.55	-5° to +50°	-20° to +60°	5	153-1040-ND*	46.30	214.14	384.29	MDLS-20265K-LV-G-LED-04
20 x 4	5 x 8 dots	98 x 60 x 14.8	76.0 x 25.2	2.95 x 4.75	-5° to +50°	-20° to +60°	5	153-1050-ND*	67.60	312.65	561.08	MDLS-20464K-LV-G-LED4G
24 x 2	5 x 8 dots	118 x 36 x 13.4	93.5 x 15.8	3.2 x 5.15	-5° to +50°	-20° to +60°	5	153-1043-ND*	53.40	246.98	443.22	MDLS-24265-LV-G-LED-04
40 x 2	5 x 8 dots	182 x 33.5 x 15.4	154.0 x 15.8	3.15 x 5.50	-5° to +50°	-20° to +60°	5	153-1068-ND*	76.10	351.96	631.63	MDLS-40266-LV-G-LED-04
40 x 4	5 x 8 dots	196 x 56 x 16	154.4 x 27.6	3.15 x 6.30	-5° to +50°	-20° to +60°	+5/-5	153-1053-ND	124.60	576.28	1034.18	MDLS-40466-GHVLED4G

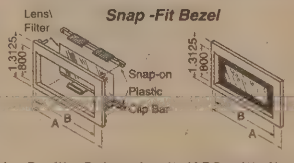
* The LED chips are distributed over the whole lit area, bonded in a pattern which gives the most uniform illumination. Power connection is made by two solder holes, marked "A" for +5V and "K" for Ground.

PRD Plastics Bezels

Bezel material is polystyrene plastic. Recommended panel thickness for mounting snap-fit bezel is .032" to .125".

Digi-Key Part No.	Dimensions A	B	Panel Cut-Out For Snap Fit Bezel Height	Width
PRD180☐-ND	2.3125	1.800	1.0625	2.0625
PRD250☐-ND	3.000	2.500	1.0625	2.750
PRD360☐-ND	4.125	3.600	1.0625	3.875

Snap -Fit Bezel



Lo-Profile Polycarbonite/ABS with Non-Removeable Lens (requires adhesive strips)

Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
Snap Fit Bezels					
1.8" Wide Bezel Black Plastic	PRD180B-ND	1.35	11.25	90.00	6101010
2.5" Wide Bezel Black Plastic	PRD250B-ND	1.65	13.75	110.00	6102010
3.6" Wide Bezel Black Plastic	PRD360B-ND	1.92	16.00	128.00	6103010
For Use With LCDs					
Clear Lens for 1.8" Bezel	PRD180C-ND	1.20	10.00	80.00	6201010
Clear Lens for 2.5" Bezel	PRD250C-ND	1.35	11.25	90.00	6202010
Clear Lens for 3.6" Bezel	PRD360C-ND	1.50	12.50	100.00	6203010
For Use With LEDs					
Smoke Lens for 1.8" Bezel	PRD180S-ND	1.20	10.00	80.00	6201020
Smoke Lens for 2.5" Bezel	PRD250S-ND	1.35	11.25	90.00	6202020
Smoke Lens for 3.6" Bezel	PRD360S-ND	1.50	12.50	100.00	6203020
Red Lens for 1.8" Bezel	PRD180R-ND	1.20	10.00	80.00	6201030
Red Lens for 2.5" Bezel	PRD250R-ND	1.35	11.25	90.00	6202030
Red Lens for 3.6" Bezel	PRD360R-ND	1.50	12.50	100.00	6203030
Green Lens for 1.8" Bezel	PRD180G-ND	1.20	10.00	80.00	6201040
Green Lens for 2.5" Bezel	PRD250G-ND	1.35	11.25	90.00	6202040
Green Lens for 3.6" Bezel	PRD360G-ND	1.50	12.50	100.00	6203040
Masked Lenses					
1.0" x .875" Window for 1.8"	PRD180W-ND	1.20	10.00	80.00	6201050
2.4" x .630" Window for 2.5"	PRD250W-ND	1.35	11.25	90.00	6202050
2.575" x .543" Window for 2.5"	PRD250W1-ND	1.35	11.25	90.00	6202060
3.268" x .732" Window for 3.6"	PRD360W-ND	1.50	12.50	100.00	6203050
3.675" x .622" Window for 3.6"	PRD360W1-ND	1.50	12.50	100.00	6203060
Lo-Profile Polycarbonite/ABS					
Lo-Profile For LCDs •					
1.8" Bezel with Clear Lens	PRD180LP-ND	2.55	21.25	170.00	6301010
1.8" Bezel and Clear Lens with 1.0" x .875" Window	PRD180LPW-ND	2.55	21.25	170.00	6301020
2.5" Bezel with Clear Lens	PRD250LP-ND	3.00	25.00	200.00	6302010
2.5" Bezel with Clear Lens with 2.4" x .630 Window	PRD250LPW-ND	3.00	25.00	200.00	6302020
2.5" Bezel with Clear Lens with 2.575" x .543 Window	PRD250LPW1-ND	3.00	25.00	200.00	6302030
3.6" Bezel with Clear Lens	PRD360LP-ND	3.42	28.50	228.00	6303010
3.6" Bezel with Clear Lens with 3.268" x .732" Window	PRD360LPW-ND	3.42	28.50	228.00	6303020
3.6" Bezel with Clear Lens with 3.675" x .622" Window	PRD360LPW1-ND	3.42	28.50	228.00	6303030
Lo-Profile For LEDs •					
1.8" Bezel with Smoke Lens	PRD180LPS-ND	2.55	21.25	170.00	6301040
1.8" Bezel with Red Lens	PRD180LPR-ND	2.55	21.25	170.00	6301050
1.8" Bezel with Green Lens	PRD180LPG-ND	2.55	21.25	170.00	6301060
2.5" Bezel with Smoke Lens	PRD250LPS-ND	3.00	25.00	200.00	6302040
2.5" Bezel with Red Lens	PRD250LPR-ND	3.00	25.00	200.00	6302050
2.5" Bezel with Green Lens	PRD250LPG-ND	3.00	25.00	200.00	6302060
3.6" Bezel with Smoke Lens	PRD360LPS-ND	3.42	28.50	228.00	6303040
3.6" Bezel with Red Lens	PRD360LPR-ND	3.42	28.50	228.00	6303050
3.6" Bezel with Green Lens	PRD360LPG-ND	3.42	28.50	228.00	6303060
Accessories					
Adhesive Strips 2/Pad	PRDAS-ND	.25	2.40	22.33	6000010

* Requires Adhesive Strips (recommend 2 pads for the 3.6" Bezel).

NEW! **Lucas** NPC-410 & 1210 Solid State Pressure Sensors

FEATURES:

NPC-410: Intended for printed circuit board mounting. Optional pressure port and lead configurations give superior flexibility in low profile applications where pressure connection orientation is critical.

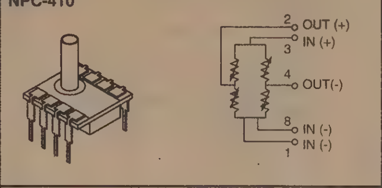
The NPC-410 series is based on Lucas NovaSensor®'s advanced SenStable® piezoresistive sensing technology. The latest techniques in silicon micromachining have been used to ion implant piezoresistive strain gages into a Wheatstone bridge configuration, which is integrally formed on a micromachined diaphragm. Constant current or constant voltage can be used for sensor excitation. Offset and sensitivity temperature compensation and calibration can be achieved by adding external resistors. Additionally, this series is available in pressure ranges from 0 to 5 through 0 to 100 psi.

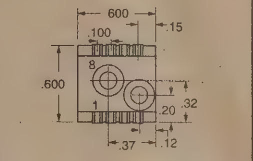
NPC-1210: Offers the added advantage of superior temperature performance over the temperature compensated range of 0°C to +60°C. A gain set resistor is included to normalize the FSO for field interchangeability. Additionally, the NPC-1210 series is available in pressure ranges from 0 to 5 through 0 to 100 psi.

ENVIRONMENTAL:
- Operating Temperature: -40° to +125°C (-40 to 257°F)
- Storage Temperature: -55° to 150°C (-67 TO 302°F)

MECHANICAL:
- Weight: 2.5 grams
- Media Compatibility: Positive differential and gage ports - compatible with wetted materials. **NPC-410:** Wetted materials are pyrex, ceramic, silicon,RTV and nickel. **NPC-1210:** Wetted materials are pyrex, ceramic, silicon, epoxy, RTV, and nickel. Absolute, negative differential ports - dry gases only.

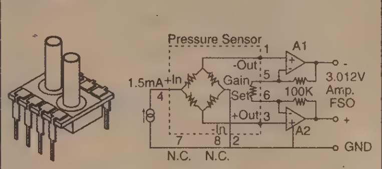
NPC-410

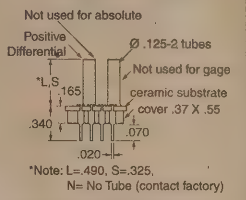




Dimensions in inches

NPC-1210





*Note: L=.490, S=.325,
N= No Tube (contact factory)

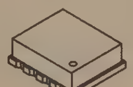
Performance (Note 1) Parameter	NPC-410 Series Units	Min.	Typ.	Max.	Notes	NPC-1210 Series Units	Min.	Typ.	Max.	Notes
Full Scale Output (FSO)	mV	105	125	155	1	mV	75	100	150	7,8
Zero Pressure Output	mV	-50	0	50	2,6	±mV	—	—	2	8
Linearity	±%FSO	—	—	0.1	3	±%FSO	—	—	0.1	3,6
Pressure Hysteresis	±%FSO	—	—	0.1	—	±%FSO	—	—	0.1	—
Input Impedance	Ω	4000	5000	6000	—	Ω	2500	4000	6000	—
Output Impedance	Ω	4000	5000	6000	—	Ω	4000	5000	6000	—
Thermal Accuracy-Span	±%FSO	—	1.5	—	2,4	±%FSO	—	—	0.5	4,6,8
Thermal Accuracy-Zero	±%FSO	—	0.5	—	2,4	±%FSO	—	—	0.5	4,6,8
Temp. Coefficient-Resistance	%/°C	—	0.30	—	4	%/°C	—	0.22	—	4
Thermal Hysteresisi-Zero	±%FSO	—	0.1	—	4	±%FSO	—	0.1	—	4
Input Excitation	mA	—	1.5	2.0	—	mA	—	1.5	2.0	—
Long Term Stability	±%FSO/yr.	—	0.1	—	—	±%FSO/yr.	—	0.1	—	—
Pressure Overload	Rated	—	—	3X	5	Rated	—	—	3X	5

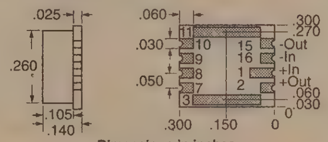
Notes:
1. Supply current = 1.5mA and ambient temperature = 25°C, unless otherwise noted.
2. External resistors can be added to reduce temperature errors and calibrate the offset and FSO.
3. Best fit straight line.
4. Temperature range 0-60°C, reference to 25°C.
5. 3X or 200 psi maximum, whichever is less.
6. 5 PSI offset voltage = ±75 mV(NPC-410).
   Call technical support for 5 PSI spec (NPC-1210).
7. Output span of unamplified sensor.
8. Compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 7 and 8 must be kept open. The NPC-1210 is interchangeable only when used with the gain set resistor shown in the Schematic Diagram.

Description	Digi-Key Part No.	Price Each 1	25	50	100	Lucas Part No.
		NPC-410 Series				
15psi Absl	10997-ND	17.00	13.60	12.33	11.05	NPC-410-015-A-3L
30psi Absl	10998-ND	17.00	13.60	12.33	11.05	NPC-410-030-A-3L
50psi Absl	10999-ND	17.00	13.60	12.33	11.05	NPC-410-050-A-3L
100psi Absl	11000-ND	17.00	13.60	12.33	11.05	NPC-410-100-A-3L
5psi Diff	11001-ND	17.00	13.60	12.33	11.05	NPC-410-005-D-3L
15psi Diff	11002-ND	17.00	13.60	12.33	11.05	NPC-410-015-D-3L
30psi Diff.	11003-ND	17.00	13.60	12.33	11.05	NPC-410-030-D-3L
50psi Diff.	11004-ND	17.00	13.60	12.33	11.05	NPC-410-050-D-3L
100psi Diff.	11005-ND	17.00	13.60	12.33	11.05	NPC-410-100-D-3L
5 psi Gage	11006-ND	17.00	13.60	12.33	11.05	NPC-410-005-G-3L
15psi Gage	11007-ND	17.00	13.60	12.33	11.05	NPC-410-015-G-3L
30psi Gage	11008-ND	17.00	13.60	12.33	11.05	NPC-410-030-G-3L
50psi Gage	11009-ND	17.00	13.60	12.33	11.05	NPC-410-050-G-3L
100psi Gage	11010-ND	17.00	13.60	12.33	11.05	NPC-410-100-G-3L

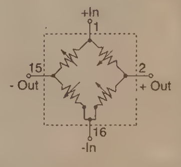
Description	Digi-Key Part No.	Price Each 1	25	50	100	Lucas Part No.
		NPC-1210 Series				
15psi Tmp Absl	11011-ND	24.75	19.80	17.60	15.95	NPC-1210-015-A-3L
30psi Tmp Absl	11012-ND	24.75	19.80	17.60	15.95	NPC-1210-030-A-3L
50psi Tmp Absl	11013-ND	24.75	19.80	17.60	15.95	NPC-1210-050-A-3L
100psi Tmp Absl	11014-ND	24.75	19.80	17.60	15.95	NPC-1210-100-A-3L
5psi Tmp Diff	11015-ND	24.75	19.80	17.60	15.95	NPC-1210-005-D-3L
15psi Tmp Diff	11016-ND	24.75	19.80	17.60	15.95	NPC-1210-015-D-3L
30psi Tmp Diff	11017-ND	24.75	19.80	17.60	15.95	NPC-1210-030-D-3L
50psi Tmp Diff	11018-ND	24.75	19.80	17.60	15.95	NPC-1210-050-D-3L
100psi Tmp Diff	11019-ND	24.75	19.80	17.60	15.95	NPC-1210-100-D-3L
5psi Tmp Gage	11020-ND	24.75	19.80	17.60	15.95	NPC-1210-005-G-3L
15psi Tmp Gage	11021-ND	24.75	19.80	17.60	15.95	NPC-1210-015-G-3L
30psi Tmp Gage	11022-ND	24.75	19.80	17.60	15.95	NPC-1210-030-G-3L
50psi Tmp Gage	11023-ND	24.75	19.80	17.60	15.95	NPC-1210-050-G-3L
100psi Tmp Gage	11024-ND	24.75	19.80	17.60	15.95	NPC-1210-100-G-3L

NPC-103 Pressure Sensors in Ceramic Surface Mount Pkg's





Dimensions in inches



FEATURES:

NPC-103: Batch assembled and statistically tested using in-house automated equipment to provide the OEM user with true cost savings. When excited with 3 VDC, the NPC-103 produces a miliVolt output that is proportional to input pressure. A small hole is located in the cap to allow pressure to the sensing element. At the core of the NPC-103 is a SenStable®, Silicon Fusion Bonded (SFB) chip; the smallest silicon pressure chip of its kind. The user may provide standard signal conditioning circuitry to amplify the output signal or to maximize OEM value added.

ENVIRONMENTAL:
- Operating Temperature : -40° to +125°C (-40 to 257°F)
- Storage Temperature: -55° to 150°C (-67 TO 302°F)

MECHANICAL:
- Weight: 0.25 grams
- Media Compatibility: Clean, dry air and noncorrosive gases.

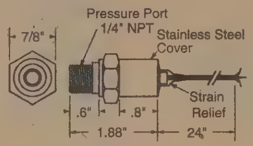
Description	Digi-Key Part No.	Price Each 1	25	50	100	Lucas Part No.
		NPC-103 Series				
15psi Absl SMD	11025-ND	13.00	11.40	10.40	9.80	NPC-103-100A
30psi Absl SMD	11026-ND	13.00	11.40	10.40	9.80	NPC-103-200A
100psi Absl SMD	11027-ND	13.00	11.40	10.40	9.80	NPC-103-700A

Performance Parameter	Value (5)	Units	Notes
Pressure Ranges	100 200 700	kPaA kPaA kPaA	~15 PSIA ~30 PSIA ~100 PSIA
Maximum Overpressure	3X	—	rated pressure
Electrical @ 22°C unless stated			
Excitation	3.0	VDC	12VDC MAX.
Input & Output Impedance	5000±20%	Ω	
Zero Offset	±8	mV/V	6
Full Scale Output	60±15	mV	—
Linearity	±0.20	%FSO	1
Hysteresis	±0.1	%FSO	—
Temperature Coefficient of Zero	±0.04	±%FSO/°C	2
Temp. Coefficient of Reisistance	+0.30	%/°C	2
Temp. Coefficient-Sensitivity	-0.20	±%FSO/°C	2
Thermal Hysteresisi-Zero	±0.1	%FSO	3
Long Term Stability of FSO	±0.2	%FSO	4

Notes:
1. Best fit straight line.
2. Between 0° and 70°C temperature coefficients are typical values.
3. Between 0° and 70°C.
4. Typical value over 1 year.
5. All values are MIN/MAX and are measured at 3VDC and 22°C unless otherwise noted.
6. ±10 mV/V for 100kPa sensor.

MSI

Stainless Steel Isolated Pressure Transducers



The MSP-300 pressure transducer is designed for high-volume, low-cost commercial,industrial and off road applications which require accurate measurement of gases or liquids. Operating ranges up to 10,000 psi is available with your choice of output signal in volts, millivolts, or milliamps. The MSP-300 uses a micro machined silicon strain gauge inorganically bonded to a machined stainless steel diaphragm; no welds, no 0-rings, no silicone oil. All wetted surfaces are stainless steel and all signal conditioning electronics are housed in a stainless steel cover which provides protection from hostile environments. The housing is permanently sealed, leak-proof and requires no maintenance. Each transducer is thoroughly tested and calibrated before shipment.

Features: Rugged, Reliable, Low Cost, One Piece Stainless Steel • Ranges up to 10,000 psi • Amplified Output, Current or Voltage • Better than 1% Accuracy.

Applications: Pumps and Compressors • Hydraulic / Pneumatic Systems • Energy and Water Management • Pressure Instrumentation • Process Control, Off Road Refrigeration, HVAC.

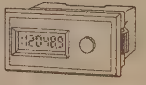
Specifications: • Overpressure: 2 times rated pressure • Burst Pressure: 5 times rated pressure or 20,000 psi, whichever is less • Accuracy: ±1% of full-scale output at room temperature (includes nonlinearity, hysteresis and repeatability) • Weight: 3 ounces nominal (85 grams).

Environmental Specifications: • Operating Temperature Range: -25° to +85°C • Compensated Temp. Range: 0° to 55°C • Thermal Zero Shift/Thermal Sensitivity: < .065% per °C • Durability: 10^6 cycles at room temp. • Fluid compatibility: Any gas or liquid compatible with 17-4 stainless steel. Vibration 10G, 40Hz to 2500Hz, Shock Value 100g, 11msec,1/2 sine.

Operating Pressure Range	Supply	Digi-Key Part No.	Pricing 1	Pricing 10	MSI Part No.
0-100 mV Output - 4 Wire Unamplified					
100#	5VDC	MSP3101P1-ND	82.25	672.00	MSP-300-100-P-1-N
250#	5VDC	MSP3251P1-ND	82.25	672.00	MSP-300-250-P-1-N
500#	5VDC	MSP3501P1-ND	82.25	672.00	MSP-300-500-P-1-N
1000#	5VDC	MSP3102P1-ND	82.25	672.00	MSP-300-1000-P-1-N
2500#	5VDC	MSP3252P1-ND	82.25	672.00	MSP-300-2500-P-1-N
5000#	5VDC	MSP3502P1-ND	82.25	672.00	MSP-300-5000-P-1-N
10000#	5VDC	MSP3103P1-ND	82.25	672.00	MSP-300-10000-P-1-N
1-3 V Output — Ratiometric output voltage to input voltage 3 Wire supply current 10mA max.					
100#	5VDC	MSP3101P2-ND	90.20	729.80	MSP-300-100-P-2-N
250#	5VDC	MSP3251P2-ND	90.20	729.80	MSP-300-250-P-2-N
500#	5VDC	MSP3501P2-ND	90.20	729.80	MSP-300-500-P-2-N
1000#	5VDC	MSP3102P2-ND	90.20	729.80	MSP-300-1000-P-2-N
2500#	5VDC	MSP3252P2-ND	90.20	729.80	MSP-300-2500-P-2-N
5000#	5VDC	MSP3502P2-ND	90.20	729.80	MSP-300-5000-P-2-N
10000#	5VDC	MSP3103P2-ND	90.20	729.80	MSP-300-10000-P-2-N
1-5 V Output — Fixed - 3 Wire supply current 10mA max.					
100#	10-32 VDC	MSP3101P3-ND	96.60	786.60	MSP-300-100-P-3-N
250#	10-32 VDC	MSP3251P3-ND	96.60	786.60	MSP-300-250-P-3-N
500#	10-32 VDC	MSP3501P3-ND	96.60	786.60	MSP-300-500-P-3-N
1000#	10-32 VDC	MSP3102P3-ND	96.60	786.60	MSP-300-1000-P-3-N
2500#	10-32 VDC	MSP3252P3-ND	96.60	786.60	MSP-300-2500-P-3-N
5000#	10-32 VDC	MSP3502P3-ND	96.60	786.60	MSP-300-5000-P-3-N
10000#	10-32 VDC	MSP3103P3-ND	96.60	786.60	MSP-300-10000-P-3-N
4-20 mA Output - 2 Wire unregulated supply					
100#	10-32 VDC	MSP3101P4-ND	104.50	852.50	MSP-300-100-P-4-N
250#	10-32 VDC	MSP3251P4-ND	104.50	852.50	MSP-300-250-P-4-N
500#	10-32 VDC	MSP3501P4-ND	104.50	852.50	MSP-300-500-P-4-N
1000#	10-32 VDC	MSP3102P4-ND	104.50	852.50	MSP-300-1000-P-4-N
2500#	10-32 VDC	MSP3252P4-ND	104.50	852.50	MSP-300-2500-P-4-N
5000#	10-32 VDC	MSP3502P4-ND	104.50	852.50	MSP-300-5000-P-4-N
10000#	10-32 VDC	MSP3103P4-ND	104.50	852.50	MSP-300-10000-P-4-N
NEW! 0-100 mv with Temperature Output - 5 Wire NEW!					
100#	5VDC	MSP1101P1-ND ***NEW!***	117.50	960.00	MSP-310-100-P-1-N
250#	5VDC	MSP1251P1-ND ***NEW!***	117.50	960.00	MSP-310-250-P-1-N
500#	5VDC	MSP1501P1-ND ***NEW!***	117.50	960.00	MSP-310-500-P-1-N
1000#	5VDC	MSP1102P1-ND ***NEW!***	117.50	960.00	MSP-310-1000-P-1-N
2500#	5VDC	MSP1252P1-ND ***NEW!***	117.50	960.00	MSP-310-2500-P-1-N
5000#	5VDC	MSP1502P1-ND ***NEW!***	117.50	960.00	MSP-310-5000-P-1-N
10000#	5VDC	MSP1103P1-ND ***NEW!***	117.50	960.00	MSP-310-10000-P-1-N

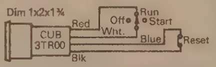
RED LION CONTROL

CUB III



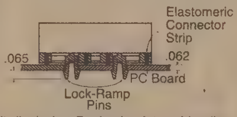
• Operates from switch contact or NPN open collector inputs • Self powered, 2-wire connection, eliminates power wiring. **Description:** Nylon case snap-fits into a standard rectangular opening without screws or other hardware. Hook-up is simply a matter of connecting two wires. No external power, internal batteries provide year of uninterruptible service. **Specifications:** 6-digit, LCDm 0.2" (5.1mm) high. Power: 2 replaceable Alkaline "N" cells. Nominal battery life 4 years. Front panel reset button. Count Input: Switch contact of solid-state transistor switch. Counter increments on negative going edge of input. Count Speed: 100 counts/sec. Batteries not supplied with counter, order separately.

CUB 3TR



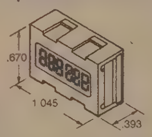
• 5 1/2-digit timer accumulates time in hours or 1/10 hours. • Wide temperature range (-30°C to +75°C). **Description:** Designed to be used as an hour meter (or tenth hour meter) for continuous time-measurement. **Specifications:** Non-replaceable Lithium battery. Nominal battery life is 10 years. A contact closure between the black and blue wire, reset will occur. A closed switch will actuate the timer. Voltage applied to the inputs will actuate the timer. Accuracy: .025%.

SUPER SUB CUB



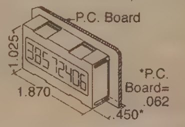
• True quadrature — with resolutions up to 4 times the encoded input • Bi-directional counting with up/down control • Anti-coincidence addition and subtraction • Polarity indication • 8-digit counting capability (6-digit display) • Decimal point and leading zero blanking selection • Solderless, elastomeric interconnects (snap mounts directly on P.C. board) • Ultra low power, 25µA at 5V (typical). **Description:** The Super Sub Cub provides all the capabilities and features of the Sub Cub 2 plus four "built-in" modes of operation: Bi-direction counting with up/down control, quadrature counting, coincidence summing and anti-coincidence add/subtract counting. *For dimensions, see Sub Cub 2.*

SUB CUB I — Complete 6-Digit Component Counters



• LSI counter chip with LCD display • Snap mounts directly on P.C. board • 0.2" high display • Solderless, elastomeric interconnects • Ultra-low power, 5V at 15µA typical • Latchable display with leading zero blanking • Count rates to 500 KHZ • Ideal in applications for: Register, status and usage counting, frequency, EPUT, and RPM indication timer, pulse-width and period readout. **Description:** The modules contain a custom monolithic counter/driver chip that performs all the counting functions together with a 6-digit LCD readout. To be used as frequency or rate meters, timers, phase-angle or pulse width indicators and for other complex readout requirements in addition to simple high speed counting.

SUB CUB II — Complete 6-Digit Component Counters



• LSI counter chip with LCD display • Snap mounts directly on P.C. board • 0.35" high display • Solderless, elastomeric interconnects • Ultra-low power, 5V at 15µA typical • Latchable display with leading zero blanking • Count rates to 500 KHZ • Ideal in applications for: Register, status and usage counting, frequency, INPUT, and RPM indication timer, pulse-width and period readout. **Description:** The modules contain a custom monolithic counter/driver chip that performs all the counting functions together with a 6-digit LCD readout. To be used as frequency or rate meters, timers, phase-angle or pulse width indicators and for other complex readout requirements in addition to simple high speed counting.

SUB CUB 2-8A

• LSI counter chip and 0.30" (7.62mm) high LCD display • Solderless, elastomeric interconnects (snap mounts directly onto PC board) • Latchable display with selectable leading zero blanking • Count rates to 750Khz • Low power, 30µA at 5V (typical) **Description:** 8-digit LCD component up-counter • Test feature allows all decades to count in parallel to provide rapid testing. *For dimensions, see Sub Cub 2.*

SUB CUB D

• True quadrature with resolutions up to 4 times the encoded input • Bi-directional counting with up/down control • Polarity indication • 3 position decimal point with selectable leading zero blanking • Solderless, elastomeric interconnects (snap mounts directly onto P.C. board) • Ultra low power, 15UA at 5.0V (typical). **Description:** The Sub Cub D provides all of the capabilities of the Sub Cub 2 with two additional modes of operation: Bi-directional counting with up/down control and quadrature counting. *For dimensions, see Sub Cub 2.*

SUB CUB T

• LSI timer/counter chip with crystal controlled oscillator and .35" high LCD display • Snap mounts directly onto P.C. board. • Solderless, elastomeric interconnect • Ultra low power, 15UA at 5.0 VDC typical • Times in hours, 0.1 hours, 0.01 hours, and 0.1 minutes • Counts in X1, :10, :100, and :1000 • Debounce selectable in counter modes • Counts rates up to 500 KHZ • Annunciator to indicate timer running • Accepts AC voltage on signal input directly through input resistor. **Description:** Completely self-contained timer/counter/display module. Ideal for internal "on board" applications where a readout of elapsed time or count is needed. *For dimensions, see Sub Cub 2.*

SUB CUB R

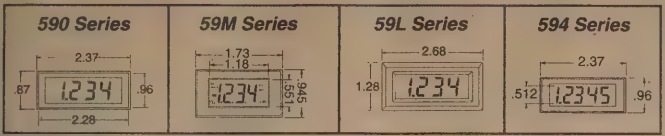
• LSI counter chip with time base chip and .35" high LCD display • Snap mounts directly onto P.C. board • Solderless, elastomeric interconnects • Ultra low power, 25UA at 3V • Selectable time base from 3.9 msec to 15.9 sec • Frequency doubling capability • Selectable decimal point positions • Master reset to synchronize time base with external functions. **Description:** Completely self-contained tachometer/display module. Contains a custom monolithic counter/driver chip, a custom time base chip, and a 6-digit liquid crystal display. Ideal for internal "on board" applications where readout of rate or frequency is needed. *For dimensions, see Sub Cub 2.*

Description	Digi-Key Part No.	Price 1	Red Lion Part No.
CUB III and CUB 3TR			
CUB III (Requires 2 N-Cell Batteries)	RLC03-ND	30.00	CUB III
CUB III w/Lithium Battery (Battery life 10 yrs. depending on usage)	RLC04-ND	35.00	CUB3L000/A
N-Cell Battery	P147-ND	1.41	AM5X
CUB 3TR Timer, Resettable Contact, 1 hr	RLC3TR-00-ND	39.68	CUB3-TR-00/A
CUB 3TR Timer, Resettable Contact, .1 hr	RLC3TR-01-ND	39.68	CUB3-TR-01/A
CUB 3TR Timer, Resettable 10-130V, 1 hr	RLC3TR-10-ND	39.68	CUB3-TR-10/A
CUB 3TR Timer, Resettable 10-130V, .1 hr	RLC3TR-11-ND	39.68	CUB3-TR-11/A
CUB 3TR Timer, Resettable 60-260V, 1 hr	RLC3TR-20-ND	39.68	CUB3-TR-20/A
CUB 3TR Timer, Resettable 60-260V, .1 hr	RLC3TR-21-ND	39.68	CUB3-TR-21/A
SUPER SUB CUB			
Super Sub-Cub Display/Counter Module	RLC200A-ND	35.00	SSCUB200
Super Sub-Cub Prototype P.C. Board	RLC08-ND	12.00	DM-0SC-B03/A
SUB CUB I AND II			
Evaluation Kit (batteries included, RLC02-ND & display counter needed)	RLC01-ND	52.00	DM-OSC-B01/A
Mounting PCB for Display Counter to Evaluation Kit	RLC02-ND	8.00	DM-OSC-B02/A
Display Counter .2" High Digits	RLC1000-ND	22.00	SCUB-1000
Display Counter .35" High Digits	RLC2000-ND	28.00	SCUB-2000

Description	Digi-Key Part No.	Price 1	Red Lion Part No.
SUB CUB 2-8A			
8 Digit LCD component up-counter	RLC2-8A-ND	39.00	SCUB28A0
SUB CUB D			
8 Digit Bi-directional Module w/6 Digit LCD Display	RLC05-ND	29.00	SCUBD-200/A
Sub Cub D Prototype P.C. Board	RLC09-ND	12.00	DM-0SC-B04/A
SUB CUB T			
Time/Counter 5 Digit	RLC07-ND	27.00	SCUBT-200/A
SUB CUB R			
6 Digit Rate Indicator Module	RLC06-ND	35.00	SCUBR-200/A
Bezels			
Bezel Kit w/P.C. Board & Cable (For RLC05-ND, RLC06-ND, RLC07-ND)	RLC10-ND	24.00	HWK-60-000/A
Panel Bezel Kit w/P.C. Board & Cable (For RLC2-8-ND)	RLC28-ND	22.00	HWK-28-000/A
Panel Bezel Kit w/o P.C. Board & Cable (For RLC05-ND, RLC07-ND, RLC2-8-ND, RLC200A-ND, RLC2000-ND)	RLC30-ND	8.00	HWK-30-000/A
Panel Bezel Kit w/P.C. Board & Cable (For RLC2000-ND)	RLC40-ND	17.00	HWK-40-000/A
*Super Sub-Cub Panel Bezel Kit w/P.C. Board & Cable (For RLC200A-ND)	RLC50A-ND	24.00	HWK-50-000/A

* Does not include SUPER SUB-CUB Display/Counter Module. Order SUPER SUB-CUB Module separately.

Jewell Digital Panel Meter



GENERAL LCD SPECIFICATIONS:

• **Type:** 7-segment reflective, dual edge, liquid crystal display (LCD) • **Polarity:** Displays (-) automatically • **Over/Under Range:** Overrange displays "1" and underrange displays "-1" • **Configuration:** True differential input and reference • **Protection:** 250 VDC or 150 V RMS continuous. 300 VDC intermittent maximum • **Com Mode Voltage:** ±1V max. • **Com Mode Reject:** >86 decibels • **Zeroing:** Automatic • **Operating Temperature:** Standard 0 to 50°C • **Warranty:** One year limited warranty.

590 SERIES LCD SPECIFICATIONS:

• **Annunciators:** 9 VDC powered meters have "LO BAT" when power <7.2 VDC • **Decimal Point:** User selectable 3 position decimal point • **Full Scale Range:** Standard ± 200 mVDC, ±2 VDC • **Conversion Rate:** 2.5 per second • **Storage Temperature:** Standard -20 to 70°C • **Type:** Surface Mount • **Pins:** Standard 13 pins, 0.025" square on 0.100" centers • **Backlit Power Options:** +5 VDC, ±5%, red 165 mA typical (200 mA max), green 115 mA typical (160 mA max) • **Backlit Connections:** Standard 2 solder pads. **NOTE:** 9V meters require isolated power supply.

59M SERIES LCD SPECIFICATIONS:

• **Annunciators:** 12 different user selectable annunciators: BAT, °C, °F, ~m, u, MΩ, kΩ, V, A, HOLD2 • **Decimal Point:** User selectable 3 position decimal point • **Full Scale Range:** Standard ±200 mVDC, ±2 VDC • **Direct Current (DC):** 9V isolated (7.2-15V) at 150 uA, 5V @ 5 mA • **Conversion Rate:** 2.5 per second • **Storage Temp:** Standard -20 to 70°C • **Type:** Snap-in Bezel Mount • **Pins:** Standard 26 pins, 0.018" (0.457 mm) square.

59L SERIES LED SPECIFICATIONS:

• **Type:** 7-segment reflective light emitting diode (LED) • **Digits:** 0.56" (12.7mm) height • **Color:** Green or Red • **Polarity:** Displays (-) automatically • **Decimal Point:** User selectable 3 position decimal point • **Over/Under Range:** Overrange displays "1" and underrange displays "-1" • **Hold:** Standard feature • **Full Scale Range:** Standard ±200 mVDC, ±2 VDC, ±20 VDC • **Configuration:** Bipolar, fully differential • **Direct Current (DC):** +5V, +5% at 200 mA • **Conversion Rate:** 3.4 Second • **Zeroing:** Automatic • **Operating Temp:** 0 to 50°C typical • **Storage Temperture:** -20 to 70°C typical • **Relative Humidity:** 0 to 95% non-condensing • **Type:** Bezel mount • **Pins:** Standard 10 pins, 0.025" square • **Warranty:** One year limited

594 SERIES LCD SPECIFICATIONS:

• **Annunciators:** 9 VDC powered meters have "BT" when power < 7.2 VDC • **Decimal Point:** User selectable 4 position decimal point • **Hold:** Standard feature • **Full Scale Range:** ±200 mVDC and ±2 VDC • **Direct Current (DC):** 9V isolated (±7%) at 1 mA, +5V (±7%) at 3.5 mA • **Conversion Rate:** 2 Readings per second • **Stor. Temp:** Stand. -10 to 60°C • **Types:** Surf. mount • **Pins:** Stand. 10 pins, .025" square on .100" centers.

Supply	Input	Backlight	Digi-Key Part No.	Pricing 1	5	10	Jewell Part No.
590 Series 3.5 Digit LCD							
+9	200mV	—	JDPM101-ND	49.00	238.88	465.50	5900100090
+9	2V	—	JDPM102-ND	49.00	238.88	465.50	5900100190
+5	200mV	—	JDPM301-ND	49.00	238.88	465.50	5900100040
+5	2V	—	JDPM302-ND	49.00	238.88	465.50	5900100140
+9	200mV	+ Green	JDPM311-ND	68.26	332.77	648.47	5900102091
+9	2V	+ Green	JDPM312-ND	68.26	332.77	648.47	5900102191
+5	200mV	+ Green	JDPM331-ND	68.26	332.77	648.47	5900102041
+5	2V	+ Green	JDPM332-ND	68.26	332.77	648.47	5900102141
+9	200mV	- Green	JDPM411-ND	68.26	332.77	648.47	5900104091
+9	2V	- Green	JDPM412-ND	68.26	332.77	648.47	5900104191
+5	200mV	- Green	JDPM431-ND	68.26	332.77	648.47	5900104041
+5	2V	- Green	JDPM432-ND	68.26	332.77	648.47	5900104141
+9	200mV	- Red	JDPM511-ND	69.76	340.08	662.72	5900106091
+9	2V	- Red	JDPM512-ND	69.76	340.08	662.72	5900106191
+5	200mV	- Red	JDPM531-ND	69.76	340.08	662.72	5900106041
+5	2V	- Red	JDPM532-ND	69.76	340.08	662.72	5900106141
59M Series 3.5 Digit LCD							
+5	200mV Mini	—	JDPM201-ND	47.00	229.13	446.50	59M0660040
+5	2V Mini	—	JDPM202-ND	47.00	229.13	446.50	59M0660140
+9	200mV Mini	—	JDPM203-ND	47.00	229.13	446.50	59M0660090
+9	2V Mini	—	JDPM204-ND	47.00	229.13	446.50	59M0660190
59L Series 3.5 Digit LED							
+5	200mV	Green	JDPM601-ND	70.00	341.25	665.00	59LH558040
+5	2V	Green	JDPM602-ND	70.00	341.25	665.00	59LH558140
+5	20V	Green	JDPM603-ND	70.00	341.25	665.00	59LH558240
+5	200mV	Red	JDPM604-ND	70.00	341.25	665.00	59LH559040
+5	2V	Red	JDPM605-ND	70.00	341.25	665.00	59LH559140
+5	20V	Red	JDPM606-ND	70.00	341.25	665.00	59LH559240
594 Series 4.5 Digit LCD							
+5	200mV	—	JDPM702-ND	109.00	531.38	1035.50	594H150040
+5	2V	—	JDPM703-ND	109.00	531.38	1035.50	594H150140
+9	200mV	—	JDPM704-ND	109.00	531.38	1035.50	594H150090
+9	2V	—	JDPM705-ND	109.00	531.38	1035.50	594H150190
LPM Series							
Loop Power Module for 590 Series			JLPM590-ND	36.00	175.50	342.00	LPM-590-20
Loop Power Module for 59L Series			JLPM59L-ND	36.00	175.50	342.00	LPM-59L-55
Loop Power Module for 594 Series			JLPM594-ND	42.25	205.97	401.38	LPM-594-25

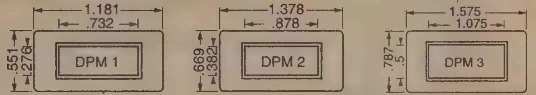
MARTEL
ELECTRONICS

Universal Volt/Ammeter

Martel uses advanced components and the latest miniaturization techniques to produce the world's smallest DPM module. Miniature size means the module can be integrated into the smallest of enclosures for local indication. Its low cost means it will suit high and low volume applications. The snap-in integral bezel makes mounting easy.

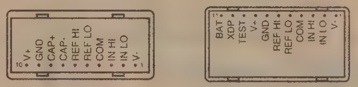
The "Normal" DPM features true differential input, auto-zero, auto-polarity, programmable decimal points, and a 200mV Full Scale Reading (F.S.R). The FSR is adjustable with the use of external resistors.

Very low power consumption allows long battery life making it very useful in handheld equipment. For single rail use, the "S-type" DPM features a built in negative rail generator enabling the meter to measure a signal referenced to its own power supply 0V.



Rear View DPM 1 & 2

Rear View DPM 3

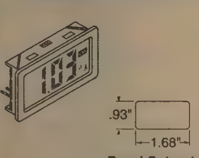


Specification		Min.	Typ.	Max.	Unit
Accuracy (overall error)			0.1		% (±1 count)
Linearity				±1	count
Sample Rate			3		per/sec
Temperature Range		0		50	°C
Temperature Stability	Normal		200		ppm/°C
	S-type		100		
Supply Voltage	Normal (V+ to V-)	7	9	14	V
	S-type (V+ to GND)	3	5	7	
Supply Current	Normal		150		µA
	S-type		250		
Maximum D.C. Input Voltage				±20	V
Input Leakage Current (Vin = 0V)			1	10	pA

Panel Cutout	Digi-Key Part No.	Pricing 1	5	10	Martel Part No.
1.11 x .44 in	10194-ND	39.10	185.73	351.90	DPM1
	10195-ND	49.52	235.22	445.68	DPM1S
1.29 x .59 in	10196-ND	39.10	185.73	351.90	DPM2
	10197-ND	49.52	235.22	445.68	DPM2S
1.49 x .70 in	10198-ND	39.10	185.73	351.90	DPM3
	10199-ND	49.52	235.22	445.68	DPM3S

RED LION CONTROLS

Miniature Display Module D.C. Voltmeter



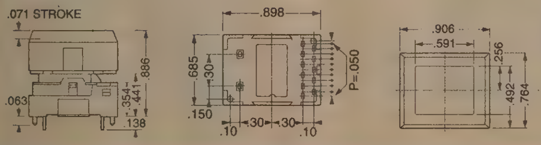
Panel Cut-out

Specifications: • **Display:** 3 1/2-digit, .4" (10.2mm) high digits. A minus(-) sign is displayed when voltage is negative. • **Decimal Points:** Selectable decimal points are activated at the rear terminal pins to allow the display to be read in tenths, hundredths or thousandths. • **Annunciators:** 5 selectable annunciators, BAT, V, A, µ and m are activated at the appropriate rear terminal. • **Power Requirements:** 4.8VDC to 6VDC @ 5mA Max. • **Input Range:** 0 to ±199.9m VDC • **Overrange Indication:** Overrange is indicated by a "1" displayed in the most significant digit and the blanking of the three least significant digits. • **Reading Rate:** 2 1/2 readings per second • **Common Mode Rejection Ratio:** 70dB • **Input Impedance:** 1000MΩ • **Operating Range:** 0° to 60°C

Description	Digi-Key Part No.	Pricing 1	Red Lion Part No.
Panel Mount, Reflective Display	RLC000-ND	33.76	MDMV0000
Panel Mount, Yel/Grn Backlight Display	RLC010-ND	49.76	MDMV0010
Panel Mount, Red Backlight Display	RLC020-ND	49.76	MDMV0020
PC Board Mount, Reflective Display	RLC100-ND	33.76	MDMV0100
PC Board Mount, Yel/Grn Backlight Display	RLC110-ND	49.76	MDMV0110
PC Board Mount, Red Backlight Display	RLC120-ND	49.76	MDMV0120
MDMV Cable Assembly	RLC70-ND	12.00	HWK70000

C.ITOH
ITOCHU Technology, Inc.

Graphic LCD Switches



FEATURES:

LCD: • Utilizes super-twist technology • 864 pixels in a 24x36 matrix providing full screen graphics • Provides 3 lines of up to 6 characters per line if used as a 5x7 alphanumeric area .592x.492.

LED BACKLIGHTING: • Suitable for any ambient lighting • Colors are green and red with amber option • Note: amber hue may vary slightly from switch to switch

SWITCH CHARACTERISTICS: Circuit: Single pole, single throw. Rating: 12VDC 10mA. Contact resistance: Max 200Ω @ 190g force. Bounce: Max. 10msec. Dialectic potential: 250VAC, one minute. Insulation resistance: 200V 50MΩ and above. Operating Stroke: 1.8 (+0.1, -0.3)mm. Operating force: 150±40 gr. Mechanical life: 1 million cycles.

Description	Digi-Key Part No.	Price 1	C. ITOH Part No.
Graphic display switch, w/ dark gray key cap, and red-green LED	D880H3CRG-ND	35.40	D880H3CRG
Graphic display switch, w/ ivory key cap, and red-green LED	D880H9CRG-ND	35.40	D880H9CRG
Socket for mounting GDS to PCBs	DS800-ND	4.50	DS800
Development modules	DM800-ND	168.00	DM800
Power supply for intelligent controller	DX802-ND	86.40	DX802

NEW! NVG Inc.

Adjustable Focus Laser Diode Modules

DANGER
VISIBLE LASER LIGHT
AVOID DIRECT EYE EXPOSURE

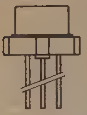
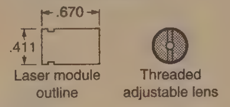
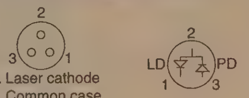


Fig. A - Adjustable Focus Laser Module



Po: 5mW
Class IIIa
Supply Voltage: 2.5 - 12Vdc

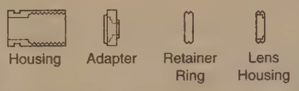
Fig. B - Visible Laser Diode



1. Laser cathode
2. Common case
3. PD anode

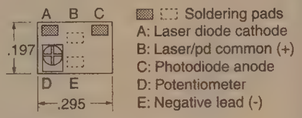
Po: 5mW
Class IIIa
Wide Spectrum Range, Standard Pinout

Fig. C - Laser Diode Housing Kit



Includes: Housing/Heatsink, 5.6mm to 9mm Adapter, Retaining Ring, Adjustable Focus Lens

Fig. D - SMD Laser Power Supply



Adjustable Output Power VIA On-Board Potentiometer

Fig.	Description	Wavelength (nm)	Iop (mA)	Size	Digi-Key Part No.	Price 1	NVG Part No.
A	Visible Laser Module	670	30-35	.67 x .411	11043-ND	69.00	N6705
A	Visible Laser Module	660	55-65	.67 x .411	11044-ND	108.00	N6605
A	Visible Laser Module	650	65-80	.67 x .411	11045-ND	120.00	N6505
A	Visible Laser Module	640	70-90	.67 x .411	11046-ND	175.00	N6405
A	Infrared Laser Module	808	60-70	.67 x .411	11047-ND	110.00	N8005
B	Visible Laser Diode	670	30-35	5.6mm	11048-ND	19.00	670-5
B	Visible Laser Diode	660	40-60	5.6mm	11049-ND	40.00	660-5
B	Visible Laser Diode	650	65-85	5.6mm	11050-ND	45.00	650-5
B	Visible Laser Diode	640	70-90	9mm	11051-ND	80.00	640-5
C	Housing/Heatsink Kit				11053-ND	20.00	KIT
D	SMD Laser Power Supply				11052-ND	30.00	GS102
—	5.6mm to 9mm Adapter				11054-ND	5.00	ADP

COHERENT® ALS

DANGER
VISIBLE LASER LIGHT
AVOID DIRECT EYE EXPOSURE

Visible Laser Diode Modules

Applied Laser Systems (ALS) has pioneered and patented the integration of the laser diode, optics, driver, and protective circuitry into one of the smallest and most durable laser module packages available.

FEATURES:

- Fully collimated lens • Standard Leads: 36" Length • Two year limited warranty • ESD Protection (over 2200 Volts) • Reverse Polarity Protection • Visual ON/OFF Indicator • Regulated Output Power • Diode Life of 100,000 hours.

SPECIFICATIONS:

- Operating Voltage: 3-6VDC • Operating Current: 55mA maximum • Operating Temperature: -10°C to +50°C • Storage Temperature: -40°C to +85°C • Laser Operation: Continuous Wave

Fig. A — Laser Module

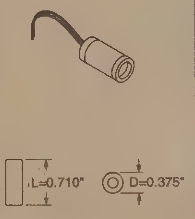
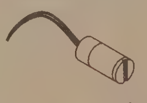


Fig. B — Line Generator



Full Beam Angle	85°
Line Length @ 2"	3.6"
Line Length @ 6"	11"
Line Length @ 12"	22"
Line Length @ 18"	33"
Line Length @ 24"	44"
Line Length @ 36"	66"

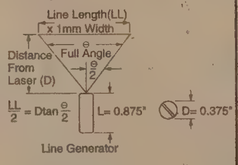
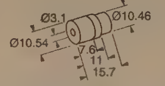


Fig. No.	Emission Wavelength	Output Power	Laser Class	Beam Size/Angle	Digi-Key Part No.	Pricing 1	ALS Part No.
Visible Laser Module							
A	670nm	4.2mW	IIIa	5.5mm x 1.1mm	10240-ND	75.00	0220-958-00
A	635nm	2.5mW	IIIa	5.5mm x 1.1mm	10241-ND	189.00	0220-836-00
Laser Line Generator							
B	670nm	2.5mW	II	85°	10242-ND	85.00	0221-153-00
B	635nm	1.4mW	II	85°	10243-ND	199.00	0220-838-00

Quarton Inc. Visible Laser Diode Modules

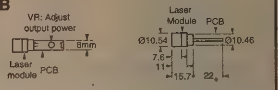
GENERAL FEATURES: • Driver circuit built in • Low power consumption • Excellent temperature stability • Excellent shock/vibration resistance • Small size • Low sensitivity electrostatic • Operating temperature range: -10 to +50°C • Spot size at 5M: 6 ± 2 mm • Wave length at peak emission: 665 - 680 nm. FDA Class IIIA laser product.

Fig. A



Specifications: • Cw optical power: 3 ± 1 mW • Operating current: 50 ± 15 mA • Operating voltage: 2.7 - 6.0 V

Fig. B



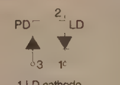
Specifications: • Cw optical power: < = 5 mW.• Operating current: 50 ± 15 mA • Normal operating voltage: 2.7 - 6.0 V.

Fig. No.	Description	Digi-Key Part No.	Pricing 1	10	100	Mfg. Part No.
A	Module Laser Diode Class IIIA	VLM-670-01L-ND	32.08	288.75	2695.00	VLM-670-01L
B	Module Adj. Laser Diode Class IIIA	VLM-670-02L-ND	34.92	314.25	2933.00	VLM-670-02L

Panasonic® Visible Red Laser Diodes

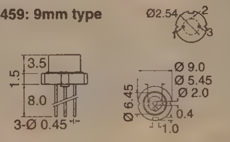
FEATURES: • Oscillating wavelength 670nm: Luminous efficiency 2000 times a conventional laser • Low threshold oscillation: 25mA • Stable single transverse oscillation • Low astigmatism characteristics: ≤ 10µm

SPECIFICATIONS: Maximum optical power output (5mW); Oscillating wavelength (670nm); Threshold current (25mA); Operating current (35mA); LD operating voltage (2.5V); Radiation horizontal angle (8°); Radiation perpendicular angle(30°)

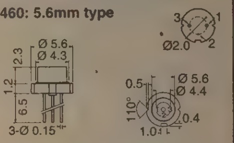


1 LD cathode
2 Com. term. (LD anode)
3 Mon. PD anode

P459: 9mm type



P460: 5.6mm type

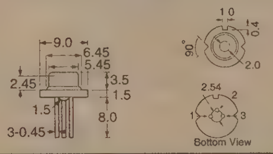


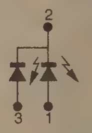
Digi-Key Part No.	Pricing 1	10	100	250	Panasonic Part No.
P459-ND	35.93	323.40	3018.40	7007.00	LN9R05M
P460-ND	35.93	323.40	3018.40	7007.00	LN9R05MS

Panasonic® Infrared Laser Diodes

FEATURES: • Continuous oscillation of optical output to Po maximum value. • Stable single transverse mode oscillation • Built-in PIN photo diode for optical output monitor.

SPECIFICATIONS: Optical output (mW): 5; Threshold current (mA): 40; Operation current (mA): 50; Oscillation Wave length (nm): 788 (infrared); Radiation Angle (Parallel): 10°; Radiation Angle (Vertical): 35°; Dark Current (µA): 0.1; Operation Voltage (V): 1.75.





P452

1. Laser Anode
2. Common Cathode
3. Pin Photodiode Anode

Digi-Key Part No.	Pricing 1	10	100	250	Panasonic Part No.
P452-ND	27.97	248.60	2237.40	4972.00	LN9705P

Quality Technologies Corp. LEDs

Fig. A

Fig. B

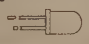


Fig. C

Fig. D

Fig. No.	Pkg.	Op. Volt.	Lens Source Color	Luminous Type (Diffused)	Viewing Angle	Intensity mcd	Digi-Key Part No.	Pricing 1	10	100
Integrated T-1 3/4 Resistor Lamps										
C	T-1 3/4	5V	Red	Red	60°	2.0	MR3050QT-ND	.45	4.23	38.70
C	T-1 3/4	12V	Red	Red	60°	2.0	MR3051QT-ND	.45	4.23	38.70
C	T-1 3/4	5V	Hi. Eff. Green	Green	60°	4.0	MR3450QT-ND	.45	4.23	38.70
C	T-1 3/4	12V	Hi. Eff. Green	Green	60°	4.0	MR3451QT-ND	.45	4.23	38.70
C	T-1 3/4	5V	Yellow	Yellow	60°	4.0	MR3350QT-ND	.45	4.23	38.70
C	T-1 3/4	12V	Yellow	Yellow	60°	4.0	MR3351QT-ND	.45	4.23	38.70
LED's — Regular and High Efficiency										
A	T-1	—	Yellow	Yellow	50°	2.0	HLMP-1719QT-ND	.30	2.82	25.80
A	T-1	—	Hi. Eff. Green	Green	50°	2.0	HLMP-1790QT-ND	.30	2.82	25.80
A	T-1	—	Hi. Eff. Red	Red	50°	2.0	HLMP-1700QT-ND	.30	2.82	25.80
B	T-1 3/4	—	Yellow	Yellow	50°	2.0	HLMP-4719QT-ND	.23	2.12	19.35
B	T-1 3/4	—	Hi. Eff. Green	Green	35°	3.0	MV2454QT-ND	.23	2.12	19.35
B	T-1 3/4	—	Hi. Eff. Red	Red	50°	2.0	HLMP-4700QT-ND	.23	2.12	19.35
B	T-1 3/4	—	Hi. Eff. Red	Red	65°	3.5	HLMP-3300QT-ND	.23	2.12	19.35
B	T-1 3/4	—	Hi. Eff. Red	Red	65°	7.0	HLMP-3301QT-ND	.38	3.53	32.25
C	T-1 3/4	—	Red/Red	Red	75°	6.0	MV5094AQT-ND (Bi-Color)	.63	5.88	53.75
C	T-1 3/4	—	Red/Green	White	100°	6.0	MV5491AQT-ND (Bi-Color)	.80	7.52	68.80
D	Rec.	—	Red/Green	White	100°	6.0	MV49124AQT-ND (Bi-Color)	.68	6.35	58.05

LUMEX OPTO/COMPONENTS INC.

Surface Mount LEDs

Fig. A

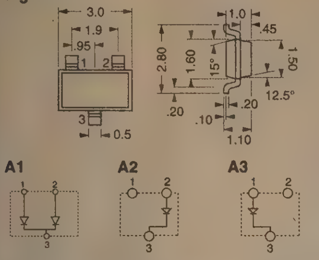

3.0
1.9
.95
1
2
3
0.5
2.80
1.60
15°
1.0
.45
1.50
12.5°
.20
.10
.20
1.10
A1
A2
A3

Fig. B

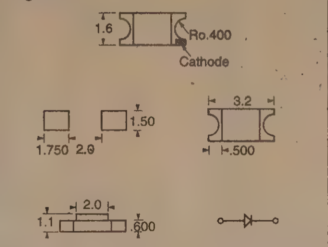

1.6
Ro.400
Cathode
3.2
1.50
1.750
2.0
.500
2.0
1.1
.600

Fig. C

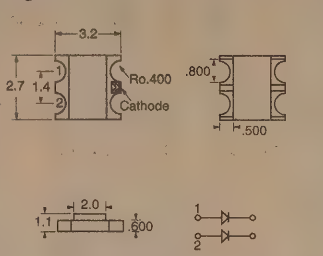

3.2
2.7
1.4
1
2
Ro.400
Cathode
.800
.500
2.0
1.1
.600
1
2

Fig. D

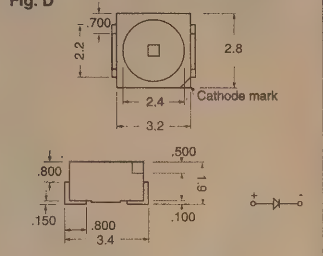

.700
2.2
2.8
2.4
Cathode mark
3.2
.500
.800
1.9
.150
.800
.100
3.4

Fig. E

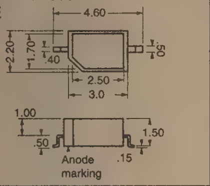

4.60
2.20
1.70
.40
.50
2.50
3.0
1.00
.50
1.50
Anode marking
.15

Fig. F

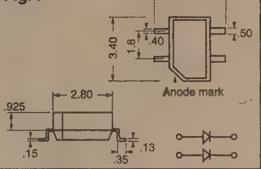

4.50
3.40
1.8
.40
.50
Anode mark
2.80
.925
.15
.35
.13

Fig. G

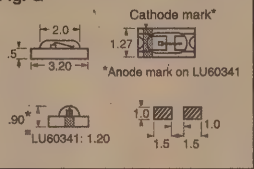

Cathode mark*
2.0
.5
3.20
1.27
*Anode mark on LU60341
.90*
*LU60341: 1.20
1.0
1.0
1.5
1.5

Fig. H

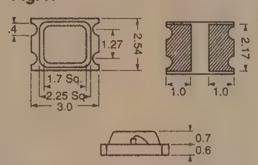

4
1.27
2.54
2.17
1.7 Sq
2.25 Sq
3.0
1.0
1.0
0.7
0.6

Fig. I

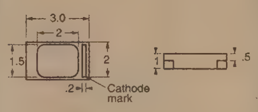

3.0
2
1.5
2
.2
Cathode mark
1
.5

Fig. J

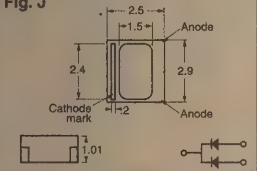

2.5
1.5
Anode
2.4
2.9
Cathode mark
.2
Anode
1.01

Fig. K

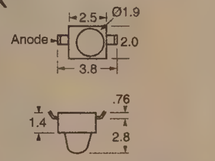

2.5
Ø1.9
Anode
2.0
3.8
.76
1.4
2.8

Fig. L

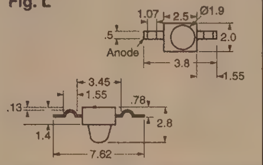

1.07
2.5
Ø1.9
.5
2.0
Anode
3.8
1.55
3.45
1.55
.78
.13
2.8
1.4
7.62

Fig. M

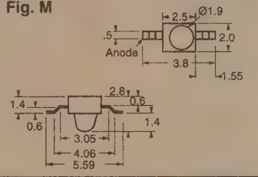

2.5
Ø1.9
.5
2.0
Anode
3.8
1.55
2.8
0.6
1.4
1.4
0.6
3.05
4.06
5.59

Fig. N

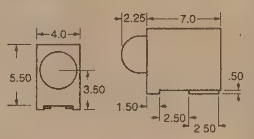
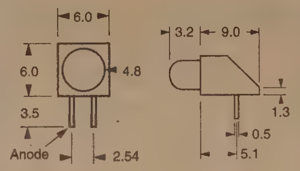

4.0
2.25
7.0
5.50
3.50
.50
1.50
2.50
2 50

Fig. No.	Emitted Color	Vf	Io mdc	View Angle	If mA	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel Pricing 1,000	Tape & Reel Pricing 2,000	Tape & Reel Pricing 3,000	Lumex Part No.
A1	Red/Red	2.1	8	140°	40	LU600011CT-ND	.96	8.40	72.00	LU600011TR-ND	—	—	398.00/M	SSL-LX15IIC-RP-TR
A1	Green/Green	2.1	8	140°	40	LU600055CT-ND	.96	8.40	72.00	LU600055TR-ND	—	—	398.00/M	SSL-LX15GGC-RP-TR
A1	Yellow/Yellow	2.1	8	140°	40	LU600077CT-ND	.96	8.40	72.00	LU600077TR-ND	—	—	398.00/M	SSL-LX15YYC-RP-TR
A1	Red/Green	2.1	4/4	140°	20/20	LU600015CT-ND	.88	7.70	66.00	LU600015TR-ND	—	—	365.00/M	SSL-LX15IGC-RP-TR
A2	Red	2.1	4	140°	20	LU60461CT-ND	.64	5.60	48.00	LU60461TR-ND	—	—	265.60/M	SSL-LX15IC-TR
A2	Green	2.1	3	140°	20	LU60465CT-ND	.64	5.60	48.00	LU60465TR-ND	—	—	265.60/M	SSL-LX15GC-TR
A2	Yellow	2.1	3	140°	20	LU60467CT-ND	.64	5.60	48.00	LU60467TR-ND	—	—	265.60/M	SSL-LX15YC-TR
A3	Red	2.1	4	140°	20	LU60451CT-ND	.64	5.60	48.00	LU60451TR-ND	—	—	265.60/M	SSL-LX15IC-RP-TR
A3	Green	2.1	3	140°	20	LU60455CT-ND	.64	5.60	48.00	LU60455TR-ND	—	—	265.60/M	SSL-LX15GC-RP-TR
A3	Yellow	2.1	3	140°	20	LU60457CT-ND	.64	5.60	48.00	LU60457TR-ND	—	—	265.60/M	SSL-LX15YC-RP-TR
B	Red	2.0	6	140°	20	LU60351CT-ND	.36	3.15	27.00	LU60351TR-ND	—	149.40/M	—	SML-LX1206IC-TR
B	Green	2.1	10	140°	20	LU60355CT-ND	.36	3.15	27.00	LU60355TR-ND	—	149.40/M	—	SML-LX1206GC-TR
B	Yellow	2.0	6	140°	20	LU60357CT-ND	.36	3.15	27.00	LU60357TR-ND	—	149.40/M	—	SML-LX1206YC-TR
B	Super Red	1.7	15	140°	20	LU60361CT-ND	.60	5.25	45.00	LU60361TR-ND	—	249.00/M	—	SML-LX1206SRC-TR
C	Red/Green	2.0	6/10	140°	20	LU603715CT-ND	.76	6.65	57.00	LU603715TR-ND	—	315.40/M	—	SML-LX1210IGC-TR
C	Green/Green	2.0	10	140°	20	LU603755CT-ND	.76	6.65	57.00	LU603755TR-ND	—	315.40/M	—	SML-LX1210GGC-TR
C	Yellow/Green	2.0	6/10	140°	20	LU603775CT-ND	.76	6.65	57.00	LU603775TR-ND	—	315.40/M	—	SML-LX1210YGC-TR
C	Super Red/Super Red	1.7	15	140	20	LU603711CT-ND	1.16	10.15	87.00	LU603711TR-ND	—	481.40/M	—	SML-LX1210SRSRC-TR
D	Red	2.0	12	120°	20	LU60381CT-ND	.64	5.60	48.00	LU60381TR-ND	265.60	—	—	SML-LX2832IC-TR
D	Green	2.1	25	120°	20	LU60385CT-ND	.64	5.60	48.00	LU60385TR-ND	265.60	—	—	SML-LX2832GC-TR
D	Yellow	2.0	12	120°	20	LU60397CT-ND	.64	5.60	48.00	LU60397TR-ND	265.60	—	—	SML-LX2832YC-TR
D	Super Red	1.7	40	120°	20	LU60391CT-ND	.80	7.00	60.00	LU60391TR-ND	332.00	—	—	SML-LX2832SRC-TR
E	Red	2.1	12	130°	20	LU60401CT-ND	.60	5.25	45.00	LU60401TR-ND	—	249.00/M	—	SSL-LXA1725IC-TR
E	Green	2.0	25	130°	20	LU60405CT-ND	.60	5.25	45.00	LU60405TR-ND	—	249.00/M	—	SSL-LXA1725GC-TR
E	Yellow	2.1	12	130°	20	LU60407CT-ND	.60	5.25	45.00	LU60407TR-ND	—	249.00/M	—	SSL-LXA1725YC-TR
E	Super Red	1.7	40	130°	20	LU60411CT-ND	.80	7.00	60.00	LU60411TR-ND	—	332.00/M	—	SSL-LXA1725SRC-TR
F	Red/Green	2.0	12/20	125°	20	LU604215CT-ND	1.08	9.45	81.00	LU604215TR-ND	448.20	—	—	SSL-LXA3025IGC-TR
F	Yellow/Green	2.1	20	90°	20	LU604275CT-ND	1.08	9.45	81.00	LU604275TR-ND	448.20	—	—	SSL-LXA3025YGC-TR
G	Red	2.1	7.2	180°	20	LU60331CT-ND	.84	7.35	63.00	LU60331TR-ND	—	—	336.00/M	CCL-LX45IT
G	Green	2.0	7	180°	20	LU60335CT-ND	.84	7.35	63.00	LU60335TR-ND	—	—	336.00/M	CCL-LX45GT
G	Yellow	2.3	7	180°	20	LU60337CT-ND	.84	7.35	63.00	LU60337TR-ND	—	—	336.00/M	CCL-LX45YT
G	Super Red	1.8	8	180°	20	LU60341CT-ND	1.28	11.20	96.00	LU60341TR-ND	—	—	512.00/M	CCL-LX45SRT
H	Red	2.1	4	180°	20	LU60281CT-ND	.70	6.13	52.50	LU60281TR-ND	—	—	290.50/M	CCL-CRS10R
H	Green	2.1	10	180°	20	LU60285CT-ND	.70	6.13	52.50	LU60285TR-ND	—	—	290.50/M	CCL-CRS10G
H	Yellow	2.1	5	180°	20	LU60287CT-ND	.70	6.13	52.50	LU60287TR-ND	—	—	290.50/M	CCL-CRS10Y
H	Super Red	1.7	14	180°	20	LU60291CT-ND	1.04	9.10	78.00	LU60291TR-ND	—	—	431.60/M	CCL-CRS10SR
I	Red	2.1	20	90°	20	LU60301CT-ND	.59	5.18	44.40	LU60301TR-ND	—	245.68/M	—	CCL-LX23IC
I	Green	2.1	20	90°	20	LU60305CT-ND	.59	5.18	44.40	LU60305TR-ND	—	245.68/M	—	CCL-LX23GC
I	Yellow	2.1	20	90°	20	LU60307CT-ND	.59	5.18	44.40	LU60307TR-ND	—	245.68/M	—	CCL-LX23YC
I	Super Red	1.7	80	90°	20	LU60311CT-ND	.77	6.72	57.60	LU60311TR-ND	—	318.72/M	—	CCL-LX23SRC
J	Red/Green	2.0	20	90°	20	LU603215CT-ND	.96	8.40	72.00	LU603215TR-ND	—	398.40/M	—	CCL-LX253IGC
J	Green/Green	2.0	20	90°	20	LU603255CT-ND	.96	8.40	72.00	LU603255TR-ND	—	398.40/M	—	CCL-LX253GGC
J	Yellow/Green	2.1	20	90°	20	LU603275CT-ND	.96	8.40	72.00	LU603275TR-ND	—	398.40/M	—	CCL-LX253YGC
J	Super Red/Super Red	1.7	40	90°	20	LU603211CT-ND	1.48	12.95	111.00	LU603211TR-ND	—	614.20/M	—	CCL-LX253SRSRC
K	Red	2.0	60	25°	20	LU60471CT-ND	.47	4.13	35.40	LU60471TR-ND	195.88	—	—	SSL-LXA228IC-TR11
K	Green	2.1	30	25°	20	LU60475CT-ND	.47	4.13	35.40	LU60475TR-ND	195.88	—	—	SSL-LXA228GC-TR11
K	Yellow	2.0	30	25°	20	LU60477CT-ND	.47	4.13	35.40	LU60477TR-ND	195.88	—	—	SSL-LXA228YC-TR11
K	Super Red	1.7	170	25°	20	LU60501CT-ND	.78	6.83	58.50	LU60501TR-ND	323.70	—	—	SSL-LXA228SRC-TR11
L	Red	2.0	60	25°	20	LU60481CT-ND	.47	4.13	35.40	LU60481TR-ND	195.88	—	—	SSL-LXA228IC-TR21
L	Green	2.1	30	25°	20	LU60485CT-ND	.47	4.13	35.40	LU60485TR-ND	195.88	—	—	SSL-LXA228GC-TR21
L	Yellow	2.0	30	25°	20	LU60487CT-ND	.47	4.13	35.40	LU60487TR-ND	195.88	—	—	SSL-LXA228YC-TR21
L	Super Red	1.7	170	25°	20	LU60511CT-ND	.78	6.83	58.50	LU60511TR-ND	323.70	—	—	SSL-LXA228SRC-TR21
M	Red	2.0	60	25°	20	LU60491CT-ND	.47	4.13	35.40	LU60491TR-ND	195.88	—	—	SSL-LXA228IC-TR31
M	Green	2.1	30	25°	20	LU60495CT-ND	.47	4.13	35.40	LU60495TR-ND	195.88	—	—	SSL-LXA228GC-TR31
M	Yellow	2.0	30	25°	20	LU60497CT-ND	.47	4.13	35.40	LU60497TR-ND	195.88	—	—	SSL-LXA228YC-TR31
M	Super Red	1.7	170	25°	20	LU60521CT-ND	.78	6.83	58.50	LU60521TR-ND	323.70	—	—	SSL-LXA228SRC-TR31
N	Red	2.0	40	60°	20	LU60431CT-ND	.76	6.65	57.00	LU60431TR-ND	315.40	—	—	SSF-LXH305ID-TR
N	Green	2.1	30	60°	20	LU60435CT-ND	.76	6.65	57.00	LU60435TR-ND	315.40	—	—	SSF-LXH305GD-TR
N	Yellow	2.1	30	60°	20	LU60437CT-ND	.76	6.65	57.00	LU60437TR-ND	315.40	—	—	SSF-LXH305YD-TR
N	Super Red	1.7	80	60°	20	LU60441CT-ND	1.00	8.75	75.00	LU60441TR-ND	415.00	—	—	SSF-LXH305SRD-TR

LUMEX OPTO/COMPONENTS INC. PC Mount LEDs

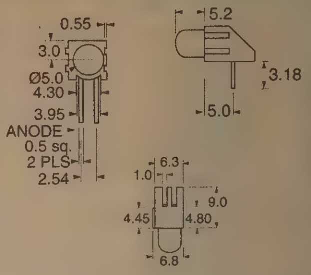
Fig. No.	LED Dia (mm)	Emitted Color	Oper Curr. MA	Oper Type Volt(v)	Digi-Key Part No.	Pricing 1	25	100	Lumex Part No.
1	5	Red	50	1.7	LU20361-ND	.48	10.00	32.00	SSF-LXH100RD
1	5	Red	10-25	2.1	LU20371-ND•	.84	17.50	56.00	SSF-LXH100ID-1
1	5	Green	10-25	2.1	LU20375-ND•	.84	17.50	56.00	SSF-LXH100GD-1
1	5	Yellow	10-25	2.1	LU20377-ND•	.84	17.50	56.00	SSF-LXH100YD-1
1	5	Red	1-5	1.8	LU20381-ND•	.84	17.50	56.00	SSF-LXH100LID-1
1	5	Green	1-5	1.8	LU20385-ND•	.84	17.50	56.00	SSF-LXH100LGD-1
1	5	Green	10-25	2.1	LU20055-ND	.45	9.38	30.00	SSF-LXH100GD
1	5	Red	10-25	2.1	LU20051-ND	.45	9.38	30.00	SSF-LXH100ID
1	5	Green	1-5	1.8	LU20065-ND	.57	11.88	38.00	SSF-LXH100LGD
1	5	Red	1-5	1.8	LU20061-ND	.57	11.88	38.00	SSFLXH100LID
1	5	Green	10	5.0	LU20075-ND	.72	15.00	48.00	SSF-LXH100GD-5V
1	5	Red	10	5.0	LU20071-ND	.72	15.00	48.00	SSF-LXH100ID-5V
1	5	Red/Green	10-25	2.1	LU200715-ND	.72	15.00	48.00	SSF-LXH100HGW
1	5	Yellow	10-25	2.1	LU20077-ND	.45	9.38	30.00	SSF-LXH100YD
1	5	Bright Red	10-25	1.7	LU2007B1-ND	.72	15.00	48.00	SSF-LXH100SRD
2	5	Green	10-25	2.1	LU20085-ND	.45	9.38	30.00	SSF-LXH100MGD
2	5	Red	10-25	2.1	LU20081-ND	.45	9.38	30.00	SSF-LXH100MID
2	5	Yellow	10-25	2.1	LU20087-ND	.45	9.38	30.00	SSF-LXH100MYD
2	5	Red/Green	10-25	2.1	LU200815-ND	.72	15.00	48.00	SSF-LXH100MHGW
2	5	Bright Red	10-25	1.7	LU2008B1-ND	.72	15.00	48.00	SSF-LXH100MSRD
2	5	Green	1-5	1.8	LU20095-ND	.57	11.88	38.00	SSF-LXH100MLGD
2	5	Red	1-5	1.8	LU20091-ND	.57	11.88	38.00	SSF-LXH100MLID
2	5	Green	10	5.0	LU20105-ND	.72	15.00	48.00	SSF-LXH100MGD-5V
2	5	Red	10	5.0	LU20101-ND	.72	15.00	48.00	SSF-LXH100MID-5V
3	3	Green	10-25	2.1	LU20115-ND	.39	8.13	26.00	SSF-LXH103GD
3	3	Red	10-25	2.1	LU20111-ND	.39	8.13	26.00	SSF-LXH103ID
3	3	Yellow	10-25	2.1	LU20117-ND	.39	8.13	26.00	SSF-LXH103YD
3	3	Bright Red	10-25	1.7	LU2011B1-ND	.54	11.25	36.00	SSF-LXH103SRD
3	3	Green	1-5	1.8	LU20125-ND	.54	11.25	36.00	SSF-LXH103LGD
3	3	Red	1-5	1.8	LU20121-ND	.54	11.25	36.00	SSF-LXH103LID
3	3	Green	10	5.0	LU20135-ND	.66	13.75	44.00	SSF-LXH103GD-5V
3	3	Red	10	5.0	LU20131-ND	.66	13.75	44.00	SSF-LXH103ID-5V
4	3	Green	10-25	2.1	LU20145-ND	.54	11.25	36.00	SSF-LXH1071GD
4	3	Red	10-25	2.1	LU20141-ND	.54	11.25	36.00	SSF-LXH1071ID
4	3	Yellow	10-25	2.1	LU20147-ND	.54	11.25	36.00	SSF-LXH1071YD
4	3	Bright Red	10-25	1.7	LU2014B1-ND	.72	15.00	48.00	SSF-LXH1071SRD
4	3	Red/Green	10-25	2.1	LU201415-ND	.81	16.88	54.00	SSF-LXH1071HGW
4	3	Green	1-5	1.8	LU20155-ND	.66	13.75	44.00	SSF-LXH1071LGD
4	3	Red	1-5	1.8	LU20151-ND	.66	13.75	44.00	SSF-LXH1071LID
5	5	Red	10-25	2.1	LU20161-ND	.90	18.75	60.00	SSF-LXH2100ID
5	5	Green	10-25	2.1	LU20165-ND	.90	18.75	60.00	SSF-LXH2100GD
5	5	Yellow	10-25	2.1	LU20167-ND	.90	18.75	60.00	SSF-LXH2100YD
5	5	Bright Red	10-25	1.7	LU2016B1-ND	1.08	22.50	72.00	SSF-LXH2100SRD
6	3	Green	10-25	2.1	LU20175-ND	.99	20.63	66.00	SSF-LXH2103GGD/4
6	3	Red	10-25	2.1	LU20171-ND	.99	20.63	66.00	SSF-LXH2103IID/4
6	3	Yellow	10-25	2.1	LU20177-ND	.99	20.63	66.00	SSF-LXH2103YYD/4
6	3	Bright Red	10-25	1.7	LU2017B1-ND	1.56	32.50	104.00	SSF-LXH2103SRSRD/4
6	3	Green	1-5	1.8	LU20185-ND	1.20	25.00	80.00	SSF-LXH2103LGLGD/4
6	3	Red	1-5	1.8	LU20181-ND	1.20	25.00	80.00	SSF-LXH2103LILID/4
6	3	Green	10	5.0	LU20195-ND	1.35	28.13	90:00	SSF-LXH2103GD-5V
6	3	Red	10	5.0	LU20191-ND	1.35	28.13	90.00	SSF-LXH2103ID-5V
7	5	Green	10-25	2.1	LU20425-ND*	2.22	46.25	148.00	SSF-LXH400GD-1
7	5	Green	10-25	2.1	LU20285-ND	1.26	26.25	84.00	SSF-LXH400GD
7	5	Red	10-25	2.1	LU20281-ND	1.26	26.25	84.00	SSF-LXH400ID
7	5	Yellow	10-25	2.1	LU20287-ND	1.26	26.25	84.00	SSF-LXH400YD
7	5	Bright Red	10-25	1.7	LU2028B1-ND	2.34	48.75	156.00	SSF-LXH400SRD
7	5	Green	10	5.0	LU20295-ND	2.34	48.75	156.00	SSF-LXH400GD-5V
7	5	Red	10	5.0	LU20291-ND	2.34	48.75	156.00	SSF-LXH400ID-5V
7	5	Red/Green	10-25	2.1	LU202915-ND	2.34	48.75	156.00	SSF-LXH400HGW
8	5	Green	10-25	2.1	LU20305-ND	.75	15.63	50.00	SSF-LXH4RA5GD
8	5	Red	10-25	2.1	LU20301-ND	.75	15.63	50.00	SSF-LXH4RA5ID
8	5	Yellow	10-25	2.1	LU20307-ND	.75	15.63	50.00	SSF-LXH4RA5YD
8	5	Bright Red	10-25	1.7	LU2030B1-ND	1.14	23.75	76.00	SSF-LXH4RA5SRD
8	5	Red/Green	10-25	2.1	LU203015-ND	1.14	23.75	76.00	SSF-LXH4RA5HGW
8	5	Green	1-5	1.8	LU20315-ND	.84	17.50	56.00	SSF-LXH4RA5LGD
8	5	Red	1-5	1.8	LU20311-ND	.84	17.50	56.00	SSF-LXH4RA5LID
8	5	Green	10	5.0	LU20325-ND	1.14	23.75	76.00	SSF-LXH4RA5GD-5V
8	5	Red	10	5.0	LU20321-ND	1.14	23.75	76.00	SSF-LXH4RA5ID-5V
8	5	Red	10-20	3-15	LU20331-ND	2.64	55.00	176.00	SSF-LXH4RA5BID
9	3	Green	10-25	2.1	LU20345-ND	.75	15.63	50.00	SSF-LXH4RAGD
9	3	Red	10-25	2.1	LU20341-ND	.75	15.63	50.00	SSF-LXH4RAID
9	3	Yellow	10-25	2.1	LU20347-ND	.75	15.63	50.00	SSF-LXH4RAYD
9	3	Bright Red	10-25	1.7	LU2034B1-ND	1.14	23.75	76.00	SSF-LXH4RASRD
9	3	Red/Green	10-25	2.1	LU203415-ND	1.14	23.75	76.00	SSF-LXH4RAHGW
9	3	Red	10-20	3-15	LU20351-ND	2.64	55.00	176.00	SSF-LXH4RABID
10	2 x 5	Green	10-25	2.1	LU20205-ND	1.14	23.75	76.00	SSF-LXH22573GGD
10	2 x 5	Red	10-25	2.1	LU20201-ND	1.14	23.75	76.00	SSF-LXH22573IID
10	2 x 5	Yellow	10-25	2.1	LU20211-ND	1.14	23.75	76.00	SSF-LXH22573YYD
10	2 x 5	Bright Red	10-25	1.7	LU2021B1-ND	1.56	32.50	104.00	SSF-LXH22573SRSRD
10	3	Green	1-5	1.8	LU20225-ND	1.44	30.00	96.00	SSF-LXH22573LGGD
10	3	Red	1-5	1.8	LU20221-ND	1.44	30.00	96.00	SSF-LXH22573LIID

1

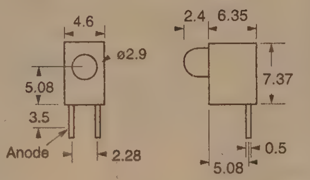


• Lens height for part numbers LU20371-ND, LU20375-ND, LU20377-ND, LU20381-ND, LU20385-ND = 4.75mm not 3.2mm

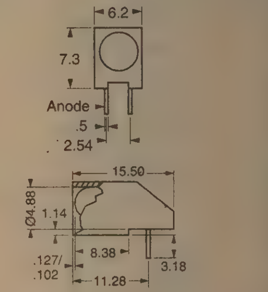
2



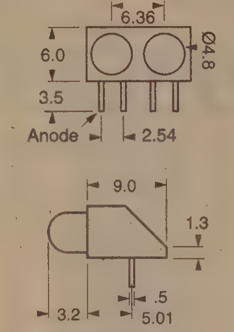
3



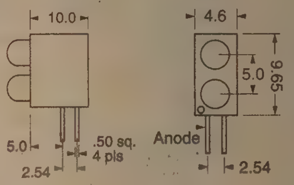
4



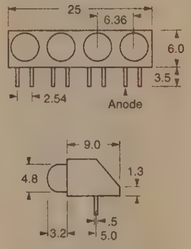
5



6

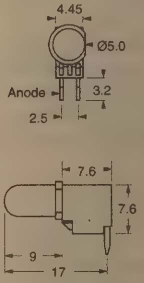


7

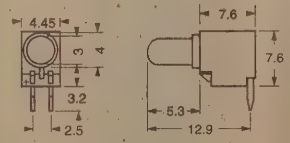


* Lens height for part number LU20425-ND = 4.75mm not 3.2mm

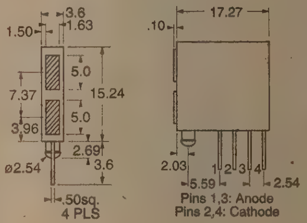
8



9



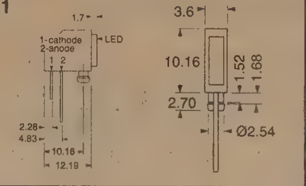
10



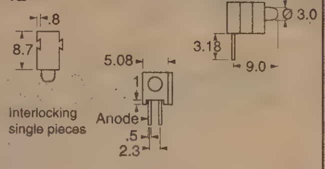
LUMEX OPTO/COMPONENTS INC. PC Mount LEDs

Fig. No.	LED Dia (mm)	Emitted Color	Oper Curr. MA	Oper Type Volt(v)	Digi-Key Part No.	Pricing 1	25	100	Lumex Part No.
11	2.5 x 7	Green	10-25	2.1	LU20235-ND	.63	13.13	42.00	SSF-LXH25780GD
11	2.5 x 7	Red	10-25	2.1	LU20231-ND	.63	13.13	42.00	SSF-LXH25780ID
11	2.5 x 7	Yellow	10-25	2.1	LU20237-ND	.63	13.13	42.00	SSF-LXH25780YD
11	2.5 x 7	Bright Red	10-25	1.7	LU2023B1-ND	.93	19.38	62.00	SSF-LXH25780SRD
11	2.5 x 7	Red/Green	10-25	2.1	LU202315-ND	.93	19.38	62.00	SSF-LXH25780HGW
12	3	Green	10-25	2.1	LU20245-ND	.54	11.25	36.00	SSF-LXH2300GD
12	3	Red	10-25	2.1	LU20241-ND	.54	11.25	36.00	SSF-LXH2300ID
12	3	Yellow	10-25	2.1	LU20247-ND	.54	11.25	36.00	SSF-LXH2300YD
12	3	Bright Red	10-25	1.7	LU2024B1-ND	.78	16.25	52.00	SSF-LXH2300SRD
12	3	Green	1-5	1.8	LU20255-ND	.72	15.00	48.00	SSF-LXH2300LGD
12	3	Red	1-5	1.8	LU20251-ND	.72	15.00	48.00	SSF-LXH2300LID
12	3	Green	10	5.0	LU20265-ND	.78	16.25	52.00	SSF-LXH2300GD-5V
12	3	Red	10	5.0	LU20261-ND	.78	16.25	52.00	SSF-LXH2300ID-5V
13	5	Green	10-25	2.1	LU20275-ND	.96	20.00	64.00	SSF-LXH250GGD
13	5	Red	10-25	2.1	LU20271-ND	.96	20.00	64.00	SSF-LXH250IID
13	5	Yellow	10-25	2.1	LU20277-ND	.96	20.00	64.00	SSF-LXH250YYD
13	5	Red/Green	10-25	2.1	LU202715-ND	1.62	33.75	108.00	SSF-LXH250IGIGW
14	2	Red	10-25	2.2	LU20391-ND	1.11	23.13	74.00	SSF-LX555-2101ID
15	3	Red	30	2.0	LU20401-ND	2.04	42.50	136.00	SSF-LXH2300/4ID
16	5	Green	30	2.0	LU20405-ND	.84	17.50	56.00	SSF-LXH101GD-SL-1
17	5	Red	10-25	2.1	LU20411-ND	.84	17.50	56.00	SSF-LXH101ID-1
17	5	Green	10-25	2.1	LU20415-ND	.84	17.50	56.00	SSF-LXH101GD-1
18	3	Red	20	2.0	LU20421-ND	.84	17.50	56.00	SSF-LXH303ID
19	3	Red	30	2.0	LU204211-ND	1.20	25.00	80.00	SSF-LXH240IID
19	3	Green	30	2.1	LU204255-ND	1.20	25.00	80.00	SSF-LXH240GGD
20	—	Red	10	4.5	LU20431-ND	.87	18.13	58.00	SSB-LX02IC
20	—	Green	10	4.5	LU20435-ND	.87	18.13	58.00	SSB-LX02GC
20	—	Yellow	10	4.5	LU20437-ND	.87	18.13	58.00	SSB-LX02YC
20	—	Super Red	10	3.5	LU20441-ND	1.08	22.50	72.00	SSB-LX02SRC

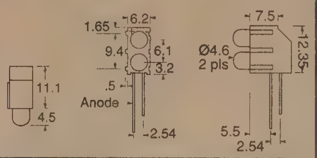
11


1.7
1-cathode
2-anode
1 2
LED
2.28
4.83
10.16
12.19
3.6
10.16
1.52
1.68
2.70
Ø2.54

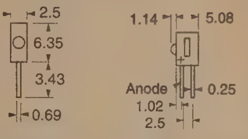
12


.8
8.7
Interlocking single pieces
5.08
1
Anode
.5
2.3
Ø 3.0
3.18
9.0

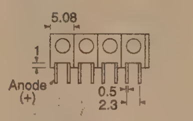
13


11.1
4.5
1.65
6.2
9.4
6.1
3.2
.5
Anode
2.54
7.5
Ø4.6
2 pls
12.35
5.5
2.54

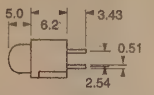
14


2.5
6.35
3.43
0.69
1.14
5.08
Anode
0.25
1.02
2.5

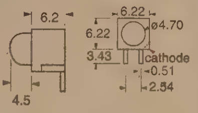
15


5.08
1
Anode
(+)
0.5
2.3

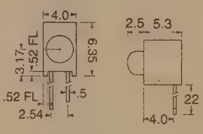
16


5.0
6.2
3.43
0.51
2.54

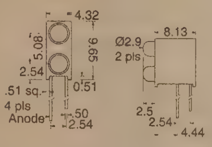
17


6.2
4.5
6.22
6.22
ø4.70
3.43
cathode
0.51
2.54

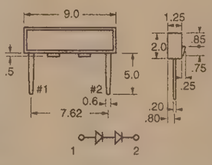
18


4.0
3.17
.52 FL
6.35
.52 FL
.5
2.54
2.5
5.3
22
4.0

19


4.32
5.08
9.65
2.54
0.51
.51 sq.
4 pls
Anode
.50
2.54
Ø2.9
2 pls
8.13
2.5
2.54
4.44

20

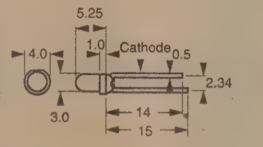

9.0
.5
#1
#2
5.0
0.6
7.62
1.25
2.0
.85
.75
.25
.20
.80
1
2

LUMEX OPTO/COMPONENTS INC. LEDs

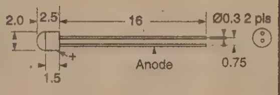
Fig. No.	LED Dia. (mm)	Emitted Color	Oper Curr. MA	Oper Type Volt(v)	Digi-Key Part No.	Pricing 1	10	25	100	200	Lumex Part No.
LEDs											
1	3	Red	20	1.7	LU70021-ND	—	1.35	—	—	22.50	SSL-LX3052RD
1	3	Red	20	2.1	LU70031-ND	—	1.77	—	—	29.50	SSL-LX3052ID
1	3	Green	20	2.1	LU70022-ND	—	1.80	—	—	30.00	SSL-LX3052GD
1	3	Yellow	20	2.1	LU70023-ND	—	1.80	—	—	30.00	SSL-LX3052YD
Ceramic Stem LEDs											
2	2	Orange/Red	20	2.0	LU20001-ND	1.02	—	21.25	68.00	—	SSL-LX203CIT
2	2	Green	20	2.1	LU20005-ND	1.02	—	21.25	68.00	—	SSL-LX203CGT
2	2	Yellow	20	2.1	LU20007-ND	1.02	—	21.25	68.00	—	SSL-LX203CYT
2	2	Red	20	1.6	LU2000B1-ND	1.26	—	26.25	84.00	—	SSL-LX203CSRT
3	LED Tester Box				LU70024-ND	38.00 each					LED Tester Box

Fig. No.	Emitted Color	Epoxy Lens Color	Typical mCD Intensity @ 20mA If	Emition Total Angle	Peak Wave-length	Vf @ 20mA If Typ.	Max.	Steady If Max.	Digi-Key Part No.	Pricing 10	200	1000	Lumex Part No.
10MM Mega-Brite Lites													
4	Or/Red	Clear	3000	18°	620nm	1.8	2.4	25mA	LU70025-ND	23.70	395.00	1580.00	SSL-LX100133SRC/4
4	Green	Clear	500	18°	568nm	2.1	2.7	25mA	LU70026-ND	7.20	120.00	480.00	SSL-LX100133XGC
4	Yellow	Clear	2000	18°	590nm	1.8	2.4	25mA	LU70027-ND	26.10	435.00	1740.00	SSL-LX100133XYC

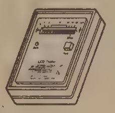
1


5.25
4.0
1.0
Cathode
0.5
2.34
3.0
14
15

2

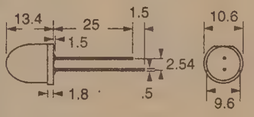

2.0
2.5
16
Ø0.3 2 pls
+
1.5
Anode
0.75

3



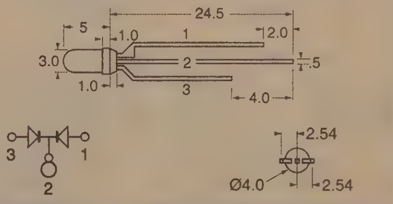
Features:
- Allows quick testing of LEDS at 2, 5, 10, 20, 30, or 50 mA drive current levels with the push of a button.
- Requires: 9 Volt Battery (not included).

4


13.4
25
1.5
1.5
2.54
1.8
.5
10.6
9.6

LUMEX OPTO/COMPONENTS INC Bi-Color LEDs

Color Pin 1	Pin 3	Vf	Io mcd	View Angle	If mA	Digi-Key Part No.	Pricing 1	25	100	250	Lumex Part No.
Green	Yellow	2.0	30/30	60°	20	LU204657-ND	.75	15.69	50.20	109.81	SSL-LX3059GYW
Red	Green	2.0	35/35	60°	20	LU204615-ND	.75	15.69	50.20	109.81	SSL-LX3059IGW
Red	Yellow	2.0	40/30	60°	20	LU204617-ND	.75	15.69	50.20	109.81	SSL-LX3059IYW


24.5
5
1.0
1
2.0
3.0
2
.5
1.0
3
4.0
3
1
2
2.54
Ø4.0
2.54

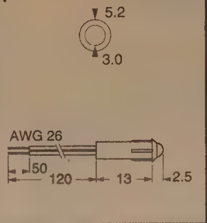
LUMEX OPTO/COMPONENTS INC. Panel Mount LEDs

Fig. No.	LED Dia. (mm)	Emitted Color	Oper Curr. MA	Oper Type Volt(v)	Digi-Key Part No.	Pricing 1	25	100	Lumex Part No.
1	3	Red	10-25	2.1	LU10111-ND	1.44	30.00	96.00	SSI-LXH312ID-150
1	3	Green	10-25	2.1	LU10115-ND	1.44	30.00	96.00	SSI-LXH312GD-150
2	3	Red	30	2.0	LU10121-ND	.75	15.63	50.00	SSI-LXH312ID
3	3	Red	10-25	2.1	LU10001-ND	1.20	25.00	80.00	SSI-LXR1612ID
3	3	Green	10-25	2.1	LU10005-ND	1.20	25.00	80.00	SSI-LXR1612GD
3	3	Yellow	10-25	2.1	LU10007-ND	1.20	25.00	80.00	SSI-LXR1612YD
3	3	Bright Red	10-25	1.7	LU1000B1-ND	1.50	31.25	100.00	SSI-LXR1612SRD
4	3	Red	10-25	2.1	LU10011-ND	1.20	25.00	80.00	SSI-LXR3612ID
4	3	Green	10-25	2.1	LU10015-ND	1.20	25.00	80.00	SSI-LXR3612GD
4	3	Yellow	10-25	2.1	LU10017-ND	1.20	25.00	80.00	SSI-LXR3612YD
4	3	Bright Red	10-25	1.7	LU1001B1-ND	1.50	31.25	100.00	SSI-LXR3612SRD
5	5	Red	10-25	2.1	LU10101-ND	1.38	28.75	92.00	SSI-LXH600ID-150
5	5	Green	10-25	2.1	LU10105-ND	1.38	28.75	92.00	SSI-LXH600GD-150
5	5	Red/Green	10-25	2.1	LU101015-ND	2.25	46.88	150.00	SSI-LXH600HGW-150
6	5	Red	10-25	2.1	LU10021-ND	1.35	28.13	90.00	SSI-LXH387ID
6	5	Green	10-25	2.1	LU10025-ND	1.35	28.13	90.00	SSI-LXH387GD
6	5	Yellow	10-25	2.1	LU10027-ND	1.35	28.13	90.00	SSI-LXH387YD
6	5	Bright Red	10-25	1.7	LU1002B1-ND	1.56	32.50	104.00	SSI-LXH387SRD
7	5	Red	10-25	2.1	LU10031-ND	1.20	25.00	80.00	SSI-LXH9ID/-150
7	5	Green	10-25	2.1	LU10035-ND	1.20	25.00	80.00	SSI-LXH9GD/-150
7	5	Yellow	10-25	2.1	LU10037-ND	1.20	25.00	80.00	SSI-LXH9YD/-150
7	5	Bright Red	10-25	1.7	LU1003B1-ND	1.38	28.75	92.00	SSI-LXH9SRD/-150
8	5	Red	10-25	2.1	LU10041-ND	1.26	26.25	84.00	SSI-LXR4815ID
8	5	Green	10-25	2.1	LU10045-ND	1.26	26.25	84.00	SSI-LXR4815GD
8	5	Yellow	10-25	2.1	LU10047-ND	1.26	26.25	84.00	SSI-LXR4815YD
8	5	Bright Red	10-25	1.7	LU1004B1-ND	1.41	29.38	94.00	SSI-LXR4815SRD
9	8	Red	10-25	2.1	LU10051-ND	.84	17.50	56.00	SSI-LXH8080ID
9	8	Green	10-25	2.1	LU10055-ND	.84	17.50	56.00	SSI-LXH8080GD
9	8	Yellow	10-25	2.1	LU10057-ND	.84	17.50	56.00	SSI-LXH8080YD
9	8	Bright Red	10-25	1.7	LU1005B1-ND	1.02	21.25	68.00	SSI-LXH8080SRD
10	10	Red	10-25	2.1	LU10061-ND	1.02	21.25	68.00	SSI-LXH1090ID
10	10	Green	10-25	2.1	LU10065-ND	1.02	21.25	68.00	SSI-LXH1090GD
10	10	Yellow	10-25	2.1	LU10067-ND	1.02	21.25	68.00	SSI-LXH1090YD
10	10	Bright Red	10-25	1.7	LU1006B1-ND	1.17	24.38	78.00	SSI-LXH1090SRD
11	5	Red	10-25	2.1	LU10071-ND	.78	16.25	52.00	SSI-LXH55ID
11	5	Green	10-25	2.1	LU10075-ND	.78	16.25	52.00	SSI-LXH55GD
11	5	Yellow	10-25	2.1	LU10077-ND	.78	16.25	52.00	SSI-LXH55YD
11	5	Bright Red	10-25	1.7	LU1007B1-ND	.96	20.00	64.00	SSI-LXH55SRD
12	2 x 5	Red	10-25	2.1	LU10081-ND	1.14	23.75	76.00	SSI-LXMP059ID
12	2 x 5	Green	10-25	2.1	LU10085-ND	1.14	23.75	76.00	SSI-LXMP059GD
12	2 x 5	Yellow	10-25	2.1	LU10087-ND	1.14	23.75	76.00	SSI-LXMP059YD
12	2 x 5	Bright Red	10-25	1.7	LU1008B1-ND	1.38	28.75	92.00	SSI-LXMP059SRD
13	2.5 x 7	Red	10-25	2.1	LU10091-ND	1.02	21.25	68.00	SSI-LXH072ID
13	2.5 x 7	Green	10-25	2.1	LU10095-ND	1.02	21.25	68.00	SSI-LXH072GD
13	2.5 x 7	Yellow	10-25	2.1	LU10097-ND	1.02	21.25	68.00	SSI-LXH072YD
13	2.5 x 7	Bright Red	10-25	1.7	LU1009B1-ND	1.20	25.00	80.00	SSI-LXH072SRD
14	2 x 5	Red	5-25	2.2	LU20011-ND	1.83	38.13	122.00	SSA-LXB525ID
14	2 x 5	Green	5-25	2.2	LU20015-ND	1.83	38.13	122.00	SSA-LXB525GD
14	2 x 5	Yellow	5-25	2.2	LU20017-ND	1.92	40.00	128.00	SSA-LXB525YD
14	2 x 5	Bright Red	5-25	1.7	LU2001B1-ND	2.97	61.88	198.00	SSA-LXB525SRD
15	2.5 x 5	Red	5-25	2.2	LU20021-ND	3.72	77.50	248.00	SSA-LXH1025ID
15	2.5 x 5	Green	5-25	2.2	LU20025-ND	3.72	77.50	248.00	SSA-LXH1025GD
15	2.5 x 5	Yellow	5-25	2.2	LU20027-ND	4.17	86.88	278.00	SSA-LXH1025YD
15	2.5 x 5	Bright Red	5-25	1.7	LU2002B1-ND	5.34	111.25	356.00	SSA-LXH1025SRD
16	2.5 x 5	Red	5-25	2.2	LU20031-ND	5.46	113.75	364.00	SSA-LXH1225ID
16	2.5 x 5	Green	5-25	2.2	LU20035-ND	5.46	113.75	364.00	SSA-LXH1225GD
16	2.5 x 5	Yellow	5-25	2.2	LU20037-ND	5.73	119.38	382.00	SSA-LXH1225YD
16	2.5 x 5	Bright Red	5-25	1.7	LU2003B1-ND	7.95	165.63	530.00	SSA-LXH1225SRD
17	3	Red	5-25	2.2	LU20041-ND	4.47	93.13	298.00	SSA-LXB102ID
17	3	Green	5-25	2.2	LU20045-ND	4.47	93.13	298.00	SSA-LXB102GD
17	3	Yellow	5-25	2.2	LU20047-ND	4.17	86.88	278.00	SSA-LXB102YD
17	3	Bright Red	5-25	1.7	LU2004B1-ND	6.57	136.88	438.00	SSA-LXB102SRD

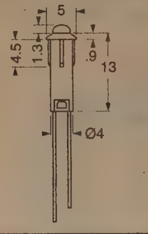
Panel Mount LED Holders

Fig. No.	Description	Panel Hole	Digi-Key Part No.	Pricing 5	25	100	Lumex Part No.
18	T1 Black Nylon LED Panel Mnt. Holder	.160"	LU4000-ND	.60	2.25	7.50	SSH-LX3050
19	T1 Black Nylon LED Panel Mnt. Holder	.225"	LU4001-ND	.60	2.25	7.50	SSH-LXH301
20	T1-3/4 Black Nylon LED Panel Mnt. Holder	.250"	LU4002-ND	.40	1.50	5.00	SSH-LX5091
21	T1-3/4 Black Nylon LED Panel Mnt. Holder	.330"	LU4003-ND	.60	2.25	7.50	SSH-LXH501

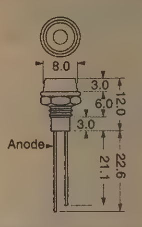
1


5.2
3.0
AWG 26
50
120
13
2.5

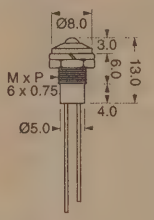
2


5
4.5
1.3
.9
13
Ø4

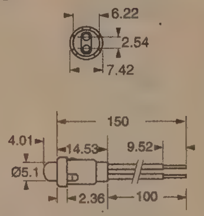
3


8.0
3.0
6.0
12.0
3.0
Anode
21.1
22.6

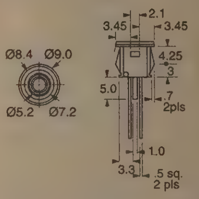
4


Ø8.0
3.0
6.0
13.0
M x P
6 x 0.75
4.0
Ø5.0

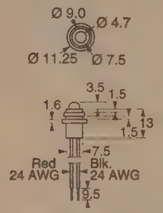
5


6.22
2.54
7.42
150
4.01
14.53
9.52
Ø5.1
2.36
100

6

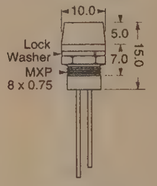

2.1
3.45
3.45
Ø8.4
Ø9.0
4.25
3
5.0
.7
2pls
Ø5.2
Ø7.2
1.0
3.3
.5 sq.
2 pls

7


Ø 9.0
Ø 4.7
Ø 11.25
Ø 7.5
3.5
1.5
1.6
13
1.5
7.5
Red
24 AWG
Blk.
24 AWG
5.5

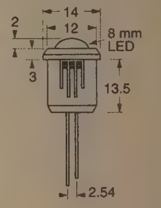
(rear panel mount)

8

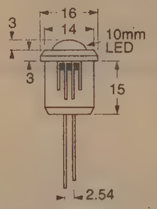

10.0
5.0
15.0
7.0
Lock
Washer
MXP
8 x 0.75

(reflector bezel)

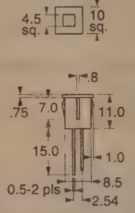
9


14
2
12
8 mm
LED
3
13.5
2.54

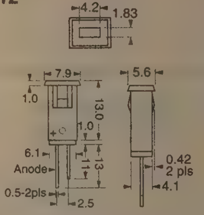
10


16
3
14
10mm
LED
3
15
2.54

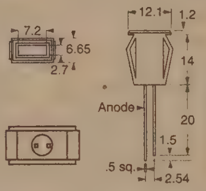
11


4.5
sq.
10
sq.
.8
.75
7.0
11.0
15.0
1.0
8.5
0.5-2 pls
2.54

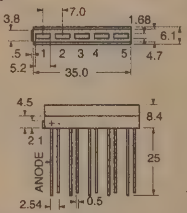
12


4.2
1.83
7.9
5.6
1.0
13.0
1.0
6.1
Anode
11
13
0.42
2 pls
4.1
0.5-2pls
2.5

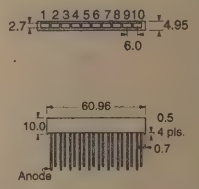
13


7.2
6.65
2.7
12.1
1.2
14
Anode
20
1.5
.5 sq.
2.54

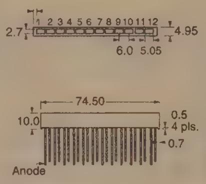
14


7.0
3.8
1.68
6.1
.5
1 2 3 4 5
4.7
5.2
35.0
4.5
8.4
2 1
ANODE
25
2.54
0.5

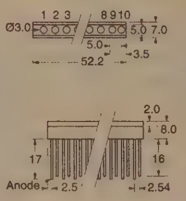
15


1 2 3 4 5 6 7 8 9 10
2.7
4.95
6.0
60.96
10.0
0.5
4 pls.
0.7
Anode

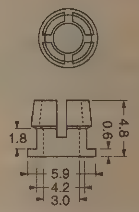
16


1 2 3 4 5 6 7 8 9 10 11 12
2.7
4.95
6.0
5.05
74.50
10.0
0.5
4 pls.
0.7
Anode

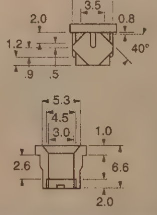
17


1 2 3
8 9 10
Ø3.0
5.0
7.0
5.0
3.5
52.2
2.0
8.0
17
16
Anode
2.5
2.54

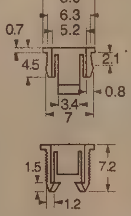
18


4.8
0.6
1.8
5.9
4.2
3.0

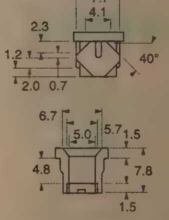
19


6.25
3.5
2.0
0.8
1.2
40°
.9
.5
5.3
4.5
3.0
1.0
2.6
6.6
2.0

20

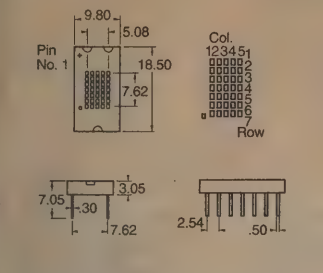

8.0
6.3
0.7
5.2
4.5
2.1
0.8
3.4
7
1.5
7.2
1.2

21


7.7
4.1
2.3
1.2
40°
2.0
0.7
6.7
5.0
5.7
1.5
4.8
7.8
1.5

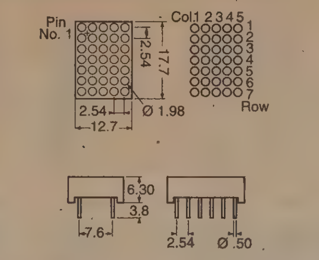
LITEON Optoelectronics LED, Dot Matrix Displays

Fig. A


9.80
5.08
Pin No. 1
18.50
7.62
Col.
12345
1
2
3
4
5
6
7
Row
7.05
3.05
.30
7.62
2.54
.50

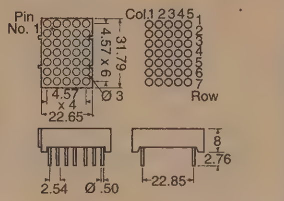
FEATURES: High Brightness. • Single plane, wide viewing angle. • Low power requirements. • Compatible with USASCII and EBCDIC codes. • Categorized for luminous intensity. • Solid state reliability • 36 Light Emitting Diodes • 5x7 Array with X-Y select and decimal point • Easy mounting on P.C. board or sockets

Fig. B, 1.98mm Dot Size

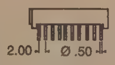

Pin No. 1
Col.1 2 3 4 5
1
2
3
4
5
6
7
Row
2.54
17.7
2.54
Ø 1.98
12.7
6.30
3.8
7.6
2.54
Ø .50

FEATURES: • Low power requirements. • 5x7 array with X-Y select. • Compatible with USASCII and EBCDIC codes. • Categorized for luminous intensity. • Stackable Vertically and Horizontally • Easy Mounting on P.C. Board or Sockets

Fig. C, 3.0mm Dot Size

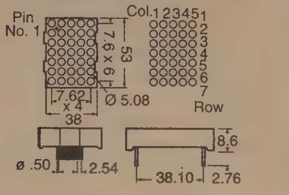

Pin No. 1
Col.1 2 3 4 5
1
2
3
4
5
6
7
Row
4.57 x 6
31.79
4.57 x 4
Ø 3
22.65
8
2.76
2.54
Ø .50
22.85

† For Digi-Key Part Number LT1004-ND (Green/Orange LED), Use this dimension.

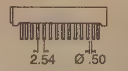


FEATURES: • Low power requirement. • High contrast & brightness. • Single plane, wide viewing angle. • X-Y select. • Compatible with ASACII and EBCDIC codes. • Categorized for luminous intensity. • Multicolor displays are applicable to three bright colors: Green, Orange & Yellow (Green & Orange mixed).

Fig. D, 5.0mm Dot Size

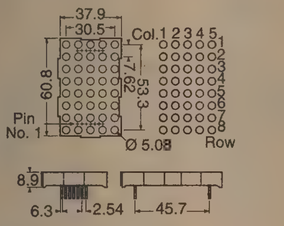

Pin No. 1
Col.1 2 3 4 5
1
2
3
4
5
6
7
Row
7.6 x 6
53
7.62 x 4
Ø 5.08
38
8.6
ø .50
2.54
38.10
2.76

‡ For Digi-Key Part Number LT1009-ND (Green/Orange LED), Use this dimension.



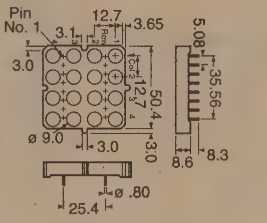
FEATURES: • Low power requirement. • High contrast & brightness. • Single plane, wide viewing angle. • X-Y select. • Compatible with ASACII and EBCDIC codes. • Categorized for luminous intensity. • Multicolor displays are applicable to three bright colors: Green, Orange & Yellow (Green & Orange mixed).

Fig. E, 5.08mm Dot Size


37.9
30.5
Col.1 2 3 4 5
1
2
3
4
5
6
7
8
Row
60.8
7.62
53.3
Pin No. 1
Ø 5.08
8.9
6.3
2.54
45.7

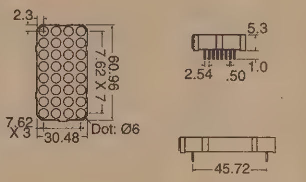
FEATURES: • Low power requirement. • High contrast & brightness. • Single plane, wide viewing angle. • X-Y select. • Compatible with ASACII and EBCDIC codes. • Categorized for luminous intensity. • Multicolor displays are applicable to three bright colors: Green, Orange & Yellow (Green & Orange mixed).

Fig. F, 9.0mm Dot Size


Pin No. 1
12.7
3.65
3.1
3.0
5.08
35.56
12.7
50.4
ø 9.0
3.0
3.0
8.6
8.3
25.4
ø .80

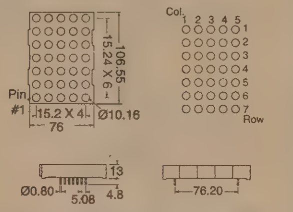
FEATURES: • Low power requirement. • High contrast & brightness. • Single plane, wide viewing angle. • X-Y select. • Compatible with ASACII and EBCDIC codes. • Categorized for luminous intensity. • Multicolor displays are applicable to three bright colors: Green, Orange & Yellow (Green & Orange mixed).

Fig. G


2.3
60.96
7.62 X 7
7.62 X 3
30.48
Dot: Ø6
5.3
2.54
.50
1.0
45.72

FEATURES: • Low power requirement. • High contrast & brightness. • Single plane, wide viewing angle. • X-Y select. • Compatible with ASACII and EBCDIC codes. • Categorized for luminous intensity. • Multicolor displays are applicable to three bright colors: Green, Orange & Yellow (Green & Orange mixed).

Fig. H

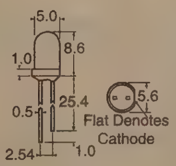

Col. 1 2 3 4 5
1
2
3
4
5
6
7
Row
106.55
15.24 X 6
Pin #1
15.2 X 4
Ø10.16
76
Ø0.80
5.08
13
4.8
76.20

FEATURES: • Low power requirement • High contrast • High brightness • Single plane, wide viewing angle • X-Y select • Compatible with USASCII and EBCDIC codes • Stackable vertically and horizontally • Easy mounting on P.C. Board • Categorized for luminous intensity • Multicolor displays are applicable to three bright colors: Green, Orange and Yellow (Green and Orange mixed).

Fig.	Description	Wavelength lp (nm)	If Peak per dot (mA)*	If Cont. per dot (mA)	Digi-Key Part No.	Pricing 1	 25	 50
A	0.3" 5x7 Anode Col., Cathode Row, Lt. Hand Decimal, Red	655	100	20	LT1000-ND	2.88	64.69	115.00
	0.3" 5x7 Anode Col., Cathode Row, Lt. Hand Decimal, Green	565	60	20	LT1001-ND	3.53	79.31	141.00
B	0.7" 5x7 Cathode Col., Anode Row, Green	565	80	20	LT1002-ND	4.33	97.31	173.00
	0.7" 5x7 Cathode Col., Anode Row, Hi. Eff. Red	635	80	20	LT1003-ND	4.33	97.31	173.00
	0.7" 5x7 Cathode Col., Anode Row, Yellow	585	60	16	LT1113-ND	4.83	108.56	193.00
C	1.2" 5x7 Cathode Col., Anode Row, Green/Orange	green 565, orange 630	100	25	LT1004-ND †	9.10	204.75	364.00
	1.2" 5x7 Cathode Col., Anode Row, Green	565	100	25	LT1005-ND	4.93	110.81	197.00
	1.2" 5x7 Cathode Col., Anode Row, Hi. Eff. Red	635	100	25	LT1006-ND	4.93	110.81	197.00
D	2" 5x7 Cathode Col., Anode Row, Green	565	100	25	LT1007-ND	5.13	115.31	205.00
	2" 5x7 Cathode Col., Anode Row, Hi. Eff. Red	635	100	25	LT1008-ND	5.13	115.31	205.00
	2" 5x7 Cathode Col., Anode Row, Green/Orange	green 565, orange 630	100	25	LT1009-ND ‡	9.50	213.75	380.00
	2" 5x7 Cathode Col., Anode Row, Yellow	585	80	20	LT1114-ND	5.75	129.38	230.00
E	2.3" 5x8 Cathode Col., Anode Row, Hi. Eff. Red	635	100	25	LT1014-ND	5.90	132.75	236.00
	2.3" 5x8 Cathode Col., Anode Row, Green	565	100	25	LT1016-ND	8.63	194.06	345.00
	2.3" 5x8 Cathode Col., Anode Row, Yellow	585	80	20	LT1115-ND	6.60	148.50	264.00
F	2" 4x4 Anode Row, Cathode Col., Green/Orange	green 565, orange 630	75	18	LT1015-ND	13.45	302.63	538.00
G	2.34" 4x8 Anode Row, Cathode Col., Green/Orange	green 565, orange 630	100	25	LT1105-ND	10.35	232.88	414.00
H	4" 5x7 Cathode Col., Anode Row, Hi. Eff. Red	635	80	20	LT1116-ND	19.40	436.50	776.00
	4" 5x7 Cathode Col., Anode Row, Green	565	80	20	LT1117-ND	19.40	436.50	776.00
	4" 5x7 Cathode Col., Anode Row, Yellow	585	60	16	LT1118-ND	21.73	488.81	869.00

*1/10 Duty Cycle, 0.1 ms Pulse Width. Absolute Max. Ratings at T_A = 25°C. † See Physical Dimension Under Fig. C. ‡ See Physical Dimension Under Fig. D

T-1 3/4 Flashing LED Lamps

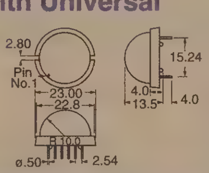

5.0
8.6
1.0
25.4
5.6
0.5
Flat Denotes Cathode
2.54
1.0

FEATURES:
SPECIFICATIONS: Operating Voltage: 3.0-10.0V., Blinking Frequency: 2.0-2.4Hz. Operating Temp. Range: 0°C to 70°C.

Color	Color Source	Iv (mcd)*	Viewing Ang. (deg)	Digi-Key Part No.	Pricing 1	 10	 100
Red/Diff.	Brt. Red	1.1-4.0	36	LT1042-ND	1.25	10.38	83.00
Green/Diff.	Green	3.5-10.0	36	LT1043-ND	1.25	10.38	83.00
Yellow/Diff.	Yellow	1.7-2.4	40	LT1044-ND	1.25	10.38	83.00

* V_{DD}: 3.0V & VDD 10.0V Absolute Max. Ratings at T_A = 25°C

.8" Big Lamps with Universal Sphere Lens

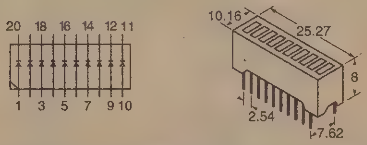

2.80
Pin No.1
23.00
22.8
R10.0
ø.50
2.54
15.24
4.0
13.5
4.0

FEATURES: • High luminous intensity. • Categorized for luminous intensity. • Excellent on-off contrast. • Operating Temp. Range: -25°C to +85°C.

Color	If Peak per chip (mA)	If Cont. per chip (mA)	Digi-Key Part No.	Pricing 1	 10	 100
Green	100	25	LT1025-ND	2.07	17.25	138.00
Hi. Eff. Red	100	25	LT1026-ND	2.07	17.25	138.00
Yellow	80	20	LT1027-ND	2.34	19.50	156.00

Absolute Max. Ratings at T_A = 25°C, VF = 2.1, VR = 5V

Bar Graph Array


20 18 16 14 12 11
1 3 5 7 9 10
10.16
25.27
8
2.54
7.62

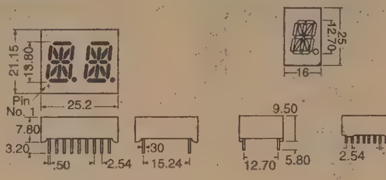
Color	Continuous Forward Current	Forward Voltage(Vf)	Digi-Key Part No.	Pricing 1	 10	 100
Hi. Eff. Red	25	2.1	LT1066-ND	2.19	18.25	146.00
Green	25	2.1	LT1067-ND	2.19	18.25	146.00
Yellow	20	2.1	LT1068-ND	2.49	20.75	166.00

LITEON Optoelectronics

Alphanumeric Displays

FEATURES:

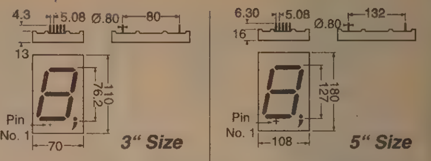
- Low power requirements
- Excellent character appearance
- High contrast & brightness
- Wide viewing angle
- Categorized for luminous intensity



Ultra-Large 7-Segment Display

FEATURES:

- Continuous uniform segments
- Excellent character appearance
- High contrast & brightness
- Wide viewing angle
- Categorized for luminous intensity



Description	If Peak per segment (mA)*	If Cont. per segment (mA)	Reverse Volt. per segment (V)	Vf Typ. per segment	Oper. Temp Range	Digi-Key Part No.	Pricing 1	25	50
2-Digit LED Alphanumeric Displays									
0.54" Multiplex Common Cathode, Right Hand Decimal, Orange	100	25	5	2.1	-25°C-+85°C	LT1010-ND	3.95	88.88	158.00
0.54" Multiplex Common Anode, Right Hand Decimal, Orange	100	25	5	2.1	-25°C-+85°C	LT1011-ND	3.95	88.88	158.00
0.54" Multiplex Common Cathode, Right Hand Decimal, Green	100	25	5	2.1	-25°C-+85°C	LT1012-ND	3.95	88.88	158.00
0.54" Multiplex Common Anode, Right Hand Decimal, Green	100	25	5	2.1	-25°C-+85°C	LT1013-ND	3.95	88.88	158.00
1-Digit LED Alphanumeric Display									
0.5" Common Anode, Right Hand Decimal, Green	100	25	5	2.1	-25°C-+85°C	LT1106-ND	2.63	59.06	105.00
0.5" Common Anode, Right Hand Decimal, Yellow	80	20	5	2.1	-25°C-+85°C	LT1107-ND	2.63	59.06	105.00
0.5" Common Anode, Right Hand Decimal, High Efficiency Red	100	25	5	2.1	-25°C-+85°C	LT1108-ND	2.63	59.06	105.00
Ultra-Large 7-Segment LED Numeric Display									
3" Common Cathode, High Efficiency Red	160	40	30	12.6	-25°C-+85°C	LT1017-ND	16.94	307.04	563.26
3" Common Anode, High Efficiency Red	160	40	30	12.6	-25°C-+85°C	LT1018-ND	16.94	307.04	563.26
3" Common Cathode, Green	160	40	30	12.6	-25°C-+85°C	LT1019-ND	16.94	307.04	563.26
3" Common Anode, Green	160	40	30	12.6	-25°C-+85°C	LT1020-ND	16.94	307.04	563.26
5" Common Cathode, High Efficiency Red	180	60	50	21	-25°C-+85°C	LT1021-ND	38.96	706.15	1295.42
5" Common Anode, High Efficiency Red	180	60	50	21	-25°C-+85°C	LT1022-ND	38.96	706.15	1295.42
5" Common Cathode, Green	180	60	50	21	-25°C-+85°C	LT1023-ND	38.96	706.15	1295.42
5" Common Anode, Green	180	60	50	21	-25°C-+85°C	LT1024-ND	38.96	706.15	1295.42

Absolute Max. Ratings at T_A = 25°C

Infrared Emitting Diodes, Photodetectors, & Photodiodes

Fig. A

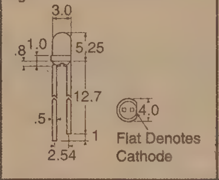


Fig. B

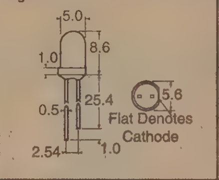


Fig. C

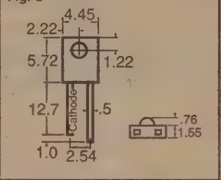
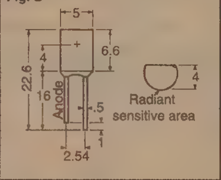


Fig. D



Features of Infrared Emitting Diodes:

- Selected to specific on-line intensity and radiant intensity ranges.
- Low cost plastic end looking package
- Made with gallium aluminum arsenide window layer on gallium arsenide infrared emitting diodes

Features of Photodetectors and Photodiodes:

- Lensed for high sensitivity
- Low cost plastic package

Infrared Emitting Diodes

Fig.	Vf	Vr	I (ma)	Ipk amps	Viewing angle	Digi-Key Part No.	Pricing 1	10	100
A	1.2	5	50	3	20°	LT1028-ND	.45	3.75	30.00
B	1.2	5	50	3	20°	LT1029-ND	.45	3.75	30.00
B	1.2	5	50	3	40°	LT1061-ND	.32	2.70	21.60
B	1.3	7.2	150	3	35°	LT1062-ND	.34	2.80	22.40
C	1.2	5	50	3	40°	LT1063-ND	.42	3.50	28.00
B	1.2	5	150	3	20°	LT1064-ND	.43	3.58	28.60

Matching Photodetectors

Fig.	Vce	Vec	On-State I (ma)	Rise/Fall (us)	Digi-Key Part No.	Pricing 1	10	100
A	30	5	2	5	LT1030-ND	.48	4.00	32.00
B	30	5	2	5	LT1031-ND	.48	4.00	32.00
C	30	5	1	5	LT1065-ND	.46	3.80	30.40

Photodiodes

Fig.	Description	Digi-Key Part No.	Pricing 1	10	100
D	Black Plastic Diode	LT1032-ND	.72	6.03	48.20

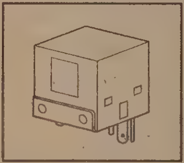
Absolute Max. Ratings at T_A = 25°C, λ = 940nm

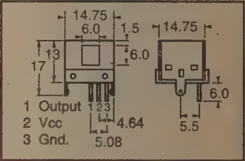
Infrared Remote Control Receiver Module

FEATURES:

- Easy to handle small type module
- Excellent mechanical strength and electrical stability
- Can be installed directly to equipment
- Operating Temperature Range: -10°C - +60°C
- Supply Voltage (V): 4.7-5.3
- Absolute Max. Ratings at TA = 25°C

Carrier Wave Freq (KHz)	Digi-Key Part No.	Pricing 1	10	100
32.7	LT1033-ND	3.45	28.75	230.00
36	LT1059-ND	2.88	—	201.25
40	LT1060-ND	2.88	—	201.25





T-1 & T-1 3/4 Integrated Resistor Lamps

Fig.	Description	Lens	Source Color	VF	Io (mcd)	Viewing Angle (deg)	If (mA)	Digi-Key Part No.	Pricing 1	10	100
A	T-1 5V Resistor Lamp	Red Diff.	Red	7.5	0.8	40	10	LT1045-ND	.23	1.88	15.00
	T-1 5V Resistor Lamp	Green Diff.	Green	7.5	5.6	40	10	LT1049-ND	.23	1.88	15.00
	T-1 5V Resistor Lamp	Yellow Diff.	Yellow	7.5	5.6	40	10	LT1053-ND	.25	2.08	16.60
A	T-1 12V Resistor Lamp	Red Diff.	Red	15	0.9	40	12	LT1046-ND	.23	1.88	15.00
	T-1 12V Resistor Lamp	Green Diff.	Green	15	5.8	40	12	LT1050-ND	.23	1.88	15.00
	T-1 12V Resistor Lamp	Yellow Diff.	Yellow	15	5.7	40	12	LT1054-ND	.25	2.08	16.60
B	T-1 3/4 5V Resistor Lamp	Red Diff.	Red	7.5	0.8	36	10	LT1047-ND	.24	1.98	15.80
	T-1 3/4 5V Resistor Lamp	Green Diff.	Green	7.5	8.7	36	10	LT1051-ND	.26	2.18	17.40
	T-1 3/4 5V Resistor Lamp	Yellow Diff.	Yellow	7.5	8.7	36	10	LT1055-ND	.29	2.38	19.00
B	T-1 3/4 12V Resistor Lamp	Red Diff.	Red	15	1.0	36	12	LT1048-ND	.24	1.98	15.80
	T-1 3/4 12V Resistor Lamp	Green Diff.	Green	15	8.9	36	12	LT1052-ND	.26	2.18	17.40
	T-1 3/4 12V Resistor Lamp	Yellow Diff.	Yellow	15	8.9	36	12	LT1056-ND	.29	2.38	19.00
A	T-1 5V Resistor Lamp	Orange Diff.	Orange	7.5	5.6	40	10	LT1109-ND	.26	2.18	17.40
	T-1 12V Resistor Lamp	Orange Diff.	Orange	15	5.7	40	12	LT1110-ND	.26	2.18	17.40
B	T-1 3/4 5V Resistor Lamp	Red Diff.	Hi. Eff. Red	7.5	8.7	36	10	LT1111-ND	.26	2.18	17.40
	T-1 3/4 12V Resistor Lamp	Red Diff.	Hi. Eff. Red	15	8.9	36	12	LT1112-ND	.26	2.18	17.40

Fig. A

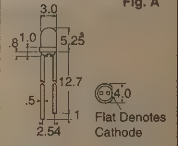
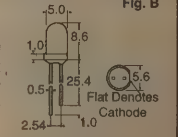


Fig. B



Absolute Max. Rat. at T_A = 25°C

LITEON Optoelectronics

T-1, T-1 3/4, 8mm and SOT-23 LEDs

Fig. A

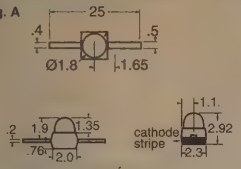


Fig. B

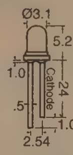


Fig. C

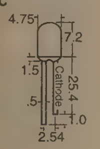


Fig. D

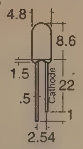


Fig. E

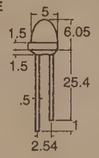


Fig. F

FEATURES:
- Ultra-brightness.
- Sturdy leads.
- IC compatible/ Low current capability.
- Reliable and rugged.
- Low cost.

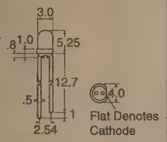


Fig. G

FEATURES:
- Long life-solid state reliability.
- Low power consumption.
- IC compatible.

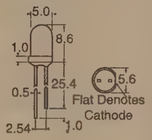
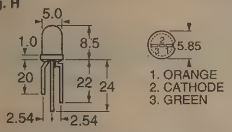


Fig. H



FEATURES: • Long life-solid state reliability. • Low power consumption. • IC compatible.

Fig. I

FEATURES:
- 8mm Dia. big lamp.
- Wide viewing angle.
- Low power consumption.
- IC compatible/low current requirements.
- Reliable & Rugged.

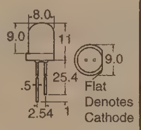


Fig. J

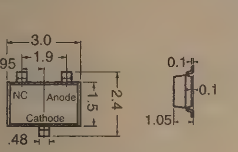


Fig. K

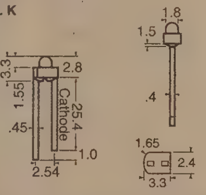


Fig. L

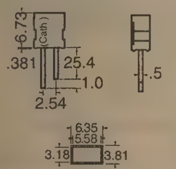


Fig. M

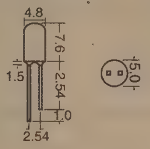


Fig. N

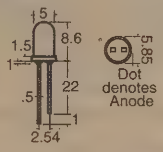


Fig. O

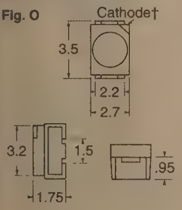


Fig. P

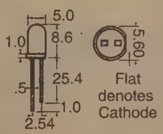


Fig. Q

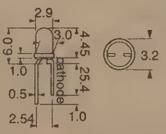


Fig.	Description	Lens	Source Color	VF	Io (mcd)	Viewing Angle	If (mA)	Digi-Key Part No.	Pricing 1	10	100
A	Sub-Mini LED	Water Clear	Orange	2.0	12.5	34	30	LT1069-ND	.27	2.28	18.20
	Sub-Mini LED	Water Clear	Green	2.1	15.0	34	30	LT1070-ND	.27	2.28	18.20
	Sub-Mini LED	Water Clear	Yellow	2.1	8.5	34	20	LT1071-ND	.27	2.28	18.20
	Sub-Mini LED	Red Diff.	Orange	2.0	3.7	90	30	LT1072-ND	.27	2.28	18.20
	Sub-Mini LED	Green Diff.	Green	2.1	2.5	90	30	LT1073-ND	.27	2.28	18.20
	Sub-Mini LED	Yellow Diff.	Yellow	2.1	5.6	90	20	LT1074-ND	.27	2.28	18.20
B	T-1 Double Flange LED	Red Diff.	Hi. Eff. Red	2.0	19.0	60	30	LT1078-ND	—	1.38	11.00
	T-1 Double Flange LED	Yellow Diff.	Yellow	2.1	12.6	60	20	LT1079-ND	—	1.38	11.00
	T-1 Double Flange LED	Green Diff.	Green	2.1	12.6	60	30	LT1080-ND	—	1.38	11.00
	T-1 Double Flange LED	Red	Hi. Eff. Red	2.0	29.0	45	30	LT1081-ND	—	1.38	11.00
	T-1 Double Flange LED	Yellow	Yellow	2.1	19.0	45	20	LT1082-ND	—	1.38	11.00
	T-1 Double Flange LED	Green	Green	2.1	40.0	45	30	LT1083-ND	—	1.38	11.00
C	T-1 3/4 No Flange LED	Red Diff.	Hi. Eff. Red	2.0	5.6	60	30	LT1087-ND	—	1.38	11.00
	T-1 3/4 No Flange LED	Yellow Diff.	Yellow	2.1	12.6	60	20	LT1088-ND	—	1.38	11.00
	T-1 3/4 No Flange LED	Green Diff.	Green	2.1	5.6	60	30	LT1089-ND	—	1.38	11.00
D	T-1 3/4 No Flange LED	Red Diff.	Hi. Eff. Red	2.0	19	45	30	LT1090-ND	—	1.53	12.20
	T-1 3/4 No Flange LED	Green Diff.	Green	2.1	8.7	60	30	LT1091-ND	—	1.53	12.20
	T-1 3/4 No Flange LED	Yellow Diff.	Yellow	2.1	19	45	20	LT1092-ND	—	1.53	12.20
E	Lo Profile T-1 3/4 LED	Red Diff.	Orange	2.0	4.0	64	30	LT1093-ND	—	1.48	11.80
	Lo Profile T-1 3/4 LED	Yellow Diff.	Yellow	2.2	4.0	64	20	LT1094-ND	—	1.55	12.40
	Lo Profile T-1 3/4 LED	Green Diff.	Green	2.2	4.0	64	30	LT1095-ND	—	1.48	11.80
	Lo Profile T-1 3/4 LED	Red	Orange	2.0	8.0	44	30	LT1096-ND	—	1.48	11.80
	Lo Profile T-1 3/4 LED	Yellow	Yellow	2.1	12.6	44	20	LT1097-ND	—	1.55	12.40
	Lo Profile T-1 3/4 LED	Green	Green	2.2	14.0	44	30	LT1098-ND	—	1.48	11.80
F	T-1 Ultrabright LED	Water Clear	Red	2.4	80	45	40	LT1034-ND	.35	2.90	23.20
	T-1 Ultrabright LED	Red Diff.	Red	2.4	48	60	40	LT1035-ND	.33	2.78	22.20
	T-1 B-Color LED	White Diff	H.E. Red/Green	2.0/2.1	4.7/10	60	30	LT1058-ND	.40	3.35	26.80
G	T-1 3/4 Bi-Color LED	White Diff.	Red/Green	2.0/2.8	1.2/8.7	50	40/30	LT1036-ND	.42	3.53	28.20
	T-1 3/4 Bi-Color LED	White Diff.	Green/Orange	2.1/2.0	8.7/5.5	50	30	LT1037-ND	.45	3.75	30.00
	T-1 3/4 Ultrabright Bi-Color LED	White Diff.	Red/Green	1.8/2.1	35/16	80	40/30	LT1038-ND	.66	5.53	44.20
	T-1 3/4 Super Bright LED	Water Clear	Red	1.8	1500	16	40	LT1104-ND	.66	5.53	44.20
H	T-1 3/4 Ultrabright Bi-Color LED	White Diff.	Orange/Green	2.0/2.1	40/20	30	30	LT1057-ND	.45	3.73	29.80
I	8mm LED	Red Diff.	Hi. Eff. Red	2.8	12.6	46	30	LT1039-ND	.27	2.28	18.20
	8mm LED	Green Diff.	Green	2.8	12.6	46	30	LT1040-ND	.27	2.28	18.20
	8mm LED	Yellow Diff.	Yellow	2.8	12.6	46	20	LT1041-ND	.27	2.28	18.20
J	SMD LED, SOT-23	Water Clear	Orange	2.0	2.0	140	30	LT1075-ND	.27	2.28	18.20
	SMD LED, SOT-23	Water Clear	Green	2.1	2.0	140	30	LT1076-ND	.27	2 28	18.20
	SMD LED, SOT-23	Water Clear	Yellow	2.2	2.0	140	20	LT1077-ND	.27	2.28	18.20
K	1.8mm Dot Point LED	Red	Hi. Eff. Red	2.0	3.0	38	30	LT1084-ND	.21	1.78	14.20
	1.8mm Dot Point LED	Yellow	Yellow	2.1	1.5	38	30	LT1085-ND	.21	1.78	14.20
	1.8mm Dot Point LED	Green	Green	2.1	3.5	38	20	LT1086-ND	.21	1.78	14.20
L	Rectangular LED	Red	Hi. Eff. Red	2.0	3.8	100	30	LT1099-ND	.35	2.90	23.20
	Rectangular LED	Green	Green	2.1	5.6	100	30	LT1100-ND	.35	2.90	23.20
	Rectangular LED	Yellow	Yellow	2.1	5.6	100	20	LT1101-ND	.35	2.90	23.20
M	T-1 3/4 Super Bright LED	Water Clear	Red	1.8	840	25	40	LT1102-ND	.66	5.53	44.20
N	T-1 3/4 Super Bright LED	Water Clear	Red	1.8	840	35	40	LT1103-ND	.66	5.53	44.20
P	T-1 3/4 LED	Red Diff.	Red	1.7	0.8	36	20	LT1124-ND	.23	1.75	12.25
	T-1 3/4 LED	Red Trans.	Red	1.7	5.5	16	20	LT1125-ND	.23	1 75	12.25
	T-1 3/4 LED	Clear	Red	1.7	5.5	16	20	LT1126-ND	.23	1.75	12.25
	T-1 3/4 LED	Red Diff.	Hi Eff. Red	2.0	8.7	36	20	LT1127-ND	.23	1.75	12.25
	T-1 3/4 LED	Red Trans.	Hi Eff. Red	2.0	40	16	20	LT1128-ND	.23	1.75	12.25
	T-1 3/4 LED	Clear	Orange	2.0	50	16	20	LT1129-ND	.23	1.75	12.25
	T-1 3/4 LED	Green Diff.	Green	2.1	8.7	36	20	LT1130-ND	.23	1.75	12.25
	T-1 3/4 LED	Green Trans.	Green	2.1	40	16	20	LT1131-ND	.23	1.75	12.25
	T-1 3/4 LED	Clear	Green	2.1	60	16	20	LT1132-ND	.23	1.75	12.25
	T-1 3/4 LED	Yellow Diff.	Yellow	2.1	8.7	36	20	LT1133-ND	.23	1.75	12.25
	T-1 3/4 LED	Yellow Trans.	Yellow	2.1	40	16	20	LT1134-ND	.23	1.75	12.25
Q	T-1 LED	Red Diff.	Red	1.7	0.8	60	20	LT1136-ND	.23	1.75	12.25
	T-1 LED	Clear	Red	1.7	3.7	45	20	LT1138-ND	.23	1.75	12.25
	T-1 LED	Red Diff.	Hi Eff. Red	2.0	5.6	60	20	LT1139-ND	.23	1.75	12.25
	T-1 LED	Red Trans.	Hi Eff. Red	2.0	12.6	45	20	LT1140-ND	.23	1.75	12.25
	T-1 LED	Clear	Orange	2.0	12.6	45	20	LT1141-ND	.23	1.75	12.25
	T-1 LED	Green Diff.	Green	2.1	5.6	60	20	LT1142-ND	.23	1.75	12.25
	T-1 LED	Green Trans.	Green	2.1	12.6	45	20	LT1143-ND	.23	1.75	12.25
	T-1 LED	Clear	Green	2.1	12.6	45	20	LT1144-ND	.23	1.75	12.25
	T-1 LED	Yellow Diff.	Yellow	2.1	5.6	60	20	LT1145-ND	.23	1.75	12.25
	T-1 LED	Yellow Trans.	Yellow	2.1	12.6	45	20	LT1146-ND	.23	1.75	12.25
	T-1 LED	Clear	Yellow	2.1	12.6	45	20	LT1147-ND	.23	1.75	12.25

Fig.	Description	Lens	Source Color	Wavelength λpk(nm)	VF	Io (mcd)	Viewing Angle	If (mA)	Digi-Key Part No.	Pricing 1	10	100	500	Digi-Key Part No.	Tape & Reel Pricing 1500	6000
O	SMD LED	Water Clear	Orange	630	2.0	10	120	30	LT1119CT-ND	.36	3.00	24.00	105.00	LT1119TR-ND	180.00/M	168.00/M
O	SMD LED	Water Clear	Green	565	2.1	10	120	30	LT1120CT-ND	.36	3.00	24.00	105.00	LT1120TR-ND	180.00/M	168.00/M
O	SMD LED	Water Clear	Amber	610	2.1	10	120	30	LT1121CT-ND	.36	3.00	24.00	105.00	LT1121TR-ND	180.00/M	168.00/M
O	SMD LED	Water Clear	Yellow	585	2.1	7	120	20	LT1122CT-ND	.36	3.00	24.00	105.00	LT1122TR-ND	180.00/M	168.00/M
O	SMD LED	Water Clear	Red	660	1.8	20	120	40	LT1123CT-ND†	.54	4.48	35.80	156.63	LT1123TR-ND†	269.00/M	251.00/M

† For part number LT1123, the notch is an anode

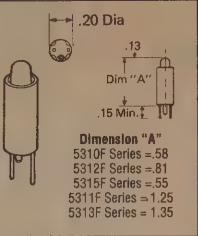
INDUSTRIAL DEVICES, INC. PC Board Mounted LEDs

9118B-ND IDI Data Book **$4.98**

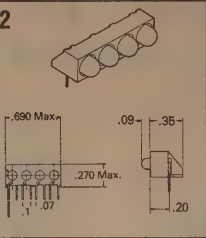
Color	Rated Current (mA)	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing				IDI Model No.	Fig.
				1	25	100	250		
T1									
Red	10	2.0	L20261-ND	1.10	22.33	64.60	142.50	5310F1	1
Green	20	2.2	L20265-ND	1.10	22.33	64.60	142.50	5310F5	1
Yellow	20	2.1	L20267-ND	1.10	22.33	64.60	142.50	5310F7	1
Red	10	2.0	L20271-ND	1.10	22.33	64.60	142.50	5312F1	1
Green	20	2.2	L20275-ND	1.10	22.33	64.60	142.50	5312F5	1
Yellow	20	2.1	L20277-ND	1.10	22.33	64.60	142.50	5312F7	1
Red	10	2.0	L20281-ND	1.10	22.33	64.60	142.50	5315F1	1
Green	20	2.2	L20285-ND	1.10	22.33	64.60	142.50	5315F5	1
Yellow	20	2.1	L20287-ND	1.10	22.33	64.60	142.50	5315F7	1
Red	10	2.0	L20711-ND ***NEW!***	1.19	24.09	69.70	153.75	5311F1	1
Green	20	2.2	L20715-ND ***NEW!***	1.19	24.09	69.70	153.75	5311F5	1
Yellow	20	2.1	L20717-ND ***NEW!***	1.19	24.09	69.70	153.75	5311F7	1
Red	10	2.0	L20721-ND ***NEW!***	1.19	24.09	69.70	153.75	5313F1	1
Green	20	2.2	L20725-ND ***NEW!***	1.19	24.09	69.70	153.75	5313F5	1
Yellow	20	2.1	L20727-ND ***NEW!***	1.19	24.09	69.70	153.75	5313F7	1
Red	10	2.0	L20151-ND	2.23	45.24	130.90	288.75	5360F1	2
Green	20	2.2	L20155-ND	2.23	45.24	130.90	288.75	5360F5	2
Yellow	20	2.1	L20157-ND	2.23	45.24	130.90	288.75	5360F7	2
Red	10	2.0	L20321-ND	.61	12.34	35.70	78.75	5600F1	3
Green	20	2.2	L20325-ND	.61	12.34	35.70	78.75	5600F5	3
Yellow	20	2.1	L20327-ND	.61	12.34	35.70	78.75	5600F7	3
Red	10	5.0	L20331-ND	.84	17.04	49.30	108.75	5602F1-5V	3
Amber	10	5.0	L20333-ND	.84	17.04	49.30	108.75	5602F3-5V	3
Green	12	5.0	L20335-ND	.84	17.04	49.30	108.75	5602F5-5V	3
Red	20	1.8	L20191-ND	1.02	20.56	59.50	131.25	5608F1	4
Green	20	2.3	L20195-ND	.93	18.80	54.40	120.00	5608F5	4
Yellow	20	2.2	L20197-ND	.93	18.80	54.40	120.00	5608F7	4
Red	10	2.0	L20361-ND	.61	12.34	35.70	78.75	5650F1	5
Green	20	2.2	L20365-ND	.61	12.34	35.70	78.75	5650F5	5
Yellow	20	2.1	L20367-ND	.61	12.34	35.70	78.75	5650F7	5
Red	2.0	1.8	L20371-ND	.78	15.86	45.90	101.25	5650F1LC	5
Yellow	2.0	1.9	L20377-ND	.78	15.86	45.90	101.25	5650F7LC	5
Red	13	5.0	L20381-ND	.84	17.04	49.30	108.75	5652F1-5V	5
Amber	10	5.0	L20383-ND	.84	17.04	49.30	108.75	5652F3-5V	5
Green	12	5.0	L20385-ND	.84	17.04	49.30	108.75	5652F5-5V	5
Red	10	2.0	L20401-ND	1.39	28.20	81.60	180.00	5680F1;1	6
Green	20	2.2	L20405-ND	1.39	28.20	81.60	180.00	5680F5;5	6
Yellow	20	2.1	L20407-ND	1.39	28.20	81.60	180.00	5680F7;7	6
Red	10	2.2	L20411-ND	.90	18.21	52.70	116.25	6321F1	7
Green	10	2.3	L20415-ND	.90	18.21	52.70	116.25	6321F5	7
Yellow	10	2.2	L20417-ND	.90	18.21	52.70	116.25	6321F7	7
Red	10	2.0	L20421-ND	1.10	22.33	64.60	142.50	5322F1	8
Green	20	2.2	L20425-ND	1.10	22.33	64.60	142.50	5322F5	8
Yellow	20	2.1	L20427-ND	1.10	22.33	64.60	142.50	5322F7	8
Red	10	2.0	L20431-ND	1.10	22.33	64.60	142.50	5320F1	8
Green	20	2.2	L20435-ND	1.10	22.33	64.60	142.50	5320F5	8
Yellow	20	2.1	L20437-ND	1.10	22.33	64.60	142.50	5320F7	8
Red	10	2.0	L20441-ND	1.10	22.33	64.60	142.50	5321F1	8
Green	20	2.2	L20445-ND	1.10	22.33	64.60	142.50	5321F5	8
Yellow	20	2.1	L20447-ND	1.10	22.33	64.60	142.50	5321F7	8
Red	10	2.2	L2045111-ND	3.45	69.91	202.30	446.25	5693F1;1;1	9
Green	10	2.3	L2045555-ND	3.45	69.91	202.30	446.25	5693F5;5;5	9
Yellow	10	2.2	L2045777-ND	3.45	69.91	202.30	446.25	5693F7;7;7	9
Red	10	2.2	L20461111-ND	4.81	97.53	282.20	622.50	5694F1;1;1;1	10
Green	10	2.3	L20465555-ND	4.81	97.53	282.20	622.50	5694F5;5;5;5	10
Yellow	10	2.2	L20467777-ND	4.81	97 53	282 20	622 50	5694F7,7 7 7	10
T $1^{3}/_{4}$									
Red	20	1.7	L20001-ND	.61	12.34	35.70	78.75	5300E1	11
Red	20	2.0	L20011-ND	.61	12.34	35.70	78.75	5300H1	11
Green	20	2.2	L20015-ND	.61	12.34	35.70	78.75	5300H5	11
Yellow	20	2.1	L20017-ND	.61	12.34	35.70	78.75	5300H7	11
Red	10	5.0	L20021-ND	.84	17.04	49.30	108.75	5302H1-5V	11
Amber	10	5.0	L20023-ND	.84	17.04	49.30	108.75	5302H3-5V	11
Green	20	5.0	L20025-ND	.84	17.04	49.30	108.75	5302H5-5V	11
Red	2	1.8	L20031-ND	.78	15.86	45.90	101.25	5300H1LC	11
Green	2	1.8	L20035-ND	.78	15.86	45.90	101.25	5300H5LC	11
Yellow	2	1.9	L20037-ND	.78	15.86	45.90	101.25	5300H7LC	11
Red	35	3.0	L20041-ND	.75	15.28	44.20	97.50	5308H1	11
Green	20	2.5	L20045-ND	.75	15.28	44.20	97.50	5308H5	11
Yellow	20	2.1	L20047-ND	.75	15.28	44.20	97.50	5308H7	11
Red/Green	10	2.2	L20048-ND	1.45	29.38	85.00	187.50	5300H1/5	11
Red	20	3.5	L20581-ND ***NEW!***	1.77	35.84	103.70	228.75	5300H1FL	12
Green	20	3.5	L20585-ND ***NEW!***	1.77	35.84	103.70	228.75	5300H5FL	12
Yellow	20	3.5	L20587-ND ***NEW!***	1.77	35.84	103.70	228.75	5300H7FL	12
Red	20	2.0	L20171-ND	.78	15.86	45.90	101.25	5306H1	13
Amber	20	2.0	L20173-ND	.78	15.86	45.90	101.25	5306H3	13
Green	20	2.2	L20175-ND	.78	15.86	45.90	101.25	5306H5	13
Yellow	20	2.1	L20177-ND	.78	15.86	45.90	101.25	5306H7	13
Red	20	2.0	L20051-ND	.78	15.86	45.90	101.25	5307H1	14
Green	20	2.2	L20055-ND	.78	15.86	45.90	101.25	5307H5	14
Yellow	20	2.1	L20057-ND	.78	15.86	45.90	101.25	5307H7	14
Red	20	2.0	L20061-ND	.78	15.86	45.90	101.25	5330H1	15
Green	20	2.2	L20065-ND	.78	15.86	45.90	101.25	5330H5	15
Yellow	20	2.2	L20067-ND	.78	15.86	45.90	101.25	5330H7	15
Red	20	2.0	L20731-ND ***NEW!***	.78	15.86	45.90	101.25	5331H1	15
Green	20	2.1	L20735-ND ***NEW!***	.78	15.86	45.90	101.25	5331H5	15
Yellow	20	2.1	L20737-ND ***NEW!***	.78	15.86	45.90	101.25	5331H7	15
Red	20	2.0	L20251-ND	1.19	24.09	69.70	153.75	5341H1	16
Green	20	2.1	L20255-ND	1.19	24.09	69.70	153.75	5341H5	16
Yellow	20	2.1	L20257-ND	1.19	24.09	69.70	153.75	5341H7	16
Red	20	1.7	L20301-ND	.61	12.34	35.70	78.75	5380E1	17
Red	20	2.0	L20311-ND	.61	12.34	35.70	78.75	5380H1	17
Green	20	2.2	L20315-ND	.61	12.34	35.70	78.75	5380H5	17
Yellow	20	2.1	L20317-ND	.61	12.34	35.70	78.75	5380H7	17
Red	20	2.0	L20161-ND	.67	13.51	39.10	86.25	5381H1	18
Green	20	2.2	L20165-ND	.67	13.51	39.10	86.25	5381H5	18
Yellow	20	2.1	L20167-ND	.67	13.51	39.10	86.25	5381H7	18
Red	20	1.7	L20341-ND	2.52	51.11	147.90	326.25	5640E1	19
Red	20	2.0	L20351-ND	2.52	51.11	147.90	326.25	5640H1	19
Green	20	2.2	L20355-ND	2.52	51.11	147.90	326.25	5640H5	19
Yellow	20	2.1	L20357-ND	2.52	51.11	147.90	326.25	5640H7	19
Red	20	2.0	L20391-ND	1.39	28.20	81.60	180.00	5670H1;1	20
Green	20	2.2	L20395-ND	1.39	28.20	81.60	180.00	5670H5;5	20
Yellow	20	2.1	L20397-ND	1.39	28.20	81.60	180.00	5670H7;7	20

NOTE: Figures 1-10 are T1's; Figures 11-23 are T1 $^{3}/_{4}$'s

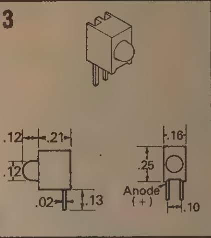
1


.20 Dia
.13
Dim "A"
.15 Min.
Dimension "A"
5310F Series =.58
5312F Series =.81
5315F Series =.55
5311F Series =1.25
5313F Series = 1.35

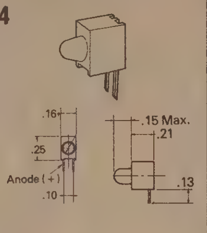
2


.690 Max
.09
.35
.270 Max.
.1
.07
.20

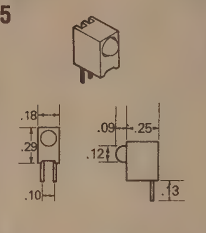
3


.12
.21
.16
.12
.25
Anode (+)
.02
.13
.10

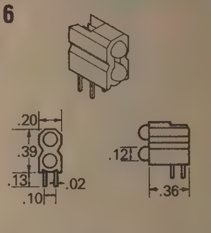
4


.16
.15 Max.
.21
.25
Anode (+)
.10
.13

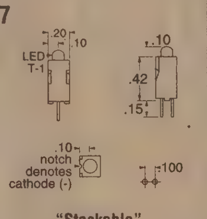
5


.18
.29
.09
.25
.12
.10
.13

6

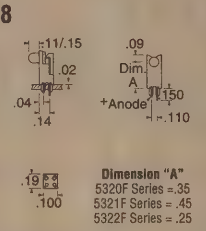

.20
.39
.13
.10
.02
.12
.36

7

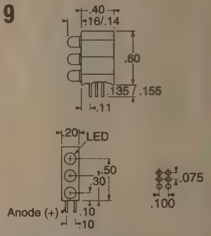

.20
.10
LED T-1
.10
.42
.15
.10
notch denotes cathode (-)
.100

"Stackable"

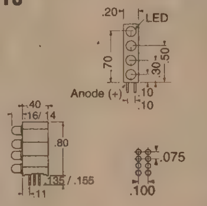
8


.11/.15
.02
.09
Dim. A
.04
.14
+Anode
.150
.110
.19
.100
Dimension "A"
5320F Series =.35
5321F Series = .45
5322F Series = .25

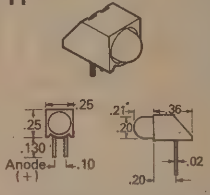
9


.40
.16/.14
.60
.135/.155
.11
.20
LED
.50
.30
Anode (+)
.10
.10
.075
.100

10

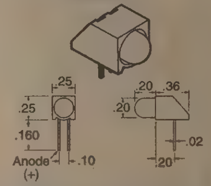

.20
LED
.70
.50
.30
Anode (+)
.10
.10
.40
.16/.14
.80
.135/.155
.11
.075
.100

11


.25
.25
.130
Anode (+)
.10
.21
.20
.36
.02
.20

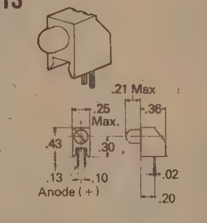
* .13 for Part No. L20001-ND

12 – Flasher

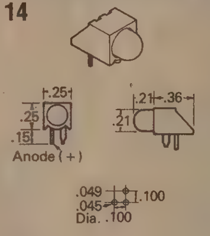

.25
.25
.160
Anode (+)
.10
.20
.36
.20
.02
.20

Flashing rate: 1.5 - 2.5 Hz

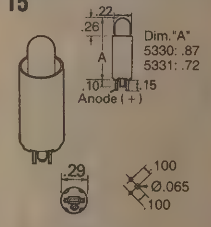
13


.21 Max
.25 Max.
.36
.43
.30
.13
.10
Anode (+)
.02
.20

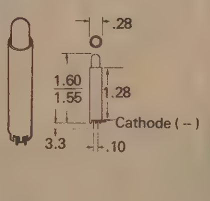
14


.25
.25
.15
Anode (+)
.21
.36
.21
.049
.045
Dia.
.100
.100

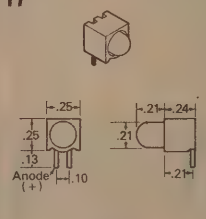
15


.22
.26
A
Dim."A"
5330: .87
5331: .72
.10
.15
Anode (+)
.29
.100
Ø.065
.100

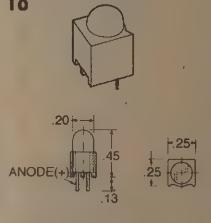
16


.28
1.60
1.55
1.28
Cathode (–)
3.3
.10

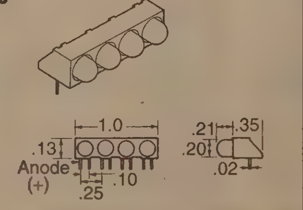
17


.25
.25
.13
Anode (+)
.10
.21
.24
.21
.21

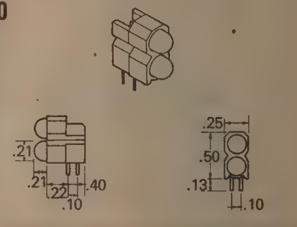
18


.20
ANODE(+)
.45
.13
.25
.25

19


1.0
.13
Anode (+)
.10
.25
.21
.35
.20
.02

20


.21
.21
.22
.40
.10
.25
.50
.13
.10

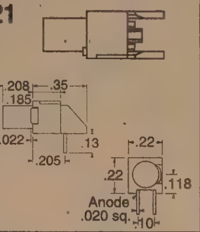
INDUSTRIAL DEVICES, INC. PC Board Mounted LEDs

Color	Rated Current (mA)	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing 1	25	100	250	IDI Model No.	Fig.
T 1 3/4									
Red	20	2.2	L20471-ND	.99	19.98	57.80	127.50	5309K1	21
Green	20	2.3	L20475-ND	.99	19.98	57.80	127.50	5309K5	21
Yellow	20	2.2	L20477-ND	.99	19.98	57.80	127.50	5309K7	21
Red	20	2.0	L20491-ND	.78	15.86	45.90	101.25	5332H1	22
Green	20	2.1	L20495-ND	.78	15.86	45.90	101.25	5332H5	22
Yellow	20	2.1	L20497-ND	.78	15.86	45.90	101.25	5332H7	22
Red/Green	15	2.1	L20488-ND	1.94	39.36	113.90	251.25	5305H1/5	23
Amber/Green	15	2.1	L205935-ND ***NEW!***	1.94	39.36	113.90	251.25	5305H3/5	23
2mm									
Red	10	2.2	L20081-ND	.93	18.80	54.40	120.00	5350T1	24
Green	10	2.3	L20085-ND	.93	18.80	54.40	120.00	5350T5	24
Yellow	10	2.2	L20087-ND	.93	18.80	54.40	120.00	5350T7	24
Red	9.6	5.0	L20091-ND	1.04	21.15	61.20	135.00	5352T1-5V	24
Amber	10	5.0	L20093-ND	1.04	21.15	61.20	135.00	5352T3-5V	24
Green	10	5.0	L20095-ND	1.04	21.15	61.20	135.00	5352T5-5V	24
Red	2	1.8	L20101-ND	1.10	22.33	64.60	142.50	5350T1LC	24
Green	2	1.8	L20105-ND	1.10	22.33	64.60	142.50	5350T5LC	24
Yellow	2	1.9	L20107-ND	1.10	22.33	64.60	142.50	5350T7LC	24
Red	3.5	5.0	L20111-ND	1.10	22.33	64.60	142.50	5352T1-5VLC	24
Amber	3.5	5.0	L20113-ND	1.10	22.33	64.60	142.50	5352T3-5VLC	24
Green	3.5	5.0	L20115-ND	1.10	22.33	64.60	142.50	5352T5-5VLC	24
Red	10	2.2	L20121-ND	1.57	31.73	91.80	202.50	5370T1	25
Green	10	2.3	L20125-ND	1.57	31.73	91.80	202.50	5370T5	25
Yellow	10	2.2	L20127-ND	1.57	31.73	91.80	202.50	5370T7	25
Red	9.5	5.0	L20131-ND	1.71	34.66	100.30	221.25	5372T1-5V	25
Amber	10	5.0	L20133-ND	1.71	34.66	100.30	221.25	5372T3-5V	25
Green	10	5.0	L20135-ND	1.71	34.66	100.30	221.25	5372T5-5V	25
Red	2	1.8	L20141-ND	1.74	35.25	102.00	225.00	5370T1LC	25
Green	2	1.8	L20145-ND	1.74	35.25	102.00	225.00	5370T5LC	25
Yellow	2	1.9	L20147-ND	1.74	35.25	102.00	225.00	5370T7LC	25
Red	3.5	5.0	L20291-ND	1.74	35.25	102.00	225.00	5372T1-5VLC	25
Amber	3.5	5.0	L20293-ND	1.74	35.25	102.00	225.00	5372T3-5VLC	25
Green	3.5	5.0	L20295-ND	1.74	35.25	102.00	225.00	5372T5-5VLC	25
Rectangular									
Red	20	2.2	L20501-ND	1.31	26.44	76.50	168.75	5612R1	26
Green	20	2.3	L20505-ND	1.31	26.44	76.50	168.75	5612R5	26
Yellow	20	2.2	L20507-ND	1.31	26.44	76.50	168.75	5612R7	26
Red	25	2.2	L20511-ND	1.19	24.09	69.70	153.75	5610R1	27
Green	20	2.3	L20515-ND	1.19	24.09	69.70	153.75	5610R5	27
Yellow	20	2.2	L20517-ND	1.19	24.09	69.70	153.75	5610R7	27
Red	25	2.2	L20521-ND	1.31	26.44	76.50	168.75	5611R1	27
Green	20	2.3	L20525-ND	1.31	26.44	76.50	168.75	5611R5	27
Yellow	20	2.2	L20527-ND	1.31	26.44	76.50	168.75	5611R7	27
Red	20	2.1	L20541-ND	1.31	26.44	76.50	168.75	5636D1	28
Green	20	2.1	L20545-ND	1.31	26.44	76.50	168.75	5636D5	28
Yellow	20	2.2	L20547-ND	1.31	26.44	76.50	168.75	5636D7	28
Red	25	2.1	L20561-ND	1.19	24.09	69.70	153.75	5620R1	29
Green	20	2.3	L20565-ND	1.19	24.09	69.70	153.75	5620R5	29
Yellow	20	2.2	L20567-ND	1.19	24.09	69.70	153.75	5620R7	29
Red	10	2.1	L20571-ND	6.26	126.90	367.20	810.00	5638D1	30
Red/Green	20	2.1/2.3	L20558-ND	2.03	41.13	119.00	262.50	5639D1/5	31

Color	Rated Current (mA)	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing 1	10	100	Digi-Key Part No.	Tape and Reel 750	IDI Model No.	Fig.
PC Board Mount on Tape and Reel										
Red	10	2.0	L60011CT-ND	1.09	9.30	77.50	L60011TR-ND	348.75	5655F1	32
Amber	10	2.0	L60013CT-ND	1.09	9.30	77.50	L60013TR-ND	348.75	5655F3	32
Green	20	2.2	L60015CT-ND	1.09	9.30	77.50	L60015TR-ND	348.75	5655F5	32
Yellow	20	2.1	L60017CT-ND	1.09	9.30	77.50	L60017TR-ND	348.75	5655F7	32

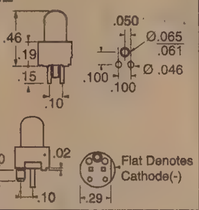
NOTE: Figures 24-25 are 2mm Diameter LED's; Figure 32 is Tape & Reel.

21



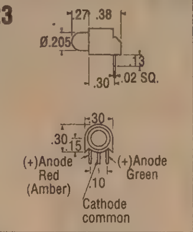
.208
.35
.185
.022
.13
.205
.22
.22
.118
Anode
.020 sq.
.10

22



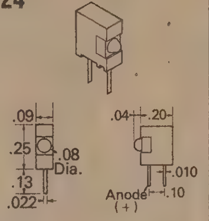
.46
.19
.15
.050
Ø.065
.061
.100
Ø .046
.100
.10
.10
.02
.10
Flat Denotes
Cathode(-)
.29

23



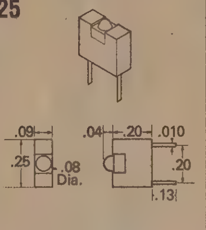
.27
.38
Ø.205
.13
.30
.02 SQ.
.30
.30
.15
(+)Anode
Red
(Amber)
(+)Anode
Green
.10
Cathode
common

24



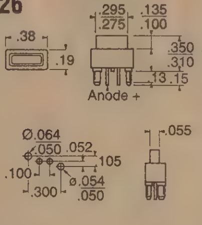
.09
.25
.08
Dia.
.13
.022
.04
.20
.010
Anode
(+)
.10

25



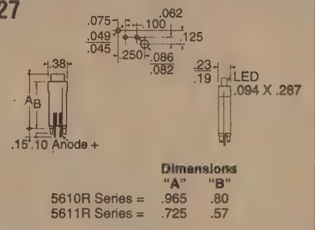
.09
.25
.08
Dia.
.04
.20
.010
.20
.13

26



.295
.275
.135
.100
.38
.19
.350
.310
.13
.15
Anode +
Ø.064
.050
.052
.105
.055
.100
.300
Ø.054
.050

27

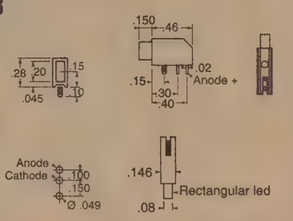


.075
.049
.045
.062
.100
.125
.250
.086
.082
.38
.23
.19
LED
.094 X .287
A
B
.15
.10
Anode +

Dimensions

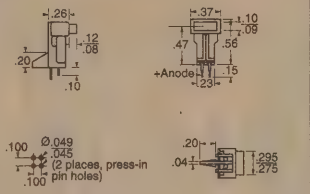
	"A"	"B"
5610R Series =	.965	.80
5611R Series =	.725	.57

28



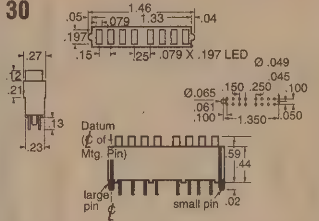
.150
.46
.28
.20
.15
.045
.10
.15
.30
.40
.02
Anode +
Anode
Cathode
.100
.150
Ø .049
.146
Rectangular led
.08

29



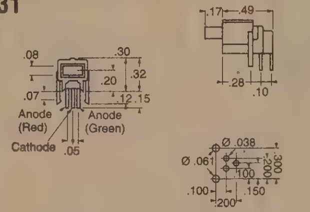
.26
.12
.08
.20
.10
.37
.10
.09
.47
.56
+Anode
.15
.23
.100
Ø.049
.045
(2 places, press-in
pin holes)
.100
.20
.04
.295
.275

30



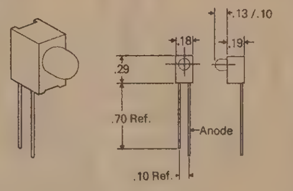
1.46
.05
.079
1.33
.04
.197
.15
.25
.079 X .197 LED
Ø .049
.045
.27
.12
.21
.13
.23
Ø.065
.061
.150
.250
.100
.100
1.350
.050
Datum
(℄ of
Mtg. Pin)
.59
.44
large
pin
small pin
.02

31



.17
.49
.28
.10
.08
.30
.32
.20
.07
.12
.15
Anode
(Red)
Anode
(Green)
Cathode
.05
Ø .038
Ø .061
.100
.300
.100
.150
.200

32

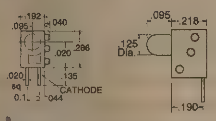


.13 / .10
.18
.19
.29
.70 Ref.
Anode
.10 Ref.

Chicago Miniature Brand Lamps

Modular LEDs

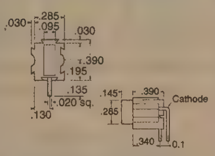
T1



.192
.095
.040
.095
.218
.125
Dia.
.286
.020
.135
.020
sq
0.1
.044
CATHODE
.190

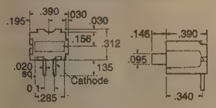
Mount from 1 to 12 circuit board indicators, as a single unit. Unique snap-together feature.

Right Angle-Vertical



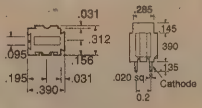
.030
.285
.095
.030
.390
.195
.135
.020 sq.
.130
.145
.390
.265
Cathode
.340
0.1

Right Angle-Horizontal



.195
.390
.030
.030
.156
.312
.145
.390
.095
.020
sq.
.135
Cathode
0.1
.285
.340

Straight Vertical Mount



.031
.312
.095
.156
.195
.031
.390
.285
.145
.390
.135
.020 sq.
0.2
Cathode

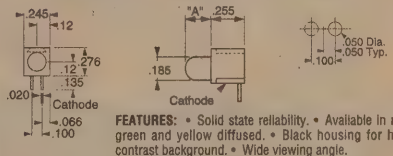
FEATURES: • Mount up to 12 LEDs in one operation. • Unitized, vibration resistant package. • Black housing for high contrast background. • Wide viewing angle. • Vertical or horizontal positioning. • Interlocking construction. • Hi brite diffused LEDs. • Speeds mounting for increased productivity and reduced cost.

9221B-ND ***NEW!*** Chicago Miniature 1994 Data Book **$2.95**

LED/Lens	Forward Voltage Typ.	If=(mA)	Min. V_R	Max. I_F (mA)	Typ. I_V	View Angle	Digi-Key Part No.	Pricing 1	10	Mfg. Part No.
T1										
Red/Clear	2.2	20	5.0	30	60.0	40°	CMC01R-ND	.87	6.99	CMC01R
Yellow/Clear	2.2	20	5.0	20	60.0	40°	CMC01Y-ND	.87	6.99	CMC01Y
Green/Clear	2.2	20	5.0	30	60.0	40°	CMC01G-ND	.87	6.99	CMC01G
Red/Diff.	2.0	20	5.0	30	7.0	90°	CMW01R-ND	.87	6.99	CMW01R
Yellow/Diff.	2.1	20	5.0	30	6.0	90°	CMW01Y-ND	.87	6.99	CMW01Y
Green/Diff.	2.2	20	5.0	30	5.0	90°	CMW01G-ND	.87	6.99	CMW01G
Right Angle Vertical										
Red/Diff.	2.0	20	5.0	30	5.0	100°	CMV01R-ND	.85	6.82	CMV01R
Yellow/Diff.	2.0	20	5.0	30	5.0	100°	CMV01Y-ND	.85	6.82	CMV01Y
Green/Diff.	2.1	20	5.0	30	5.0	100°	CMV01G-ND	.85	6.82	CMV01G
Right Angle Horizontal										
Red/Diff.	2.0	20	5.0	30	5.0	100°	CMR01R-ND	.85	6.82	CMR01R
Yellow/Diff.	2.0	20	5.0	30	5.0	100°	CMR01Y-ND	.85	6.82	CMR01Y
Green/Diff.	2.1	20	5.0	30	5.0	100°	CMR01G-ND	.85	6.82	CMR01G
Straight Vertical Mount										
Red/Diff.	2.0	20	5.0	30	5.0	100°	CMS01R-ND	.85	6.82	CMS01R
Yellow/Diff.	2.0	20	5.0	30	5.0	100°	CMS01Y-ND	.85	6.82	CMS01Y
Green/Diff.	2.1	20	5.0	30	5.0	100°	CMS01G-ND	.85	6.82	CMS01G

Circuit Board Indicators, T-1 3/4 Lens Size

CM-SERIES — Stackable Using Tie Bar



.245
.12
.276
.12
.135
.020
Cathode
.066
.100
"A"
.255
.185
Cathode
.050 Dia.
.050 Typ.
.100

FEATURES: • Solid state reliability. • Available in red, green and yellow diffused. • Black housing for high contrast background. • Wide viewing angle.

12 Position Tie Bar

Typ. VF (V)	mcd If @ 20mA	View Angle	Diffused Lens Color(s)	Dim "A"	Digi-Key Part No.	Pricing 1	10	Mfg. Part No.
2.0	7.0*	70°	Red	.125	CMI01R-ND	.90	7.17	CMI01R
2.2	5.0	70°	Green	.125	CMI01G-ND	.90	7.17	CMI01G
2.1	6.0	70°	Yellow	.125	CMI01Y-ND	.90	7.17	CMI01Y
2.0	7.0	70°	Red	.187	CMO01R-ND	1.02	8.19	CMO01R
2.2	5.0	70°	Green	.187	CMO01G-ND	1.02	8.19	CMO01G
2.1	6.0	70°	Yellow	.187	CMO01Y-ND	1.02	8.19	CMO01Y
2.0	7.0	70°	Orange	.187	CMO01O-ND	1.02	8.19	CMO01O
Breakable Tie Bar (12 Positions)					CMT12-ND	.36	2.90	CMT12

* Measured at 10mA; all rest at 20mA.

INDUSTRIAL DEVICES, INC.

NEW! PC Board Mount T-1 LEDs

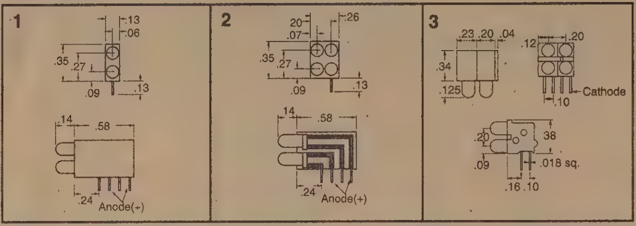

1
.13
.06
.35
.27
.09
.13
.14
.58
.24
Anode(+)
2
.20
.26
.07
.35
.27
.09
.13
.14
.58
.24
Anode(+)
3
.23 .20 .04
.12
.20
.34
.125
Cathode
.10
.20
38
.09
.018 sq.
.16 .10

Fig. No.	Color	Typ. mcd	Forward Voltage mA	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	IDI Model No.
1	Red	10.0	10	2.2	L206011-ND	2.58	52.29	151.30	5682F1;1
1	Green	8.5	10	2.3	L206055-ND	2.58	52.29	151.30	5682F5;5
1	Yellow	10.0	10	2.2	L206077-ND	2.58	52.29	151.30	5682F7;7
2	Red	10.0	10	2.2	L206111-ND	4.81	97.53	282.20	5684F1;1;1;1
2	Green	8.5	10	2.3	L206555-ND	4.81	97.53	282.20	5684F5;5;5;5
2	Yellow	10.0	10	2.2	L206777-ND	4.81	97.53	282.20	5684F7;7;7;7
3	Red	10.0	10	2.2	L206211-ND	2.61	52.88	153.00	5690F11
3	Green	8.5	10	2.3	L206255-ND	2.61	52.88	153.00	5690F55
3	Yellow	10.0	10	2.2	L206277-ND	2.61	52.88	153.00	5690F77

NEW! Circuit Board Indicator

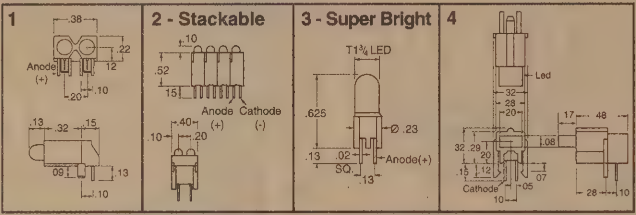
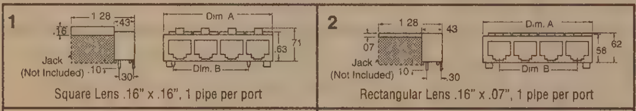

1
.38
Anode (+)
.22
.12
.20
.10
.13
.32
.15
.09
.13
.10
2 - Stackable
.10
.52
.15
Anode (+)
Cathode (-)
.40
.10
.20
3 - Super Bright
T1¾ LED
.625
Ø .23
.13
.02
SQ.
.13
Anode(+)
4
Led
.32
.28
.20
.17
.48
.08
32 .29
.20
.15 .12
.07
Cathode
.05
.10
.28
.10

Fig. No.	Color	Typ. mcd	Forward Voltage mA	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	IDI Model No.
1	Red/Red	6.0	10	2.0	L206311-ND	1.74	35.25	102.00	5365F1;1
1	Green/Green	12.0	20	2.2	L206355-ND	1.74	35.25	102.00	5365F5;5
1	Yellow/Yellow	20.0	20	2.1	L206377-ND	1.74	35.25	102.00	5365F7;7
2	Red/Red	10.0	10	2.2	L206411-ND	1.51	30.55	88.40	6322F11
2	Green/Green	8.5	10	2.3	L206455-ND	1.51	30.55	88.40	6322F55
2	Yellow/Yellow	10.0	10	2.2	L206477-ND	1.51	30.55	88.40	6322F77
3	Red	30.0	20	2.0	L20651-ND	.90	18.21	52.70	5340H1
3	Green	30.0	20	2.2	L20655-ND	.90	18.21	52.70	5340H5
3	Yellow	25.0	20	2.2	L20657-ND	.90	18.21	52.70	5340H7
3	Red	2.0	2	1.8	L20661-ND	.99	19.98	57.80	5340H1LC
3	Green	2.5	2	1.8	L20665-ND	.99	19.98	57.80	5340H5LC
3	Yellow	2.0	2	1.9	L20667-ND	.99	19.98	57.80	5340H7LC
3	Red	6.0	10	5.0	L20671-ND	1.10	22.33	64.60	5340H1-5V
3	Amber	7.0	10	5.0	L20673-ND	1.10	22.33	64.60	5340H3-5V
3	Green	10.0	10	5.0	L20675-ND	1.10	22.33	64.60	5340H5-5V
4	Red	4.0	20	2.0	L20701-ND	1.02	20.56	59.50	5635D1
4	Green	4.0	20	2.2	L20705-ND	1.02	20.56	59.50	5635D5
4	Yellow	4.0	20	2.1	L20707-ND	1.02	20.56	59.50	5635D7

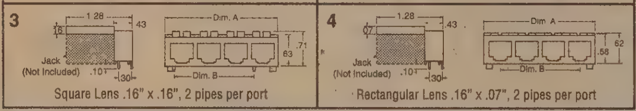
NEW! Optical Light Pipes for RJ-Style Jacks

Optical Light Pipes provide a cost effective solution to the problem of getting the light from SMD LED's up and over your RJ-Style jacks while allowing the LED to be mounted away from the jack to prevent interference.


1
1.28
.43
.16
Jack (Not Included)
.10
.30
Dim. A
Dim. B
.63
.71
2
1.28
.43
.07
Jack (Not Included)
.10
.30
Dim. A
Dim. B
.58
.62

Square Lens .16" x .16", 1 pipe per port

Rectangular Lens .16" x .07", 1 pipe per port

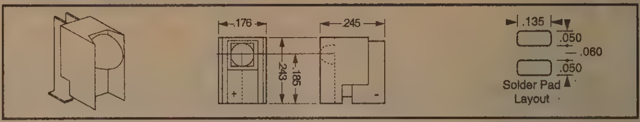

3
1.28
.43
.16
Jack (Not Included)
.10
.30
Dim. A
Dim. B
.63
.71
4
1.28
.43
.07
Jack (Not Included)
.10
.30
Dim A
Dim. B
.58
.62

Square Lens .16" x .16", 2 pipes per port

Rectangular Lens .16" x .07", 2 pipes per port

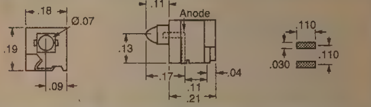
Fig. No.	No. of Ports	Dimensions A	Dimensions B	Digi-Key Part No.	Pricing 1	Pricing 25	Pricing 100	Pricing 250	IDI Part No.
1	1	.55	—	L70011-ND	1.97	39.95	115.60	255.00	7101P1-M
1	2	1.10	.55	L70012-ND	2.93	59.34	171.70	378.75	7101P2-M
1	3	1.65	1.10	L70013-ND	3.86	78.14	226.10	498.75	7101P3-M
1	4	2.20	1.65	L70014-ND	4.81	97.53	282.20	622.50	7101P4-M
2	1	.55	—	L70021-ND	1.97	39.95	115.60	255.00	7101R1-M
2	2	1.10	.55	L70022-ND	2.93	59.34	171.70	378.75	7101R2-M
2	3	1.65	1.10	L70023-ND	3.86	78.14	226.10	498.75	7101R3-M
2	4	2.20	1.65	L70024-ND	4.81	97.53	282.20	622.50	7101R4-M
3	1	.55	—	L70031-ND	2.47	49.94	144.50	318.75	7102P1-M
3	2	1.10	.55	L70032-ND	3.89	78.73	227.80	502.50	7102P2-M
3	3	1.65	1.10	L70033-ND	5.34	108.28	313.31	691.13	7102P3-M
3	4	2.20	1.65	L70034-ND	6.76	136.89	396.10	873.75	7102P4-M
4	1	.55	—	L70041-ND	2.47	49.94	144.50	318.75	7102R1-M
4	2	1.10	.55	L70042-ND	3.89	78.73	227.80	502.50	7102R2-M
4	3	1.65	1.10	L70043-ND	5.34	108.10	312.80	690.00	7102R3-M
4	4	2.20	1.65	L70044-ND	6.76	136.89	396.10	873.75	7102R4-M

Surface Mount LED's


.176
.245
.243
.185
+
-
.135
.050
.060
.050
Solder Pad Layout

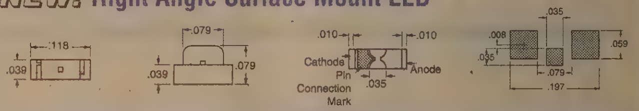
Color	Rated Current (mA)	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel 1,000	IDI Model No.
Red	10	2.2	L60001CT-ND	1.35	11.61	96.75	L60001TR-ND	615.00	6200T1
Amber	10	2.0	L60003CT-ND	1.35	11.61	96.75	L60003TR-ND	615.00	6200T3
Green	10	2.3	L60005CT-ND	1.35	11.61	96.75	L60005TR-ND	615.00	6200T5
Yellow	10	2.2	L60007CT-ND	1.35	11.61	96.75	L60007TR-ND	615.00	6200T7

NEW! Sub-Miniature Surface Mount LED Assemblies


.18
Ø.07
.19
.09
.11
Anode
.13
.17
.11
.21
.04
.110
.110
.030

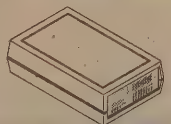
Color	Typ. mcd	Forward Voltage Typ. (V)	Forward Voltage mA	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel 750	IDI Model No.
Red	5.0	2.2	10	L60041CT-ND	1.37	11.70	97.50	L60041TR-ND	438.75	6255T1
Green	4.0	2.3	10	L60045CT-ND	1.37	11.70	97.50	L60045TR-ND	438.75	6255T5
Yellow	3.8	2.2	10	L60047CT-ND	1.37	11.70	97.50	L60047TR-ND	438.75	6255T7
Red	5.0	5.0	9.6	L60061CT-ND	1.51	12.90	107.50	L60061TR-ND	483.75	6255T1-5V
Amber	5.0	5.0	10	L60063CT-ND	1.51	12.90	107.50	L60063TR-ND	483.75	6255T3-5V
Green	5.0	5.0	10	L60065CT-ND	1.51	12.90	107.50	L60065TR-ND	483.75	6255T5-5V
Red	0.5	1.8	2.0	L60051CT-ND	1.58	13.50	112.50	L60051TR-ND	506.25	6255T1LC
Green	1.2	1.8	2.0	L60055CT-ND	1.58	13.50	112.50	L60055TR-ND	506.25	6255T5LC
Yellow	0.5	1.9	2.0	L60057CT-ND	1.58	13.50	112.50	L60057TR-ND	506.25	6255G7LC
Red	2.0	5.0	3.5	L60071CT-ND	1.58	13.50	112.50	L60071TR-ND	506.25	6255T1-5VLC
Amber	4.0	5.0	3.5	L60073CT-ND	2.10	18.00	150.00	L60073TR-ND	675.00	6255T3-5VLC
Green	2.0	5.0	3.5	L60075CT-ND	1.58	13.50	112.50	L60075TR-ND	506.25	6255T5-5VLC

NEW! Right Angle Surface Mount LED


.118
.039
.079
.039
.079
.010
.010
Cathode
Pin Connection Mark
.035
Anode
.035
.008
.035
.059
.079
.197

Source (Dice)	Typ. mcd	Forward Voltage Typ. (V)	Forward Voltage mA	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel 3000	IDI Model No.
Orange	3.2	2.2	20	L60076CT-ND	.50	4.40	35.20	L60076TR-ND	278.30/M	CMD11504A
Green	16.0	2.1	20	L60077CT-ND	.50	4.40	35.20	L60077TR-ND	278.30/M	CMD11504G
Yellow	10.4	2.1	20	L60078CT-ND	.50	4.40	35.20	L60078TR-ND	278.30/M	CMD11504PY
Red	13.2	1.7	20	L60079CT-ND	.50	4.40	35.20	L60079TR-ND	278.30/M	CMD11504UR

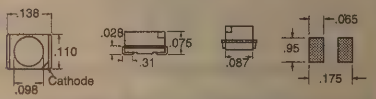
NEW! Surface Mount LED Tester



Tests surface mount and leaded LED's. 2 - 50mA range. Requires 9V battery (not included).

LT-1-ND...36.00

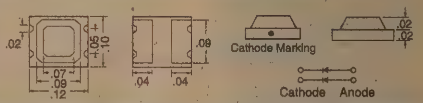
NEW! High Brightness Surface Mount LEDs for use with Light Pipes


.138
.110
Cathode
.098
.028
.075
.31
.087
.065
.95
.175

Emitted Color	Lens Color	Typ. mcd	Forward Voltage Typ. (V)	@ mA	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 100	Digi-Key Part No.	Tape & Reel 2000	IDI Model No.
Red	Clear	6.0	1.9	10	L60021CT-ND	.91	7.80	65.00	L60021TR-ND	390.00/M	7002X1
Green	Clear	10.0	2.0	10	L60025CT-ND	.91	7.80	65.00	L60025TR-ND	390.00/M	7002X5
Yellow	Clear	5.0	2.0	10	L60027CT-ND	.91	7.80	65.00	L60027TR-ND	390.00/M	7002X7
Red	Clear	17.0	1.8	10	L60031CT-ND	1.05	9.00	75.00	L60031TR-ND	450.00/M	7002X11

Chicago Miniature Brand Lamps Dual Chip-Surface Mount for Use with Light Pipes

FEATURES:
- Compatible with automated placement equipment.
- Compatible with infrared and vapor phase reflow soldering process.
- Low power consumption.
- View angle 100°.
- Lens color Clear.


.02
.05
.10
.07
.09
.12
.09
.04
.04
Cathode Marking
.02
.02
Cathode
Anode

Source Color	Typ. mcd	Forward Voltage Typ. (V)	@ mA	Digi-Key Part No.	Pricing 1	Pricing 10	Digi-Key Part No.	Tape & Reel 3,000
Yellow	14.0	2.1	20	CRSA-10-2YCT-ND	1.25	11.08	CRSA-10-2YTR-ND	701.00/M
Green	22.0	2.0	20	CRSA-10-2GCT-ND	1.25	11.08	CRSA-10-2GTR-ND	701.00/M
Hi. Eff. Red	14.0	1.7	10	CRSA-10-2URCT-ND	1.25	11.08	CRSA-10-2URTR-ND	701.00/M
Amber/Green	8.0/12.0	2.1/2.0	20/20	CRSA-10-A/GCT-ND	1.25	11.08	CRSA-10-A/GTR-ND	701.00/M
Hi. Eff. Red/Grn	8.0/12.0	1.7/2.0	20/10	CRSA-10-UR/GCT-ND	1.25	11.08	CRSA-10-UR/GTR-ND	701.00/M

INDUSTRIAL DEVICES, INC.

Panel Mount LED Assemblies

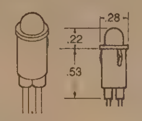
Color	Rated Current (mA)	Forward Voltage Typ. (V)	Digi-Key Part No.	Pricing 1	25	100	250	IDI Model No.	Fig.
Red	20	2.0	L10001-ND	1.62	32.90	95.20	210.00	5100H1	1
Green	20	2.2	L10005-ND	1.62	32.90	95.20	210.00	5100H5	1
Yellow	20	2.1	L10007-ND	1.62	32.90	95.20	210.00	5100H7	1
Red	1.8	1.8	L10011-ND	1.83	37.01	107.10	236.25	5100H1LC	1
Yellow	1.9	1.9	L10017-ND	1.83	37.01	107.10	236.25	5100H7LC	1
Red	10	5.0	L10021-ND	1.86	37.60	108.80	240.00	5102H1-5V	1
Amber	10	5.0	L10023-ND	1.86	37.60	108.80	240.00	5102H3-5V	1
Green	12	5.0	L10025-ND	1.86	37.60	108.80	240.00	5102H5-5V	1
Red/Green	20	2.2	L10008-ND	2.52	51.11	147.90	326.25	5100H1/5	1
Red	20	2.0	L10031-ND	1.22	24.68	71.40	157.50	5101H1	2
Green	20	2.2	L10035-ND	1.22	24.68	71.40	157.50	5101H5	2
Yellow	20	2.1	L10037-ND	1.22	24.68	71.40	157.50	5101H7	2
Red	10	2.0	L10041-ND	1.68	34.08	98.60	217.50	5110F1	3
Green	20	2.2	L10045-ND	1.68	34.08	98.60	217.50	5110F5	3
Yellow	20	2.1	L10047-ND	1.68	34.08	98.60	217.50	5110F7	3
Red	2	1.8	L10051-ND	2.00	40.54	117.30	258.75	5110F1LC	3
Yellow	2	1.9	L10057-ND	2.00	40.54	117.30	258.75	5110F7LC	3
Red	10	2.0	L10061-ND	.84	17.04	49.30	108.75	5111F1	4
Green	20	2.2	L10065-ND	.84	17.04	49.30	108.75	5111F5	4
Yellow	20	2.1	L10067-ND	.84	17.04	49.30	108.75	5111F7	4
Red	10	2.0	L10081-ND	1.25	25.26	73.10	161.25	5200F1	5
Green	20	2.2	L10085-ND	1.25	25.26	73.10	161.25	5200F5	5
Yellow	20	2.1	L10087-ND	1.25	25.26	73.10	161.25	5200F7	5
Red	10	2.0	L10091-ND	2.06	41.71	120.70	266.25	5210F1	6
Green	20	2.2	L10095-ND	2.06	41.71	120.70	266.25	5210F5	6
Yellow	20	2.1	L10097-ND	2.06	41.71	120.70	266.25	5210F7	6
Red	20	2.0	L10071-ND	2.58	52.29	151.30	333.75	5400A1	7
Green	20	2.1	L10075-ND	2.58	52.29	151.30	333.75	5400A5	7
Yellow	20	2.1	L10077-ND	2.58	52.29	151.30	333.75	5400A7	7
Red	10	2.0	L50381-ND	2.61	52.88	153.00	337.50	3990A1	8
Amber	10	2.0	L50383-ND	2.61	52.88	153.00	337.50	3990A3	8
Green	20	2.2	L50385-ND	2.61	52.88	153.00	337.50	3990A5	8
Yellow	20	2.1	L50387-ND	2.61	52.88	153.00	337.50	3990A7	8

Description	Termination	Digi-Key Part No.	Pricing 1	25	100	IDI Model No.	Fig.
LED, 1/2" dia., 6V	Wire	L5014☐-ND	3.45	69.91	202.30	1091M☐-6V	9
LED, 1/2" dia., 12V	Wire	L5015☐-ND	3.45	69.91	202.30	1091M☐-12V	9
LED, 1/2" dia., 24V	Wire	L5016☐-ND	3.45	69.91	202.30	1091M☐-24V	9
LED, 1/2" dia., 12V	.187 Terminal	L5017☐-ND	3.65	74.03	214.20	1091QM☐-12V	9
LED, 1/2" dia., 24V	.187 Terminal	L5018☐-ND	3.65	74.03	214.20	1091QM☐-24V	9
LED, .31 dia., 6V	Wire	L5025☐-ND	3.48	70.50	204.00	2191L☐-6V	10
LED, .31 dia., 12V	Wire	L5026☐-ND	3.48	70.50	204.00	2191L☐-12V	10
LED, .31 dia., 24V	Wire	L5027☐-ND	3.48	70.50	204.00	2191L☐-24V	10
LED, .31 dia., 12V	.187 Terminal	L5028☐-ND	3.65	74.03	214.20	2191QL☐-12V	10
LED, .31 dia., 24V	.187 Terminal	L5029☐-ND	3.65	74.03	214.20	2191QL☐-24V	10
LED, .31 dia., 6V	Wire	L5030☐-ND	3.48	70.50	204.00	2191U☐-6V	11
LED, .31 dia., 12V	Wire	L5031☐-ND	3.48	70.50	204.00	2191U☐-12V	11
LED, .31 dia., 24V	Wire	L5032☐-ND	3.48	70.50	204.00	2191U☐-24V	11
LED, .31 dia., 12V	.187 Terminal	L5033☐-ND	3.65	74.03	214.20	2191QU☐-12V	11
LED, .31 dia., 24V	.187 Terminal	L5034☐-ND	3.65	74.03	214.20	2191QU☐-24V	11

For ☐ in Digi-Key Part No. choose one of the following: 1=Red; 5=Green; 7=Yellow

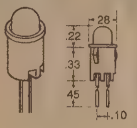
1

Mounting: Will snap-fit in .249/.254 dia. hole in panels .031/.062 thick. **Wire Leads:** 24 AWG, 6.0" long. **Housing:** Black nylon. **Anode:** (+): Red lead. **Anode for L1008-ND:** (+): Yellow lead for red light, blue lead for green light.



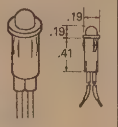
2

Mounting: Will snap-fit in .249/.254 dia. hole in panels .031/.062 thick. **Terminals:** .02 Sq. **Housing:** Black nylon.



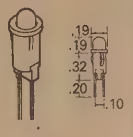
3

Mounting: Will snap-fit in .155/.158 dia. hole in panels .031/.062 thick. **Wire Leads:** 24 AWG, 6.0" long, stripped .18/.32. **Anode** (+): Red lead. **Housing:** Black nylon.



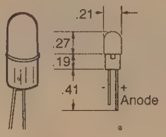
4

Mounting: Will snap-fit in .155/.158 dia. hole in panels .031/.062 thick. **Terminals:** .02 Sq. **Housing:** Black nylon.



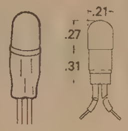
5

Mounting: Will snap-fit into .187/.192 dia. hole in panels .020/.097 thick. **Lens:** Polycarbonate.



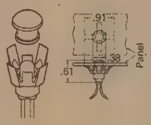
6

Mounting: Will snap-fit into .187/.192 dia. hole in panel .020/.097 thick. **Wire Leads:** 26 AWG, 4.4/4.8 long stripped. **Anode** (+): Red lead. **Lens:** Polycarbonate. **Housing:** Polycarbonate.



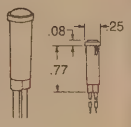
7

Mounting: Will snap-fit into .312/.317 dia. hole in panel .020/.098 thick. **Wire Leads:** 24 AWG, 4.4/4.8 long, stripped: .43/.57. **Anode** (+): Red lead. **Lens:** Polycarbonate. **Housing:** Natural nylon.

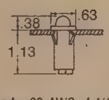


8

Mounting: Will snap-fit into .217/.221 dia. hole in panels .031/.062 thick. **Wire Leads:** 26 AWG, 4.4/4.8 long stripped. **Anode** (+): Red lead. **Lens:** Polycarbonate. **Housing:** White nylon.

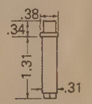


9



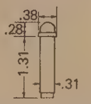
Wire Leads: 22 AWG, 4.4/4.8 long, stripped: .43/.57 **Anode** (+) Red Lead or Quick Connect .187 Term Anode (+) marked above terminal

10



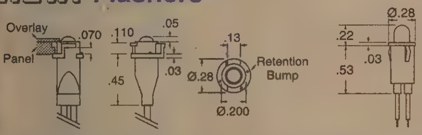
Wire Leads: 22 AWG, 4.4/4.8 long, stripped: .43/.57 **Anode** (+) Red Lead or Quick Connect .187 Term Anode (+) marked above terminal

11



Wire Leads: 22 AWG, 4.4/4.8 long, stripped: .43/.57 **Anode** (+) Red Lead or Quick Connect .187 Term Anode (+) marked above terminal

NEW! Flashers



Series 5100H Flasher

Features: • Built-in flashing circuit • Flashing rate: 1.5 - 2.5 Hz • No external resistor required **Mounting:** Will snap fit in .249/.254 dia. hole in panels .031/.062 **Wire Leads:** No. 24 AWG, 6" insulated, bonded strands, stripped 1/2" **Anode (+):** Red Lead **Housing:** Black Nylon

Series 5120F

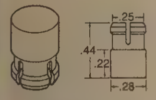
Mounting: Rear twist into mounting hole specified **Wire Leads:** Red, white, 4.4/4.8 long. 26 AWG. Stripped .43/.57 **Housing:** Black Nylon **Anode (+):** Red Lead

Color	Iv mcd	Current mA	VF (V)	Digi-Key Part No.	Pricing 1	25	100	Mfg. Part No.
Red	12.5	20	3.5	L20691-ND	2.70	54.64	158.10	5100H1FL
Green	8.0	20	3.5	L20695-ND	2.70	54.64	158.10	5100H5FL
Yellow	12.5	20	3.5	L20697-ND	2.70	54.64	158.10	5100H7FL
Red	6	10	2.0	L20681-ND	2.00	40.54	117.30	5120F1
Green	12	20	2.2	L20685-ND	2.00	40.54	117.30	5120F5
Yellow	20	20	2.1	L20687-ND	2.00	40.54	117.30	5120F7

LED Lenses

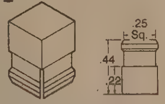
These LED lenses provide quick, economical panel mounting as well as ESD protection. Molded in Fresnel rings provide a wide viewing angle.

1



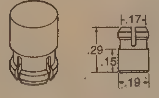
1/4" Dia. for T-1¾ LEDs

2



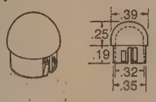
1/4" Sq. for T-1¾ LEDs

3



11/64" Dia. for T-1 LEDs

4



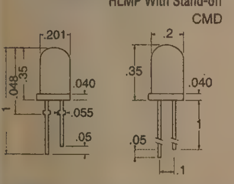
23/64" Dia. for T-1¾ LEDs

Digi-Key Part No.	Pricing 1	25	100	250	IDI Model No.	Fig.
L3000☐-ND	.35	7.05	20.40	45.00	431 ☐	1
L3001☐-ND	.44	8.81	25.50	56.25	432 ☐	2
L3002☐-ND	.35	7.05	20.40	45.00	433 ☐	3
L3003☐-ND	.44	8.81	25.50	56.25	434 ☐	4

For ☐ in Digi-Key Part No., choose one of the following: 1=Red; 2=Clear; 3=Amber; 5=Green; 6=Blue; 7=Yellow

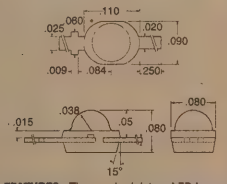
Chicago Miniature Brand Lamps LEDs

T-1 3/4 UltraBright



FEATURES: • Min. 80 mcd. • Pale tint avoids mix problems. • With or without stand-off.

T-3/4 Sub-Mini

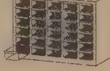


FEATURES: These subminiature LED lamps are intended for high volume, low-cost status indication on PC boards.

Lens Color	Source Color	P_D (mW)	Min. Iv mcd	Max. V_F (V)	Typ. I_p (nm)	View Angle	Digi-Key Part No.	Pricing 1	10	Mfg. Part No.
T-1 3/4 Ultra Bright										
Clear †	Hi. Eff. Red	135	80	2.2	635	24°	HLMP-3750-ND	.60	4.77	HLMP-3750
Clear	Hi. Eff. Red	135	80	2.2	635	24°	CMD3750-ND	.62	4.94	CMD3750
Clear †	Hi. Eff. Green	135	80	2.2	565	24°	HLMP-3950-ND	.62	4.94	HLMP-3950
Clear	Hi. Eff. Green	135	80	2.2	565	24°	CMD3450-ND	.62	4.94	CMD3450
Clear †	Yellow	85	80	2.2	585	24°	HLMP-3850-ND	.62	4.94	HLMP-3850
Clear	Yellow	85	80	2.2	585	24°	CMD3350-ND	.62	4.94	CMD3350
T-3/4 Sub Mini										
Clear	Std. Red	105	0.5	2.0	660	80°	CMD50B-ND	.43	3.41	CMD50B
Diff. Red	Hi. Eff. Red	105	1.0	3.0	635	80°	CMD57B-ND	.49	3.94	CMD57B
Diff. Yellow	Yellow	105	1.0	3.0	585	80°	CMD53B-ND	.49	3.94	CMD53B
Diff. Green	Hi. Eff. Green	105	1.0	3.0	565	80°	CMD64B-ND	.51	4.10	CMD64B

Luminous intensity is measured at at 2mA. † With Stand-off

Incandescent, Neon and Solid State Lighting Engineering/ Lab Kit



These high quality lighting kits provide you with finger-tip convenience to hundreds of industry standard lighting components. Each kit includes a clearly marked 24-drawer metal cabinet and in-depth full-line catalog containing all pertinent specifications.

Lamp Lab Kit 101: Miniature Incandescent and neon lamp kit. Contains 290 total pieces of 72 different lamp types ranging from a T-3/4 to S-8 in size and voltages from 2.0V to 250V.

CMLK101-ND $154.59

Panasonic® Designer LEDs

Fig. 1

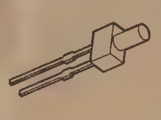


Fig. 2

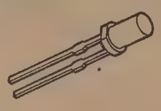


Fig. 3

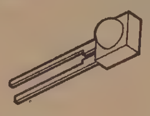


Fig. 4

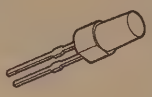


Fig. 5

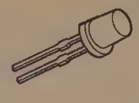


Fig. 6

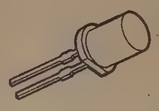


Fig. 7

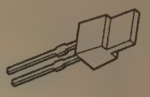


Fig. 8

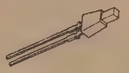


Fig. 9

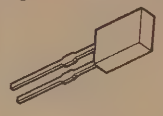


Fig. 10

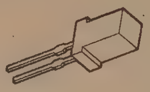


Fig. 11

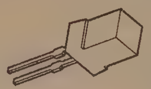


Fig. 12

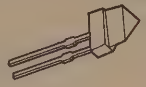


Fig. 13

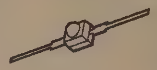


Fig. 14

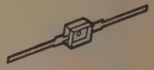


Figure Number	Lens Size	Color	Electro-Optical Characteristics (Ta=25°C)					Dimensions		Lead Spacing	Digi-Key Part No.	Pricing					Panasonic Part No.
			P_D (mW)	I_F (mA)	V_R (V)	I_O (mcd)	λ_p (nm)	Lens Height	Lead Length			10	200	1,000	5,000	10,000	
1	ϕ2.0	Red Diffused	70	20	4	1.0	700	8.0	14, 15.5	2.54	P424-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN222RP
	ϕ2.0	Green Diffused	90	20	4	1.0	565	8.0	14, 15.5	2.54	P425-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN322GP
	ϕ2.0	Amber Diffused	90	20	4	2.5	590	8.0	14, 15.5	2.54	P426-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN422YP
2	ϕ2.8	†Red Clear	70	25	4	0.6	700	5.5	15.5, 17.0	2.54	P376-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN263CPP
	ϕ2.8	Green Clear	90	30	4	0.8	565	5.5	15.5, 17.0	2.54	P377-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN363GCPP
	ϕ2.8	Amber Clear	90	30	4	0.8	590	5.5	15.5, 17.0	2.54	P378-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN463YCPP
	ϕ2.8	Orange Clear	90	30	3	1.0	630	5.5	15.5, 17.0	2.54	P379-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN863RCPP
3	ϕ3.5	Red Diffused	70	25	4	0.7	700	2.3	12.5, 12.5	2.54	P441-ND	3.36	54.00	200.04	185.16/M	171.00/M	LN25RP
	ϕ3.5	Green Diffused	90	30	4	1.2	565	2.3	12.5, 12.5	2.54	P442-ND	4.20	67.50	250.05	231.45/M	213.75/M	LN35GP
	ϕ3.5	Amber Diffused	90	30	4	0.8	590	2.3	12.5, 12.5	2.54	P443-ND	4.20	67.50	250.05	231.45/M	213.75/M	LN45YP
	ϕ3.5	Orange Diffused	90	30	3	1.5	630	2.3	12.5, 12.5	2.54	P444-ND	4.20	67.50	250.05	231.45/M	213.75/M	LN85RP
4	ϕ3.7	Red Diffused	70	25	4	1.0	700	8.65	13.0, 14.5	2.54	P428-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN253RP
	ϕ3.7	Green Diffused	90	30	4	3.0	565	8.65	13.0, 14.5	2.54	P429-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN353GP
	ϕ3.7	Amber Diffused	90	30	4	3.0	590	8.65	13.0, 14.5	2.54	P430-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN453YP
5	ϕ4.4	†Red Clear	70	25	4	2.0	700	5.0	14.5, 16.0	2.54	P431-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN240CP
	ϕ4.4	†Green Clear	90	30	4	10.0	565	5.0	14.5, 16.0	2.54	P432-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN340CP
	ϕ4.4	Orange/Pink Tint	90	30	3	6.0	630	5.0	14.5, 16.0	2.54	P434-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN840RCP
6	ϕ5.0	†Red Clear	70	25	4	0.6	700	6.7	13.3, 14.8	2.54	P380-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN264CP
	ϕ5.0	Green Clear	90	30	4	2.0	565	6.7	13.3, 14.8	2.54	P381-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN364GCP
	ϕ5.0	Amber Clear	90	30	4	1.0	590	6.7	13.3, 14.8	2.54	P382-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN464YCP
	ϕ5.0	Orange Clear	90	30	3	1.0	630	6.7	13.3, 14.8	2.54	P383-ND	2.88	46.35	171.70	158.93/M	146.78/M	LN864RCP
7	n 1.0x5.0	Red Diffused	70	25	4	0.6	700	8.5	13.0, 14.5	2.54	P315-ND*	2.24	36.00	133.36	123.44/M	114.00/M	LN224RP
	n 1.0x5.0	Green Diffused	90	30	4	2.5	565	8.5	13.0, 14.5	2.54	P316-ND*	2.52	40.50	150.03	138.87/M	128.25/M	LN324GP
	n 1.0x5.0	Amber Diffused	90	30	4	2.0	590	8.5	13.0, 14.5	2.54	P317-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN424YP
8	n 1.8x1.8	Red Diffused	80	25	4	0.5	700	10.0	25.5, 27.0	2.54	P385-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN265RPH
	n 1.8x1.8	Green Diffused	90	30	4	1.0	565	10.0	25.5, 27.0	2.54	P386-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN365GPH
	n 1.8x1.8	Amber Diffused	90	30	4	2.5	590	10.0	25.5, 27.0	2.54	P387-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN465YP
9	n 2.0x5.0	Red Diffused	70	20	4	0.4	700	7.5	14.5, 16.0	2.54	P437-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN242RP
	n 2.0x5.0	Green Diffused	70	20	4	1.0	565	7.5	14.5, 16.0	2.54	P438-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN342GP
	n 2.0x5.0	Amber Diffused	90	20	4	2.0	590	7.5	14.5, 16.0	2.54	P439-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN442YP
	n 2.0x5.0	Orange Diffused	90	30	3	2.5	630	7.5	14.5, 16.0	2.54	P440-ND	3.36	54.00	200.04	185.16/M	171.00/M	LN842RP
10	n 4.0x4.0	Red Diffused	70	20	4	0.6	700	8.5	13.3, 14.8	2.54	P445-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN252RP
	n 4.0x4.0	Green Diffused	90	30	4	1.0	565	8.5	13.3, 14.8	2.54	P446-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN352GP
	n 4.0x4.0	Amber Diffused	90	40	4	1.0	590	8.5	13.3, 14.8	2.54	P447-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN452YP
11	n 5.0x5.0	Red Diffused	70	30	4	2.0	565	9.0	13.6, 15.1	2.54	P448-ND	2.24	36.00	133.36	123.44/M	114.00/M	LN250RP
	n 5.0x5.0	Green Diffused	90	30	4	2.0	545	9.0	13.6, 15.1	2.54	P449-ND	2.52	40.50	150.03	138.87/M	128.25/M	LN350GP
	n 5.0x5.0	Amber Diffused	90	30	4	1.5	590	9.0	13.6, 15.1	2.54	P450-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN450YP
12	Δ 4.0x4.5	Red Diffused	70	25	4	0.4	700	5.5	15.0, 16.5	2.54	P318-ND*	2.24	36.00	133.36	123.44/M	114.00/M	LN212RP
	Δ 4.0x4.5	Green Diffused	90	30	4	1.0	565	5.5	15.0, 16.5	2.54	P319-ND*	2.52	40.50	150.03	138.87/M	128.25/M	LN312GP
	Δ 4.0x4.5	Amber Diffused	90	30	4	1.0	590	5.5	15.0, 16.5	2.54	P320-ND	2.80	45.00	166.70	154.30/M	142.50/M	LN412YP
13	ϕ1.8	Red Diffused	70	25	4	0.7	700	2.8	8.6, 8.6	—	P421-ND	3.92	63.00	233.38	216.02/M	199.50/M	LN247RP
	ϕ1.8	Green Diffused	90	30	4	4.5	565	2.8	8.6, 8.6	—	P422-ND	4.48	72.00	266.72	246.88/M	228.00/M	LN347GP
	ϕ1.8	Amber Diffused	90	30	4	4.0	590	2.8	8.6, 8.6	—	P423-ND	5.04	81.00	300.06	277.74/M	256.50/M	LN447YP
14	n 1.7x2.5	†Red Clear	60	20	4	1.5	700	—	8.5 Typ.	—	P417-ND	3.08	49.50	183.37	169.73/M	156.75/M	LN01201C
	n 1.7x2.5	†Green Clear	60	20	4	10.0	700	—	8.5 Typ.	—	P418-ND	3.36	54.00	200.04	185.16/M	171.00/M	LN01301C
	n 1.7x2.5	†Amber Clear	60	20	4	5.0	590	—	8.5 Typ.	—	P419-ND	3.64	58.50	216.71	200.59/M	185.25/M	LN01401C
	n 1.7x2.5	†Orange Clear	60	20	4	8.0	630	—	8.5 Typ.	—	P420-ND	3.64	58.50	216.71	200.59/M	185.25/M	LN01801C

***LED-KIT-ND** 10 ea. of 18 popular LED's (180 total pieces), remaining 14 part numbers shown on back cover.............................. **$36.95**

† Water Clear Lens when off

Panasonic® LEDs — Level Meters High Brightness GA AlAs Red Light-Emitting Diodes

Fig. A

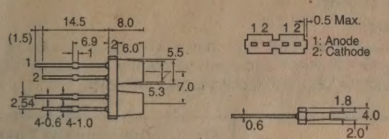


Fig. B – 1.75 x 7.0 rectangular

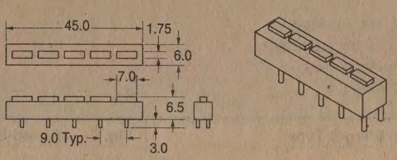


Fig. C – 2.8mm round

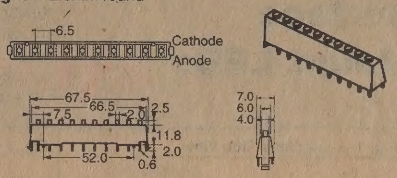
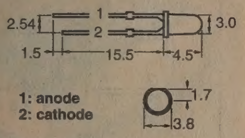


Fig. D – T-1 3mm dia.



1: anode
2: cathode

Fig. E – T-1¾ 5mm dia.

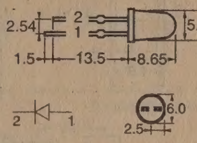


Fig. F – T-1¾ 5mm dia.

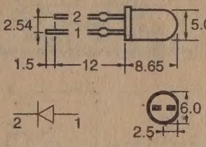


Fig. G – T-1¾ 5mm dia.

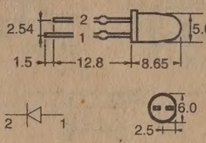
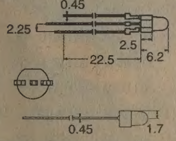


Fig. No.	Package	Color (Diffused)	Electro-Optical Characteristics (Ta=25°C) IO (mcd @5mA)	PD (mW)	VR (V)	IF (mA)	IO (mcd)	λp (nm)	Lens Size	Dimensions Lens Height	Lead Length	Digi-Key Part No.	Pricing 1	10	200	Panasonic Part No.
A	2 Elements	Red	—	70	4	25	0.6	700	□1.8x5.3	6.0	14.5, 16.0	P516-ND	.52	4.75	81.70	LN02202P
A	2 Elements	Green	—	90	4	30	1.5	565	□1.8x5.3	6.0	14.5, 16.0	P517-ND	.69	6.25	107.50	LN02302P
A	3 Elements	Red	—	70	4	25	0.6	700	□1.8x5.3	6.0	14.5, 16.0	P519-ND	.80	7.25	124.70	LN03202P
A	3 Elements	Green	—	90	4	30	1.5	565	□1.8x5.3	6.0	14.5, 16.0	P520-ND	1.05	9.50	163.40	LN03302P
A	3 Elements	Amber	—	90	4	30	1.5	590	□1.8x5.3	6.0	14.5, 16.0	P521-ND	1.05	9.50	163.40	LN03402P
A	4 Elements	Red	—	70	4	25	0.6	700	□1.8x5.3	6.0	14.5, 16.0	P522-ND	.96	8.75	150.50	LN04202P
A	4 Elements	Green	—	90	4	30	1.5	565	□1.8x5.3	6.0	14.5, 16.0	P523-ND	1.40	12.75	219.30	LN04302P
A	5 Elements	Red	—	70	4	25	0.6	700	□1.8x5.3	6.0	14.5, 16.0	P525-ND	1.35	12.25	210.70	LN05202P
A	5 Elements	Green	—	90	4	30	1.5	565	□1.8x5.3	6.0	14.5, 16.0	P526-ND	1.73	15.75	270.90	LN05302P
A	5 Elements	Amber	—	90	4	30	1.5	590	□1.8x5.3	6.0	14.5, 16.0	P527-ND	1.73	15.75	270.90	LN05402P
A	6 Elements	Red	—	70	4	25	0.6	700	□1.8x5.3	6.0	14.5, 16.0	P528-ND	1.60	14.50	249.40	LN06202P
A	6 Elements	Green	—	90	4	30	1.5	565	□1.8x5.3	6.0	14.5, 16.0	P529-ND	2.09	19.00	326.80	LN06302P
A	6 Elements	Amber	—	90	4	30	1.5	590	□1.8x5.3	6.0	14.5, 16.0	P530-ND	2.09	19.00	326.80	LN06402P
A	7 Elements	Red	—	70	4	25	0.6	700	□1.8x5.3	6.0	14.5, 16.0	P531-ND	1.87	17.00	292.40	LN07202P
A	7 Elements	Green	—	90	4	30	1.5	565	□1.8x5.3	6.0	14.5, 16.0	P532-ND	2.45	22.25	382.70	LN07302P
A	7 Elements	Amber	—	90	4	30	1.5	590	□1.8x5.3	6.0	14.5, 16.0	P533-ND	2.45	22.25	382.70	LN07402P
B	—	Red	—	70	4	25	0.4	700	□1.75x7.0	7.65	24.1, 25.6, 27.1	P397-ND	1.54	14.00	240.80	LN05201P
B	—	Green	—	90	4	30	1.2	565	□1.75x7.0	7.65	24.1, 25.6, 27.1	P398-ND	2.39	21.75	374.10	LN05301P
C	—	Red	—	70	4	25	1.0	700	ϕ2.0	2.5	2.0	P321-ND	3.55	32.25	554.70	LN10204P
C	—	Green	—	90	4	30	1.0	565	ϕ2.0	2.5	2.0	P401-ND	3.85	35.00	602.00	LN10304P
HIGH BRIGHTNESS LEDs																
D	—	Red	6	70	3	30	50	665	ϕ3.0	5.0	15.0, 16.5	P403-ND	.41	3.75	64.50	LN28RAL(US)
D	—	Red (White)	14	70	3	30	50	665	ϕ3.0	5.0	15.0, 16.5	P404-ND	.41	3.75	64.50	LN28WAL(US)
D	—	† Red	20	70	3	30	85	665	ϕ3.0	5.0	15.0, 16.5	P405-ND	.41	3.75	64.50	LN28CAL(US)
E	—	† Red	110	70	3	30	300	665	ϕ5.0	8.65	12.0, 13.5	P406-ND	.41	3.75	64.50	LN21CAL(US)-2
F	—	† Red	190	70	3	30	1000	665	ϕ5.0	8.65	12.0, 13.5	P407-ND	.74	6.75	116.10	LN21CAL(URS)
F	—	† Red	470	70	3	30	2000	665	ϕ5.0	8.65	12.0, 13.5	P408-ND	1.02	9.25	159.10	LN261CAL(UR)
G	—	Red	20	70	3	30	200	660	ϕ5.0	8.65	12.0, 13.5	P458-ND	.74	6.75	116.10	LN21RUQ
G	—	† Red	20	70	3	30	85	665	ϕ5.0	8.65	12.0, 13.5	P410-ND	.41	3.75	64.50	LN21CAL(U)

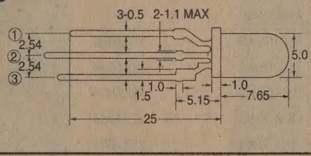
† Nondiffused lens. Water clear lens when off.

Panasonic® Optoelectronics LEDs — Two Color

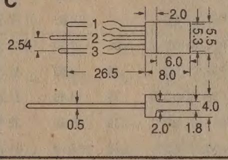
A



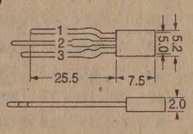
B



C



D



E

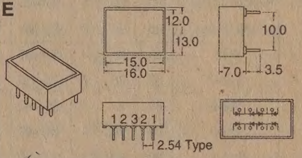


Fig. No.	Radiation Color/ Lens Color	Electro-Optical Characteristics (Ta=25°C) PD (mW)	IF (mA)	VR (V)	IO (mcd)	λp (nm)	Dimensions Lens Size	Lead Length	Digi-Key Part No.	Pricing 1	10	200	1,000	Panasonic Part No.
A	*1. Green/3. Orange/White Diffused	90/90	30/30	4/3	8.0/8.0	565/630	ϕ3.0	22.5, 24.5, 26.5	P509-ND	.72	6.50	111.80	481.16	LN086WP38
B	*1. Green/3. Red/White Diffused	70	25	4	3.0	700	ϕ5.0	24.1, 25.6, 27.1	P391-ND	.63	5.75	98.90	425.64	LN11WP23
	*1. Green/3. Red/Clear	70	25	4	3.0	700	ϕ5.0	24.1, 25.6, 27.1	P392-ND	.63	5.75	98.90	425.64	LN11CP23
	*1. Amber/3. Red/White Diffused	70	25	4	3.0	700	ϕ5.0	24.1, 25.6, 27.1	P393-ND	.72	6.50	111.80	481.16	LN11WP24
	*1. Amber/3. Green/White Diffused	90	30	4	15.0	565	ϕ5.0	24.1, 25.6, 27.1	P395-ND	.72	6.50	111.80	481.16	LN11WP34
	*1. Orange/3. Green/White Diffused	90	30	4	15.0	565	ϕ5.0	24.1, 25.6, 27.1	P399-ND	.72	6.50	111.80	481.16	LN11WP38
C	*1. Green/3. Red/White Diffused	70/90	25/30	4/4	.6/4.5	700/565	□1.8x5.3	26.5, 28.0, 29.5	P435-ND	.63	5.75	98.90	425.64	LN117WP23
D	*1. Orange/3. Green/White Diffused	90/90	30/30	4/3	3/2.5	565/630	□2.0x5.0	25.5, 27.0, 28.5	P436-ND	.72	6.50	111.80	481.16	LN142WP38
E	*1. Orange/3. Green/White Diffused	60	20	3	8.0	565	□12.0x15.0	3.5 typ.	P396-ND	3.44	31.25	537.50	2313.29	LN0801WP38

* Common Cathode

Panasonic.

Surface Mount LEDs

The chip LEDs have thin and compact features available for suface mount technology. It makes super brightness, wide viewing angle and it is suitable for compact and multi-function equipment.

FEATURES:

- Compact and thin package
- Super bright and high reliability
- Surface mount technology available
- Wide product range

PRECAUTIONS IN HANDLING:

Soldering condition:

Temperature of pre-heat is 120~150°C, 2-3 minutes. Reflow soler is 235±5 within 5 seconds. (measure the temperature on the surface of PWB).

Cleaning:

The surface of the LED may change when organic solvents such as trichloroethylene and acetone comes in contact with the surface of the LED. Avoid using organic solvents.

Fig. 1 — Leadless-Side View

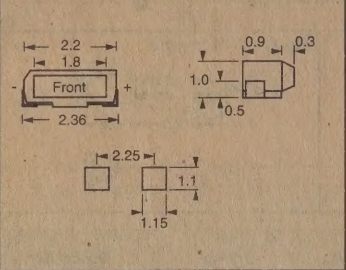


Fig. 2 — Leadless-SS Type

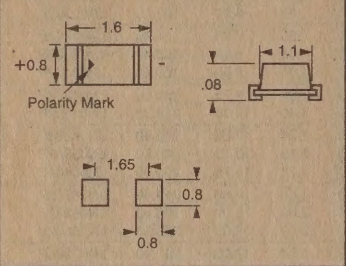


Fig. 3 — Gull Wing-S Type

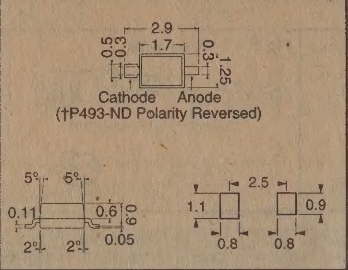


Fig. 4 — Gull Wing-GW Type

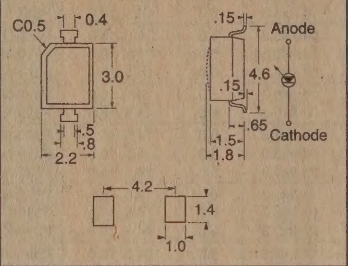


Fig. 5 — J-Lead-S type

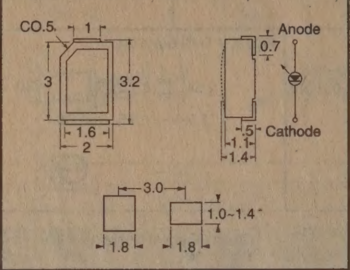


Fig. 6 — Gull Wing-S Type (Bi-Color)

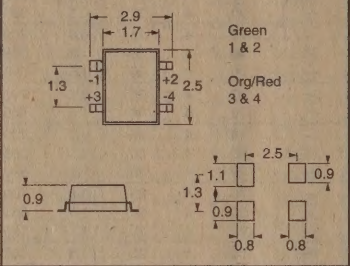
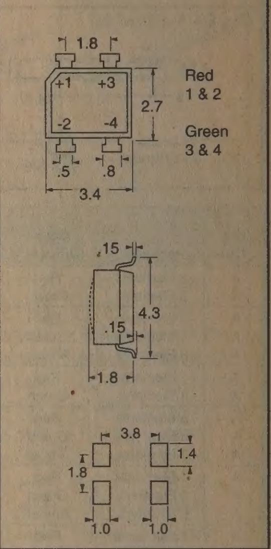


Fig. 7 — Gull Wing-GW Type (Bi-Color)

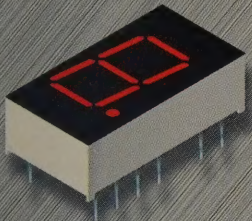


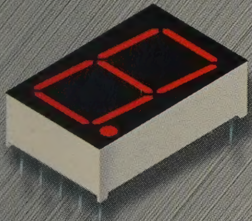
		Absolute Maximum Ratings				Io										Tape and			Tape and Reel			
Fig.	Lighting	(mW)	(mA)	(V)	(°C)	(mcd)	(mcd)	(mA)	VF(V)		λP	Digi-Key		Pricing		Reel			Pricing			Panasonic
No.	Color	P_D	I_F	V_R	Topr	Typ.	Min.	I_F	Typ.	Max.	Typ.	Part No.	1	10	100	Part No.	1,000	2,000	3,000	4,000	6,000	Part No.
1	Orange	60	20	3	-25~+80	2.5	.8	10	1.93	2.6	630	P519CT-ND	.44	4.00	36.40	P519TR-ND	—	—	255.00/M	—	233.00/M	LNJ810L6DRA
1	High Bright Green	60	20	4	-25~+85	8.0	3.00	10	2.03	2.6	565	P520CT-ND	.44	4.00	36.40	P520TR-ND	—	—	255.00/M	—	233.00/M	LNJ310M6URA
2	Amber	30	10	4	-25~+85	0.9	0.40	5	1.90	2.4	590	P522CT-ND*	.39	3.60	32.76	P522TR-ND	—	—	—	229.00/M	—	LNJ408K8ZRA
2	Green	30	10	4	-25~+85	2.1	0.70	5	1.90	2.4	565	P521CT-ND*	.39	3.60	32.76	P521TR-ND	—	—	—	229.00/M	—	LNJ308G8LRA
2	Green	50	20	4	-25~+85	5.0	1.80	10	2.03	2.6	565	P525CT-ND	.39	3.60	32.76	P525TR-ND	—	—	—	229.00/M	—	LNJ308G8TRA
2	Orange	30	10	3	-25~+85	1.1	0.40	5	1.80	2.4	630	P523CT-ND*	.39	3.60	32.76	P523TR-ND	—	—	—	229.00/M	—	LNJ808R8ERA
2	Ultra Bright Red	50	20	3	-25~+85	6.7	2.2	10	1.72	2.5	660	P524CT-ND	.39	3.60	32.76	P524TR-ND	—	—	—	229.00/M	—	LNJ208R8ARA
3	Red	60	20	4	-25~+85	0.4	0.15	10	2.03	2.6	700	P490CT-ND	—	3.30	30.00	P490TR-ND	—	—	—	—	192.00/M	LN1271R-(TR)
3	Amber	30	10	4	-30~+85	1.0	.4	5	1.9	2.4	590	P517CT-ND*	.39	3.60	32.76	P517TR-ND	—	—	—	—	229.00/M	LN1471SY-(TR)
3	Green	30	10	4	-30~+85	2.0	.7	5	1.9	2.4	565	P516CT-ND*	.39	3.60	32.76	P516TR-ND	—	—	—	—	229.00/M	LN1371SG-(TR)
3	Green	60	20	4	-25~+85	2.6	0.90	10	2.03	2.6	565	P491CT-ND	—	3.58	32.50	P491TR-ND	—	—	—	—	208.00/M	LN1371G-(TR)
3	Orange	30	10	3	-30~+85	1.0	.4	5	1.8	2.4	630	P518CT-ND*	.39	3.60	32.76	P518TR-ND	—	—	—	—	229.00/M	LN1871SR-(TR)
3	Ultra Bright Red	60	20	3	-25~+85	5.0	1.70	10	1.72	2.5	660	P493CT-ND†	—	4.95	45.00	P493TR-ND	—	—	—	—	288.00/M	LN1271RAL-(TR)
3	High Bright Green	60	20	4	-25~+85	5.0	3.00	10	2.03	2.6	565	P494CT-ND	—	4.25	38.65	P494TR-ND	—	—	—	—	247.00/M	LN1371-G(H)-6U(TR)
3	Soft Orange	60	20	3	-25~+85	0.8	0.30	10	1.93	2.6	610	P492CT-ND	—	3.58	32.50	P492TR-ND	—	—	—	—	208.00/M	LN1871Y5-(TR)
4	Red	60	20	4	-25~+80	1.4	0.50	15	2.20	2.8	700	P503CT-ND	.36	3.30	30.00	P503TR-ND	—	210.00/M	—	—	192.00/M	LN1261C-(TR)
4	Amber	60	20	4	-25~+80	4.5	1.60	20	2.20	2.8	590	P512CT-ND	.39	3.60	32.76	P512TR-ND	—	229.00/M	—	—	210.00/M	LN1461C-(TR)
4	Green	60	20	4	-25~+80	7.5	2.80	20	2.20	2.8	565	P504CT-ND	.38	3.49	31.75	P504TR-ND	—	222.00/M	—	—	203.00/M	LN1361C-(TR)
4	Green	60	20	4	-25~+80	15	8	20	2.2	2.8	565	P514CT-ND	.39	3.60	32.76	P514TR-ND	—	229.00/M	—	—	210.00/M	LN1361C(UY)-(TR)
4	Orange	60	20	3	-25~+80	5.0	1.90	20	2.10	2.8	630	P505CT-ND	.38	3.49	31.75	P505TR-ND	—	222.00/M	—	—	203.00/M	LN1861C-(TR)
4	Ultra Bright Red	50	20	3	-25~+80	12.0	5.00	20	1.80	2.6	660	P513CT-ND	.52	4.80	43.68	P513TR-ND	—	306.00/M	—	—	280.00/M	LN1261CAL-(TR)
5	Red	45	15	4	-25~+80	1.2	0.45	10	2.10	2.8	700	P500CT-ND	.36	3.30	30.00	P500TR-ND	—	—	210.00/M	—	192.00/M	LN1251C-(TR)
5	Amber	45	15	4	-25~+80	2.2	0.80	10	2.10	2.8	590	P511CT-ND	.39	3.60	32.76	P511TR-ND	—	—	229.00/M	—	210.00/M	LN1451C-(TR)
5	Green	45	15	4	-25~+80	5.0	1.90	10	2.10	2.8	565	P501CT-ND	.38	3.49	31.75	P501TR-ND	—	—	222.00/M	—	203.00/M	LN1351C-(TR)
5	Orange	45	15	3	-25~+80	3.5	1.30	10	.05	2.8	630	P502CT-ND	.38	3.49	31.75	P502TR-ND	—	—	222.00/M	—	203.00/M	LN1851C-(TR)
6	Ultra Bright Red	60	20	3	-25~+85	5.0	1.70	10	1.72	2.5	660	P526CT-ND	.79	7.21	65.52	P526TR-ND	—	—	459.00/M	—	419.00/M	LNJ107W5PRW
	High Bright Green	60	20	4	-25~+85	5.0	3.00	10	2.03	2.6	565											
6	Green	60	20	4	-25~+85	2.6	0.90	10	2.03	2.6	565	P515CT-ND	.79	7.21	65.52	P515TR-ND	—	—	459.00/M	—	419.00/M	LNJ107W5ARA1
	Orange	60	20	3	-25~+85	1.0	0.40	10	1.93	2.6	630											
7	Red	45	15	3	-25~+80	1.8	0.65	10	2.00	2.8	650	P507CT-ND	.81	7.43	67.50	P507TR-ND	473.00	—	—	—	—	LN2162C13-(TR)
	Green	45	15	4	-25~+80	4.0	1.50	10	2.05	2.8	565											

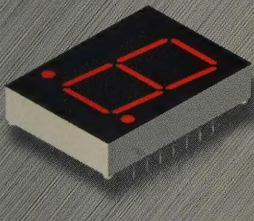
* Low current LED, same brightness as previous design with half the power, ideal for battery powered equipment.

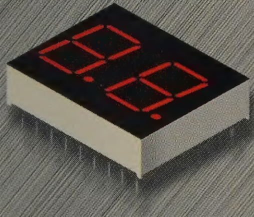
Panasonic®

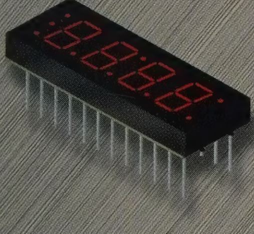
LED Numeric Displays



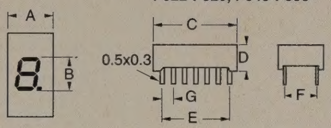






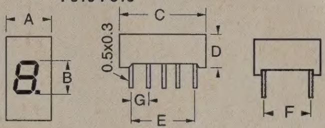


P322-P329, P343-P350

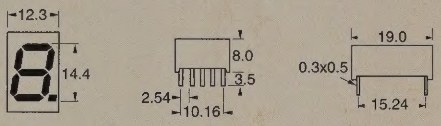


Size	A	B	C	D	E	F	G
0.3A	7.0	8.0	11.0	5.0	8.0	5.3	2.0
0.3B	10.0	7.6	19.0	5.5	15.24	7.6	2.54
.43	11.0	11.0	19.0	5.5	15.24	7.6	2.54

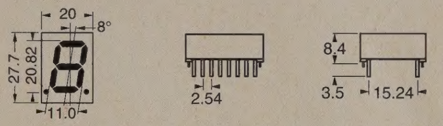
P510-P515



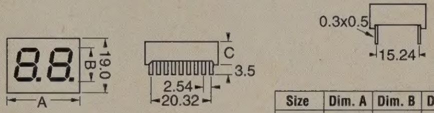
P330-P333, P351-P354



P411-P416

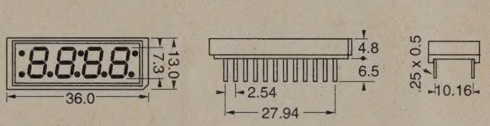


P334-P339, P355-P360



Size	Dim. A	Dim. B	Dim. C
.43	24.0	11.0	6.5
.57	25.1	14.4	8.0

P453-P456



	Absolute Max. Ratings (Ta = 25°C)					Characteristics (Ta = 25°C)					Digi-Key Part No.		Pricing				Panasonic Part No.	
Color	Size	V_R (V)	I_F (mA)	I_{FP}† (mA)	P_D (mW)	at I_F (mA)	IO Typ. (seg.) (µcd)	Typ. (D.P.) (µcd)	at I_F (mA)	VF Typ. (V)	Common Anode	Common Cathode	1	10	200	1000	Common Anode	Common Cathode
Red	0.3A	5	15	80	40	5	200	70	10	2.1	P510-ND	P511-ND	2.48	22.50	387.00	1665.57	LN513RAM	LN513RKM
Green	0.3A	5	15	80	40	10	1,000	300	10	2.1	P512-ND	P513-ND	2.78	25.25	434.30	1869.14	LN513GAM	LN513GKM
Amber	0.3A	5	15	80	40	10	300	100	10	2.0	P514-ND	P515-ND	3.14	28.50	490.20	2109.72	LN513YAM	LN513YKM
Red	0.3B	5	20	100	60	5	400	150	20	2.2	P322-ND	P343-ND	2.01	18.25	313.90	1350.96	LN513RA	LN513RK
Green	0.3B	5	20	100	60	10	1,200	400	20	2.2	P323-ND	P344-ND	2.09	19.00	326.80	1406.48	LN513GA	LN513GK
Amber	0.3B	5	20	100	60	10	600	200	20	2.2	P324-ND	P345-ND	2.45	22.25	382.70	1647.06	LN513YA	LN513YK
Orange	0.3B	3	20	100	60	10	1,000	400	20	2.1	P325-ND	P346-ND	2.45	22.25	382.70	1647.06	LN513OA	LN513OK
Red	.43	5	20	100	60	5	450	150	20	2.2	P326-ND	P347-ND	2.04	18.50	318.20	1369.47	LN514RA	LN514RK
Green	.43	5	20	100	60	10	1,500	500	20	2.2	P327-ND	P348-ND	2.26	20.50	352.60	1517.52	LN514GA	LN514GK
Amber	.43	5	20	100	60	10	600	200	20	2.2	P328-ND	P349-ND	2.67	24.25	417.10	1795.11	LN514YA	LN514YK
Orange	.43	3	20	100	60	10	1,200	500	20	2.1	P329-ND	P350-ND	2.67	24.25	417.10	1795.11	LN514OA	LN514OK
Red	.57	5	20	100	60	5	600	250	20	2.2	P330-ND	P351-ND	2.09	19.00	326.80	1406.48	LN516RA	LN516RK
Green	.57	5	20	100	60	10	1,500	500	20	2.2	P331-ND	P352-ND	2.42	22.00	378.40	1628.55	LN516GA	LN516GK
Amber	.57	5	20	100	60	10	800	300	20	2.2	P332-ND	P353-ND	2.86	26.00	447.20	1924.66	LN516YA	LN516YK
Orange	.57	3	20	100	60	10	1,200	500	20	2.1	P333-ND	P354-ND	2.86	26.00	447.20	1924.66	LN516OA	LN516OK
Red	.82	5	20	100	60	5	450	150	20	2.2	P411-ND	P415-ND	3.69	33.50	576.20	2479.84	LN518RA	LN518RK
Green	.82	5	20	100	60	10	1,500	500	20	2.2	P412-ND	P416-ND	4.07	37.00	636.40	2738.93	LN518GA	LN518GK
Amber	.82	5	20	100	60	10	800	300	20	2.2	P413-ND	—	4.35	39.50	679.40	2924.00	LN518YA	—
Orange	.82	3	20	100	60	10	1,200	500	20	2.1	P414-ND	—	4.35	39.50	679.40	2924.00	LN518OA	—
Red	.43	5	20	100	60	5	450	150	20	2.2	P334-ND	P355-ND	2.67	24.25	417.10	1795.11	LN524RA	LN524RK
Green	.43	5	20	100	60	10	1,500	500	20	2.2	P335-ND	P356-ND	3.08	28.00	481.60	2072.71	LN524GA	LN524GK
Amber	.43	5	20	100	60	10	600	200	20	2.2	P336-ND	P357-ND	3.63	33.00	567.60	2442.83	LN524YA	LN524YK
Red	.57	5	20	100	60	5	600	250	20	2.2	P337-ND	P358-ND	2.67	24.25	417.10	1795.11	LN526RA	LN526RK
Green	.57	5	20	100	60	10	1,500	500	20	2.2	P338-ND	P359-ND	3.08	28.00	481.60	2072.71	LN526GA	LN526GK
Amber	.57	5	20	100	60	10	800	300	20	2.2	P339-ND	P360-ND	4.02	36.50	627.80	2701.92	LN526YA	LN526YK
Red	.28	5	10	60	30	5	200	100	10	2.03	P453-ND*	P454-ND*	10.40	94.50	1625.40	6995.38	LN543RAN8	LN543RKN8
Green	.28	5	10	60	30	10	200	80	10	2.03	P455-ND*	P456-ND*	11.17	101.50	1745.80	7513.56	LN543GAN8	LN543GKN8

* Multiplexed display

† The condition of I_{FP} is duty 10%, pulse width is 1 msec.

Panasonic® LEDs

Package	Lens Size	Color	Electro-Optical Character (Ta=25°C) P_D (mW)	I_F (mA)	V_R (V)	I_O (mcd)	λp (nm)	Dimensions Lens Height	Dimensions Lead Length	Lead Spacing	Digi-Key Part No.	Pricing 10	Pricing 200	Pricing 1,000	Pricing 5,000	Panasonic Part No.
T-1	ϕ3.0	Red Diffused	70	25	4	0.8	700	5.0	15.0, 16.5	2.54	P363-ND	1.96	31.50	116.69	108.01/M	LN28RP
	ϕ3.0	Red Clear	70	25	4	1.5	700	5.0	15.0, 16.5	2.54	P308-ND•	1.96	31.50	116.69	108.01/M	LN28RCP
	ϕ3.0	Green Diffused	90	30	4	2.0	565	5.0	15.0, 16.5	2.54	P364-ND	2.24	36.00	133.36	123.44/M	LN38GP
	ϕ3.0	Green Clear	90	30	4	4.0	565	5.0	15.0, 16.5	2.54	P309-ND•	2.24	36.00	133.36	123.44/M	LN38GCP
	ϕ3.0	Amber Diffused	90	30	4	4.0	590	5.0	15.0, 16.5	2.54	P365-ND	2.52	40.50	150.03	138.87/M	LN48YP
	ϕ3.0	Amber Clear	90	30	4	6.0	590	5.0	15.0, 16.5	2.54	P310-ND•	2.52	40.50	150.03	138.87/M	LN48YCP
	ϕ3.0	Orange Diffused	90	30	4	6.0	630	5.0	15.0, 16.5	2.54	P366-ND	2.52	40.50	150.03	138.87/M	LN88RP
T-1½	ϕ4.0	Red Diffused	70	25	4	1.5	700	6.0	15.0, 16.5	2.54	P367-ND	1.96	31.50	116.69	108.01/M	LN29RPP
	ϕ4.0	Red Clear	70	25	4	1.5	700	6.0	15.0, 16.5	2.54	P311-ND•	1.96	31.50	116.69	108.01/M	LN29RCP
	ϕ4.0	Green Diffused	90	30	4	5.0	565	6.0	15.0, 16.5	2.54	P368-ND	2.24	36.00	133.36	123.44/M	LN39GPP
	ϕ4.0	Green Clear	90	30	4	3.0	565	6.0	15.0, 16.5	2.54	P312-ND•	2.24	36.00	133.36	123.44/M	LN39GCP
	ϕ4.0	Amber Diffused	90	30	4	10.0	590	6.0	15.0, 16.5	2.54	P369-ND	2.52	40.50	150.03	138.87/M	LN49YPP
	ϕ4.0	Amber Diffused	90	30	4	5.0	590	6.0	15.0, 16.5	2.54	P314-ND•	2.52	40.50	150.03	138.87/M	LN49YP
	ϕ4.0	Orange Diffused	90	30	3	10.0	630	6.0	15.0, 16.5	2.54	P370-ND	2.52	40.50	150.03	138.87/M	LN89RPP
	ϕ4.0	Orange Clear	90	30	3	30.0	630	6.0	15.0, 16.5	2.54	P371-ND	2.52	40.50	150.03	138.87/M	LN89RCPP
T-1¾	ϕ5.0	Red Diffused	70	25	4	3.0	700	8.65	12.0, 13.5	2.54	P300-ND•	1.96	31.50	116.69	108.01/M	LN21RPHL
	ϕ5.0	Red Clear	70	25	4	5.0	700	8.65	12.0, 13.5	2.54	P301-ND•	1.96	31.50	116.69	108.01/M	LN21RCPHL
	ϕ5.0	Green Diffused	90	30	4	15.0	565	8.65	12.0, 13.5	2.54	P303-ND•	2.24	36.00	133.36	123.44/M	LN31GPHL
	ϕ5.0	Green Clear	90	30	4	20.0	565	8.65	12.0, 13.5	2.54	P302-ND•	2.24	36.00	133.36	123.44/M	LN31GCPHL
	ϕ5.0	Amber Diffused	90	30	4	8.0	590	8.65	12.0, 13.5	2.54	P306-ND•	2.52	40.50	150.03	138.87/M	LN41YPHL
	ϕ5.0	Amber Clear	90	30	4	20.0	590	8.65	12.0, 13.5	2.54	P304-ND•	2.52	40.50	150.03	138.87/M	LN41YCPHL
	ϕ5.0	Orange Diffused	90	30	3	10.0	630	8.65	12.0, 13.5	2.54	P307-ND•	2.52	40.50	150.03	138.87/M	LN81RPHL
	ϕ5.0	Orange/Red Clear	90	30	3	20.0	630	8.65	12.0, 13.5	2.54	P305-ND•	2.52	40.50	150.03	138.87/M	LN81RCPHL
	ϕ5.0	†Orange Clear	90	30	3	25.0	630	8.65	12.0, 13.5	2.54	P457-ND	2.52	40.50	150.03	138.87/M	LN81CPHL
T-1¾	ϕ5.0	Red Diffused	70	25	4	3.0	700	8.65	25.0, 26.5	2.54	P374-ND	1.96	31.50	116.69	108.01/M	LN21RPH
	ϕ5.0	Green Diffused	90	30	4	15.0	565	8.65	25.0, 26.5	2.54	P375-ND	2.24	36.00	133.36	123.44/M	LN31GPH
	ϕ5.0	Amber Diffused	90	30	4	8.0	590	8.65	25.0, 26.5	2.54	P372-ND	2.52	40.50	150.03	138.87/M	LN41YPH
	ϕ5.0	Orange Diffused	90	30	3	10.0	630	8.65	25.0, 26.5	2.54	P373-ND	2.52	40.50	150.03	138.87/M	LN81RPH
Panel Mounting Clip and Ring											NSC004-ND	.90	14.40	54.00	36.00/M	—

• **LED-KIT-ND** 10 ea. of 14 popular LEDs indicated above plus P315-ND, P316-ND, P318-ND and P319-ND (180 total pieces) **$36.95**
† Water clear lens when off.

Blue LEDs

High Brightness

Max Ratings:

Power Consumption: 120mW
Forward Current: 30mA
Reverse Voltage: 5V
Operating Ambient Temperature: -25 ~ +80°C.
Storage Temperature: -30 ~ +100°C
Water clear lens when off.

Blue LED Precautions in Handling:

A blue LED is sensitive to static electricity and care should be fully taken in handling it. Particularly, when an overvoltage is applied, which exceeds the absolute maximum rating of the blue LED, its energy damages the LED.

Fig. 1 **T-1¾**

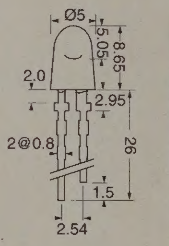


Fig. 2 **T-1¾**

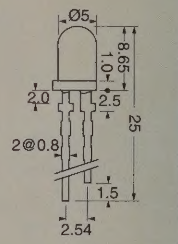


Fig. 3 **T-1¾**

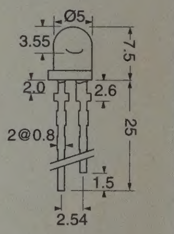


Fig.	Io mcd Max	Io mcd Typ	Io mcd Min	(mA) I_F	VF (V) Max	VF (V) Typ	VF (V) Min	λp Typ	Δλ Typ	(mA) I_F	IR (μA) Max	IR (V) V_R	Viewing Angle (deg)	Digi-Key Part No.	Pricing 1	Pricing 10	Pricing 200	Pricing 1,000	Panasonic Part No.
1	(2400)	1400	800	20	4.0	3.6	3.4	450	70	20	10	5	15	P389-ND	6.58	61.43	1140.75	4875.98	LNG992CF9
2	(840)	500	280	20	4.0	3.6	3.4	450	70	20	10	5	30	P390-ND	6.58	61.43	1140.75	4875.98	LNG901CF9
3	(480)	280	160	20	4.0	3.6	3.4	450	70	20	10	5	45	P384-ND	6.58	61.43	1140.75	4875.98	LNG91LCF9

Digi-Key®

Digi-Key Corporation
701 Brooks Ave. South
Thief River Falls, MN 56701-0677

AMERICAN EXPRESS CARDS
DISCOVER NOVUS
MasterCard
VISA

***ORDER TOLL-FREE*: 1-800-344-4539**

BULK RATE
U.S. POSTAGE
PAID
Digi-Key Corp.

DIGI-KEY: THE SERVICE LEADER!

MORE THAN 1,900 NEW PRODUCTS
FROM OVER 20 MANUFACTURERS
16 ADD'L PAGES IN THIS CATALOG!
SEE PAGE 1 FOR HIGHLIGHTS.
YOUR CUSTOMER NBR: F335052